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Appendix A

SED Incident Investigation Report for 2018 Camp Fire with Attachments

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

Incident Investigation Report

Report Date: November 8, 2019

Incident Number: E20181108-01

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

Date and Time of the Incident: November 8, 2018, 0629 hours

Location of the Incident: Tower :27/222
Pulga, CA
County: Butte

Concow Rd. and Rim Rd. intersection
Concow, CA
County: Butte

Fatality / Injury: 85 fatalities

Property Damage: Unknown

Utility Facilities involved: Caribou-Palermo 115 kV Transmission Line and Big Bend 1101 12 kV Distribution Circuit

Violation: Yes

I. Summary

In the early morning hours on November 8, 2018, a fire ignited near Camp Creek Road near the community of Pulga in Butte County. The California Department of Forestry and Fire Protection (CAL FIRE) determined that the fire was caused by electric transmission lines owned and operated by Pacific Gas and Electric Company (PG&E) near the Pulga area.[1] The CAL FIRE investigation identified that the fire started near Pulga and that there was a second ignition site near the intersection of Concow Road and Rim Road that was caused by vegetation contact with electrical distribution lines owned and operated by PG&E.[2] That fire was overtaken by the fire that started near

[1] CAL FIRE News Release on May 15, 2019.
[2] Id.

Pulga.[3] The resulting Camp Fire burned approximately 153,336 acres, destroying 18,804 structures and resulting in 85 fatalities.[4]

The Caribou-Palermo Transmission Line, identified as the transmission line which caused the Camp Fire,[5] remains de-energized since the fire.

Based on the Safety Enforcement Division's (SED) review, SED found that PG&E violated requirements in the Commission's General Order (GO) 95, GO 165, and Resolution E-4184; and California Public Utilities Code Section 451. SED identified the following PG&E violations:

General Order Rule, Public Utilities Code Requirements	**Violations**
GO 95, Rule 44.3	PG&E failed to replace or reinforce the C-hook on Tower :27/222 (Incident Tower) before its safety factor was reduced to less than two-thirds of the safety factor specified in Rule 44.1, Table 4, which is a violation of Rule 44.3
GO 95, Rule 31.1	PG&E failed to maintain the C-hook supporting the transposition jumper on the Incident Tower :27/222 for its intended use and regard being given to the conditions under which it was to be operated.
GO 95, Rule 31.2	PG&E failed to inspect Incident Tower thoroughly and failed to detect an immediate Safety Hazard or Priority A condition on the incident C-hook.
GO 165, Section IV	PG&E failed to follow its procedures by failing to document the factors and reasons that led to the delay in the repair work on the Incident Tower.
GO 165, Section IV	PG&E failed to conduct detailed climbing inspections when conditions to trigger climbing inspections were evident as specified in PG&E's procedures.

[3] CAL FIRE News Release on May 15, 2019.

[4] Butte County Sheriff's Camp Fire Update (September 25, 2019)

[5] PG&E's 20 Day Report (December 11, 2018) states, "On CAL Fire's website, CAL FIRE has identified coordinates for the Camp Fire near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line."

	Wear on the original working eyes that remained on the Incident Tower is an indication of a known condition with potential to recur on the added hanger plates with working eyes, which should have triggered detailed climbing inspection to examine the added hanger plates.
GO 95, Rule 31.1	The condition of the C-hook (material loss > 50%) supporting the transposition jumper on Tower :24/199 demonstrates that PG&E did not maintain the tower for its intended use.
GO 95, Rule 31.2	PG&E failed to inspect Tower :24/199 thoroughly and failed to detect an immediate Safety Hazard or Priority A Condition on the C-hook.
GO 165, Section IV	C-hook on Tower :24/199 had material loss of over 50%. PG&E failed to detect and correct the Priority A condition as specified in PG&E's procedures.
GO 95, Rule 18	PG&E assigned an incorrect priority for an immediate Safety Hazard (disconnected insulator hold-down anchor on Tower :27/221).
GO 165, Section IV	PG&E failed to follow its procedures by using an outdated inspection form during the detailed climbing inspections that PG&E conducted from September 19 to November 5, 2018.
D.06-04-055, as amended by Resolution E-4184	PG&E failed to report the reportable incident on the Big Bend 1101 12kV Distribution Circuit in a timely manner.
CA Public Utilities Code Section 451	PG&E failed to maintain an effective inspection and maintenance program to identify and correct hazardous conditions on its transmission lines in order to furnish and maintain service and facilities, as are necessary to promote the safety and health of its patrons and the public.

A. Rules and Other Requirements Violated

GO 95, Rule 18(A) [Resolution of Potential Violations of General Order 95 and Safety Hazards] states in part:

"Each company (including electric utilities and communications companies) is responsible for taking appropriate corrective action to remedy potential violations of GO 95 and Safety Hazards posed by its facilities."

"For the purposes of this rule, 'Safety Hazard' means a condition that poses a significant threat to human life or property."

"Each company (including utilities and CIPs) is responsible for taking appropriate corrective action to remedy Safety Hazards and GO 95 nonconformances posed by its facilities."

GO 95, Rule 31.1 Design, Construction and Maintenance states in part:

"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."

GO 95, Rule 31.2 Inspection of Lines states in part:

"Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules. Lines temporarily out of service shall be inspected and maintained in such condition as not to create a hazard."

GO 95, Rule 44.3 Replacement

"Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades "A" and "B" construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade "C" construction to less than one-half of the safety factors specified in Rule 44.1. Poles in Grade "C" construction that only support communication lines shall also conform to the requirements of Rule 81.3A. ***In no case***

***shall the application of this rule be held to permit the use of structures or any member of any structure with a safety factor less than one."*[*Emphasis added*]**

GO 165, Section IV, Transmission Facilities states in part:

"Each utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines."

Appendix B of Commission Decision (D.) 06-04-055, as amended by Resolution E-4184 on August 21, 2008, states in part:

"Within 2 hours of a reportable incident during normal working hours or within 4 hours of a reportable incident outside of normal working hours, the utility shall provide notice to designated CPUC staff of the general nature of the incident, its cause and estimated damage. The notice shall identify the time and date of the incident, the time and date of notice to the Commission, the location of the incident, casualties that resulted from the incident, identification of casualties and property damage, and the name and telephone number of a utility contact person….

2. Reportable incidents are those which: (a) result in fatality or personal injury rising to the level of in-patient hospitalization and attributable or allegedly attributable to utility owned facilities; (b) are the subject of significant public attention or media coverage and are attributable or allegedly attributable to utility facilities; or (c) involve damage to property of the utility or others estimated to exceed $50,000…"

California Public Utilities Code Section 451 states in part:

"Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public."

B. Witnesses

	Name	Title
1	Chris Lee	CPUC Lead Investigator
2	Anwar Safvi	CPUC Investigator
3	Andie Biggs	CPUC Investigator
4	Banu Acimis	CPUC Program and Project Supervisor
5	Lee Palmer	CPUC Deputy Director
6	Tom Kluge	CAL FIRE Fire Captain
7	Shawn Zimmermaker	CALFIRE Division Chief
8	[redacted]	Exponent Investigator
9	[redacted]	PG&E Technician
10	[redacted]	PG&E Technician
11	[redacted]	PG&E, Principal Events Lead

C. Evidence

	Source	Description
1	PG&E	Initial Incident Report, 11/08/18
2	CPUC	Pulga Evidence Collection, 11/14/18
3	PG&E	Second Incident Report, 11/16/18
4	CPUC	Concow Evidence Collection, 11/19/18
5	CPUC	Data Request 1 and 2, 12/06/18
6	PG&E	20-day Incident Report, 12/11/18
7	PG&E	Downloaded Data from Relays at Palermo, Oroville and Table Mountain Substations, 12/14/2018
8	CPUC	Data Request 3, 1/11/19
9	CPUC	Data Request 4, 1/16/19
10	PG&E	Data Request Response to DR 3, 1/17/19 and 1/25/19 (partial)
11	PG&E	Data Request Response to DR 1 and 2, 2/1/19 (partial)
12	CPUC	Data Request 3A, 2/6/19
13	PG&E	Data Request Response to DR 3A, 2/6/19
14	PG&E	Data Request Response to DR 1, 2 and 3, 3/1/19 (partial)
15	PG&E	Priority A Line Corrective Notifications from Enhanced Inspection of the Caribou-Palermo Transmission Line after November 8, 2018, 3/6/18
16	PG&E	Data Request Response to DR 1 and 4, 3/8/19 (partial)
17	PG&E	Data Request Response to DR 1 and 4, 3/18/19 (partial)
18	CPUC	Data Request 5, 3/19/19
19	CPUC	Data Request 6, 3/20/19

20	PG&E	Additional 495 Notifications for the Caribou-Palermo Transmission Line from Enhanced Inspection, 3/20/19
21	CPUC	CP115 Tower :20/160 Evidence collection, 3/28/19
22	CPUC	CP115 Tower :24/199 Evidence collection, 3/29/19
23	PG&E	Data Request Response to DR 1, 2, and 4, 4/2/19 (partial)
24	PG&E	Data Request Response to DR 1, 2, 4 and 6, 4/5/19 (partial)
25	PG&E	Data Request Response to DR 1, 2, 4 and 5, 4/12/19 (partial)
26	PG&E	Data Request Response to DR 1,2, and 6, 4/16/19 (partial)
27	PG&E	Data Request Response to DR 4 and 6, 4/19/19 (partial)
28	PG&E	Data Request Response to DR 4, 5 and 6, 4/26/19 (partial)
29	PG&E	Data Request Response to DR 1 and 4, 5/13/2019 (partial)
30	PG&E	Data Request Response to DR 4 (partial), photos from 3/28/19 & 3/29/19 evidence collection, 5/23/19
31	PG&E	Data Request Response to DR 2 and 4, 6/3/19 (partial)
32	PG&E	Data Request Response to DR 2 and 4, 6/24/19 (partial)
33	CPUC	CPUC Data Request 7, 6/25/19
34	PG&E	Data Request Response to DR 2, 7/15/19 (partial)
35	PG&E	Data Request Response to DR 7, 7/23/19 (partial)
36	CPUC	Data Request 8, 8/2/19
37	PG&E	Data Request Response to DR 4 and 7, 8/5/19 (partial)
38	PG&E	Data Request Response to DR 4 and 7, 8/9/19 (partial)
39	PG&E	Data Request Response to DR 2 and 7, 8/16/19 (partial)
40	PG&E	Data Request Response to DR 7, 8/23/19 (partial)
41	PG&E	Data Request Response to DR 7 and 8, 8/30/19 (partial)
42	PG&E	Data Request Response to DR 7, 9/19/19 (partial)
43	PG&E	Data Request Response to DR 4, 9/26/19 (partial)
44	PG&E	Data Request Response to DR 8, 10/8/19 (partial)
45	CPUC	Data Request 9, 10/8/19
46	CPUC	Data Request 9 Supplemental, 10/15/19
47	PG&E	Data Request Response to DR 9, 10/18/19 (partial)
48	PG&E	Data Request Response to DR 7, 9, 9 Supplemental, 10/25/19 (partial)
49	CPUC	Data Request 10, 10/28/19
50	CPUC	Data Request 11, 10/29/19
51	PG&E	Data Request Response to DR 2, 4, 10, 11/05/19 (partial)
52	PG&E	Data Request Response to DR 10, 11, 11/07/19 (partial)

II. Background

SED investigated the involvement of PG&E facilities in the fire. The goal of SED's investigation is to identify whether there were any violations of the Commission's General Orders, the Public Utilities Code, and related requirements. SED conducted field observations of evidence collection and reviews of PG&E's operations and maintenance procedures and relevant records.

SED's field visits are summarized below:

- November 14, 2018 – SED observed CAL FIRE collect evidence[6] from Tower :27/221 and Tower :27/222 (the "Incident Tower") along the Caribou-Palermo Transmission Line, near the town of Pulga.
- November 19, 2018 – SED observed CAL FIRE collect evidence[7] near the intersection of Concow Road and Rim Road.
- December 4, 2018 – SED and Exponent observed PG&E download relay data from Palermo, Table Mountain and Oroville Substations.
- March 28, 2019 – SED observed CAL FIRE and Butte County collect evidence[8] from Tower :20/160 on the Caribou-Palermo Transmission Line.
- March 29, 2019 – SED observed CAL FIRE and Butte County collect evidence[9] from Tower :24/199 on the Caribou-Palermo Transmission Line.

SED submitted eleven data requests totaling hundreds of questions to PG&E. The questions included requests for procedures, records, forms, and responses to specific questions related to the Camp Fire. In addition to the responses to the data requests, PG&E also provided results of enhanced inspections that were performed on the Caribou-Palermo Transmission Line subsequent to the Camp Fire. PG&E's enhanced inspections utilized aerial drones and climbing of the Caribou-Palermo Transmission Line.

SED's investigation focused on the first ignition point near the town of Pulga – specifically on the Incident Tower and its adjacent tower, Tower :27/221. SED limited its investigation of the second ignition point (the intersection of Concow Road and Rim Road) because the fire from the ignition point near Pulga consumed the fire that started at the second ignition point.

The Incident Tower and associated equipment were initially installed between 1919 and 1921 and were placed into service on May 6, 1921 by the Great Western Power

[6] Bates PGE-CAMP-CPUC-0000000001 (Evidence Collection List, Update 12/18/2018).
[7] Id.
[8] 11/5/2019 PG&E response to CPUC data request SED-010, Question 1.
[9] 11/5/2019 PG&E response to CPUC data request SED-010, Question 2.

Company.[10] PG&E took ownership of the Caribou-Palermo Transmission Line in 1930.[11]

The Caribou-Palermo Transmission Line connects PG&E's Caribou #1 Powerhouse to the Palermo Substation.[12] Circuit Breaker (CB) 112 is the protection device on the north end of the line, located at the Caribou #1 Powerhouse. CB 152 is the protection device on the south end of the line, located at the Palermo Substation.[13]

III. SED Review and Analysis

A. Timeline Summary of the Incident

November 8, 2018

- Wind speed and wind gusts recorded at 0610 hours at the Stirling City weather station were 10.27 mph and 36.39 mph respectively.[14] The Stirling City weather station is a PG&E weather station located closest to the two ignition points identified by CAL FIRE.

- At approximately 0457 hours on November 8, 2018, the Supervisory Control and Data Acquisition (SCADA) data from the Palermo Substation[15] showed the current in the line reached approximately 80 Amps[16] as shown in Figure 1.

- At 0615 hours, a Palermo Substation relay detected a ground fault current of 256 Amps and opened Circuit Breaker (CB) 152.[17]

- At 0615 hours, a Caribou #1 Powerhouse relay detected a ground fault current of 202 Amps and opened CB 112. The fault was isolated with both circuit breakers 152 and 112 opening.[18]

- According to CAL FIRE's website, the fire started at 0629 hours at 39.82° latitude and -121.44° longitude.[19] These coordinates correspond to a

[10] 2/1/2019 PG&E response to CPUC data request SED-001, Question 37.
[11] PG&E Response to Notice Re California Wildfires - Case 3:14-cr-00175-WHA, Document 956, Exhibit A (Filed 12/31/18).
[12] Bates PGE-CAMP-CPUC-0000002534.
[13] Bates PGE-CAMP-CF-0000000123.
[14] Bates PGE-CAMP-CPUC-0000012017 in response to Data Request SED-001, Question 49.
[15] Bates PGE-CAMP-CF-0000000121.
[16] Bates PGE-CAMP-CF-0000000121.
[17] 4/2/2019 PG&E response to CPUC data request SED-001, Caribou-Palermo, Question 4.
[18] 4/2/2019 PG&E response to CPUC data request SED-001, Caribou-Palermo, Question 4.
[19] CAL FIRE Incident Website at: https://inciweb.nwcg.gov/incident/6250/

location near the Incident Tower of the Caribou-Palermo 115 kV Transmission Line.[20]

- At 0630 hours, a PG&E employee observed fire in the vicinity of the Incident Tower, and this observation was reported to 911 by PG&E employees.[21]

- At 0645 hours, PG&E Big Bend 1101 12 kV Distribution Circuit experienced an outage.[22]

- The outage was a result of an open operation of Line Recloser 1704 - a protection device on PG&E's Big Bend 1101 12 kV Distribution Circuit.

- Between approximately 0900 and 1300 hours, PG&E conducted an aerial patrol of the Caribou-Palermo 115 kV Transmission Line. At the Incident Tower, the patrol identified a suspension insulator supporting a transposition jumper that had disconnected from an arm on the tower.[23,24]

- At 1806 hours, PG&E submitted an incident report to the CPUC, reporting the outage on the Caribou-Palermo Transmission Line, and an observation of damage to a transmission tower near Pulga, in the area of the Camp Fire.

November 15, 2018

- At approximately 1800 hours, CAL FIRE held a press conference during which it identified a "possible second origin related to the Camp incident in the Concow area."[25]

November 16, 2018

- At 1600 hours, PG&E reported the outage on the Big Bend 1101 12 kV Distribution Circuit.

[20] PG&E's 20 Day Report (December 11, 2018).
[21] PG&E's 20 Day Report (December 11, 2018).
[22] PG&E's 20 Day Report (December 11, 2018).
[23] PG&E's 20 Day Report (December 11, 2018).
[24] 2/1/2019 PG&E response to CPUC data request SED-001, Question 1.
[25] 2/1/2019 PG&E response to CPUC data request SED-001 – Big Bend 1101 Distribution, Question 1.

B. Field Review

1. Observations

SED visited the incident site on November 14, 2018 along with Tom Kluge and Shawn Zimmermaker of CAL FIRE. The incident site is located at 39.82º latitude and -121.44º longitude, near the town of Pulga.[26]

At first, SED made observations at Tower :27/221, adjacent to the Incident Tower. The distance between the two towers is approximately 845 feet.[27] SED observed that the hold-down anchor on Tower :27/221 had disconnected from the suspension insulator. This is shown in Figure 2.

The Incident Tower is a dead-end transposition tower. On the Incident Tower, SED observed that a suspension insulator supporting a transposition jumper had separated from an arm of the tower and remained suspended above the ground (Figure 3). Prior to the failure, two C-hooks provided mechanical support to the incident transposition jumper; and each C-hook carried a load of approximately 143 lbs.[28] One of the C-hooks failed at the point where it had been in contact with the hanger plate. SED made a close observation of the portion of the failed C-hook that remained attached to the separated suspension insulator. SED observed that most of the cross-section was flat and smooth. At the upper portion of the cross-section – approximately the top 20 to 25 % of the cross-section of the C-hook where the failure occurred – the surface of the metal was rough, and a small, sharp piece of the material jutted out. In SED's assessment: the smooth portion is an indication of wear that occurred over a long period of time prior to failure; the rough upper portion of the cross-section fractured at the time of the incident. The observations are confirmed by the photo in Figure 4. SED also observed flash marks on the transposition jumper which SED concluded were a result of arcing between the jumper and the tower (Figure 5).

SED observed that hanger plates had been added to the left and right runner arms on the Incident Tower. PG&E could not locate records that identify when the hanger plates were added.[29] However, both the original runner arms, which remained in place, and the added hanger plates showed signs of wear on the working eyes as shown by

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[26] CAL FIRE Incident Website at: https://inciweb.nwcg.gov/incident/6250/

[27] 2/1/2019 PG&E response to the CPUC data request SED-001, Question 39.

[28] 7/23/2019 PG&E response to CPUC data request SED-007, Question 2: PGE-CAMP-CPUC-06252019-DR_SED-007_Q02_Camp Fire.

[29] In its July 23, 2019 response to CPUC data request SED-007, Question 12, PG&E states it has not been able to identify the installation date for the hanger plates. In its April 2, 2019 response to CPUC data request SED-002, Question 32, PG&E states that approximately around 2000-2001, it began using Systems Applications and Products (SAP), an electronic system for processing all work orders for distribution and transmission assets. Before that, work orders for transmission assets were maintained in hard copies.

elongated holes in Figure 6 and Figure 7. For reference, Figure 8 shows a typical location of runner arms on transmission towers that have them.

On March 29, 2019, SED observed evidence collected from Tower :24/199 on the Caribou-Palermo Transmission Line. SED observed significant wear on the right phase suspension insulator C-hook (Figure 9). By SED's conservative estimation, the area of the C-hook that rests on the hanger plate was worn over 50% through. The cross-section of the C-hook, where the material was worn away, was flat and smooth. The March 29, 2019 evidence collection was requested by the Butte County District Attorney in addition to CAL FIRE.

Tower :24/199 is a transposition tower, similar in configuration to the Incident Tower. It is located approximately three miles north of the Incident Tower.

2. Analysis

As C-hooks wear down, the load they can support decreases. The failure of the C-hook supporting the transposition jumper on the Incident Tower shows that it could not support the load it was intended to support. A safety factor of less than one means the point has been reached at which the load exceeds the strength of the material. SED determined that PG&E failed to inspect the tower and the C-hook thoroughly to identify the deterioration. According to Rule 44.3, lines or parts thereof must be replaced or reinforced before safety factors have been reduced to less than two-thirds of the safety factor specified in Rule 44.1 which shows safety factors in Table 4. PG&E was required to maintain the safety factor above 1.33, which is two-thirds of 2, at all times. PG&E violated GO 95, Rule 44.3 because it failed to maintain the safety factor of the C-hook above 1.33; in fact, the safety factor was less than one when it failed on November 8, 2018. In addition, PG&E violated GO 95, Rule 31.1, by not maintaining the Incident Tower on the Caribou-Palermo Transmission Line for its intended use to enable the furnishing of safe, proper, and adequate service.

The C-hook on Tower :24/199 showed material loss of over 50% in the cross section where it contacted the hanger plate. This assessment was based on SED's field observation of the C-hook, in addition to confirmation by the photo taken. Based on PG&E's Electric Transmission Preventive Maintenance (ETPM) Manual,[30] this is a hazardous Priority A[31] condition which requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. The hazardous condition of the C-hook demonstrates that PG&E did not maintain Tower :24/199 for its intended use, a violation of Rule 31.1. Further, PG&E's failure to follow

[30] TD-1001M Electric Transmission Preventive Maintenance Manual, Table 8, page 24 (Rev: 03).

[31] TD-1001M Electric Transmission Preventive Maintenance Manual, Table 7, page 18 (Rev: 03). Priority A requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out. Corrective actions are required within 3 months, 12 months, and 24 months for Priority levels B, E, and F respectively.

its procedures and detect and correct this Priority A condition is a violation of GO 165, Section IV, which states in part:

> "*Each utility shall prepare and follow procedures for conducting inspections and maintenance activities for transmission lines.*"[32]

C. Procedures and Records Review

1. PG&E's Applicable Procedures and Records

PG&E's ETPM Manual, Table 13 (May 12, 2016, Rev: 03)[33] lists PG&E's inspection frequencies for detailed inspections of 115 kV steel transmission towers.

PG&E procedures require detailed overhead transmission inspections – ground or aerial – at least once every 5 years. PG&E procedures do not require routine detailed climbing inspections but specify conditions that trigger such inspections.[34] Inspectors are required to look for abnormalities or circumstances that would negatively impact safety, reliability, or asset life. Per PG&E policy, each abnormal condition identified by PG&E inspectors must be assigned a Priority Code and recorded with a deadline for corrective action, if the problem is not corrected in the field when found.

In addition to detailed inspections, PG&E procedures require annual patrol inspections via walking, driving or flying over the assets. The inspector's primary responsibility when conducting an overhead electric facility patrol inspection is to visually observe the electric facilities, looking for obvious structural problems or hazards without using measuring devices, tools, or diagnostic tests, and to record that the facilities have been patrolled. Per PG&E policy,[35] abnormal conditions that, in the opinion of the inspector, warrant maintenance before the next scheduled patrol or inspection, must be identified, assigned a Priority Code, and recorded with a deadline for corrective action.

The following are some of the relevant PG&E documents that SED reviewed during its investigation:

- Incident reports for the Camp Fire[36]
- Aerial patrol records from 2014 – 2018[37]

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[32] GO 165, Section IV.
[33] Bates PGE-CAMP-CPUC-0000002575.
[34] TD-1001M Electric Transmission Preventive Maintenance Manual, Table 13, page 41 (Rev :03).
[35] TD-1001M Electric Transmission Preventive Maintenance Manual, Section 3.1, page 51 (Rev :03).
[36] PG&E Incident Report No. 181108-9002, 181116-9015, 20-day report.
[37] Bates PGE-CAMP-CPUC-0000000443-0000000516.

- Detailed ground inspection reports for 2001, 2003, 2005, 2009 and 2014[38]
- A list of all patrols and inspections performed on the Caribou-Palermo Transmission Line from January 2001 to October 2018[39]
- A table of all work orders created by patrols and inspections on the Caribou-Palermo Transmission Line from January 2001 to October 2018[40]
- Records of detailed climbing inspections performed along the Caribou-Palermo Transmission Line from September 19 – November 5, 2018[41]
- TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 09/18[42]
- TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 03/16[43]
- TD-1001M-JA02 Detailed Climbing Inspection Job Aid (Effective 09/24/2018, Rev: 1)[44]

2. SED's Analysis

a) Incident Reporting

PG&E failed to report the outage as potentially related to the second CAL FIRE ignition point, near Concow Road/Rim Road, within the timeframe required by Appendix B of D.06-04-055, as amended by Resolution E-4184. On November 15, 2018, at approximately 1800 hours, CAL FIRE held a press conference during which it identified a "possible second origin related to the Camp incident in the Concow area."[45] On November 16, 2018, at approximately 1600 hours, PG&E submitted the Electric Incident Report[46] for this outage potentially related to the additional ignition point identified by CAL FIRE.[47] This incident report was sent approximately 22 hours after CAL FIRE's press conference, rather than the required 4 hours, a violation of Appendix B of D.06-04-055, as amended by Resolution E-4184.

b) Patrol Inspections

During an aerial patrol inspection of the Caribou-Palermo Transmission Line on September 11, 2018, a PG&E crew observed that an insulator hold-down anchor on

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[38] 3/1/2019 PG&E response to CPUC data request SED-001, Question 4 (for 2009, 2014 reports). 4/2/2019 PG&E response to CPUC data request SED-002, Questions 21 (for 2001, 2003, 2005 reports). PG&E's data request response on 10/25/2019 states, "… the terms 'inspection' and 'patrol' appear to be used interchangeably" until 2005.

[39] 4/2/2019 PG&E response to CPUC data request SED-002, Question 20.

[40] 4/2/2019 PG&E response to CPUC data request SED-002, Question 21.

[41] 4/2/2019 and 6/24/2019 PG&E responses to CPUC data request SED-002, Questions 21.

[42] Bates PGE-CAMP-CPUC-0000019432.

[43] Bates PGE-CAMP-CPUC-0000020061.

[44] Bates PGE-CAMP-CPUC-0000019292.

[45] 2/1/2019 PG&E response to CPUC data request SED-001 – Big Bend 1101 Distribution, Question 1.

[46] Initial Electric Incident Report – PG&E Incident No: 181116-9015, November 16, 2018.

[47] CAL FIRE News Release, CAL FIRE Investigators Determine Cause of the Camp Fire, dated May 15, 2019.2019; PG&E EIR No. EI181108B and SED Incident No. E20181116-01.

Tower :27/221 had disconnected from a suspension insulator. PG&E assigned the condition a Priority Code E.[48] As defined in the ETPM Manual, the Priority E designation is for conditions which must receive corrective action within 12 months. SED notes that during additional enhanced inspections that PG&E performed after the Camp Fire, PG&E assigned a Priority A code for a separate broken hold-down insulator hardware on a different tower on the Caribou-Palermo Transmission line.[49] According to a PG&E lineman who was at the site on November 14, 2018 the hold-down anchor on Tower :27/221 was not broken, but rather had become unscrewed. Nevertheless, the hazardous condition created by an unscrewed hold-down anchor is similar to that created by a broken hold-down anchor. SED concludes that the unscrewed insulator hold-down anchor on Tower :27/221 should have been designated Priority A. This is a violation of GO 95, Rule 18.

c) Detailed Ground Inspections

PG&E procedures require detailed ground inspections at a minimum of once every 5 years. For the Caribou-Palermo Transmission Line, PG&E conducted detailed inspections on August 31, 2009[50] and August 28, 2014.[51] The Incident Tower is a lattice steel structure. As part of the detailed inspection of the line, PG&E inspected the Incident Tower on August 31, 2009 and August 28, 2014. During the August 31, 2009 inspection, PG&E created a maintenance tag (Line Corrective Notification #103995542) for replacement of 3-bolt connectors, a device joining conductors, which was required to be completed by November 30, 2015.[52] However, the corrective action was completed on June 18, 2016.[53] PG&E did not document the reason for the delayed work, which is a violation of its own policy.[54]

PG&E's failure to follow its procedures in the ETPM Manual by failing to document the factors and reasons that led to the delay in the repair work on the incident tower is a violation of GO 165, Section IV.

d) Detailed Climbing Inspections

SED reviewed PG&E's detailed climbing inspection records from September 19 to November 5, 2018 and found two instances of GO 165, Section IV violations.

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[48] TD-1001M Electric Transmission Preventive Maintenance Manual (Rev: 03). Priority A requires immediate corrective action, and resolution within 1 month. Corrective action is required within 3 months for Priority B, 12 months for Priority E, and 24 months for Priority F.

[49] For example, Notification 115410939 from March 6, 2018 letter from Meredith Allen of PG&E to Lee Palmer of the CPUC.

[50] Bates PGE-CAMP-CPUC 0000003928-0000003996.

[51] Bates PGE-CAMP-CPUC 0000003997-0000004056.

[52] 4/16/2019 PG&E response to CPUC data request SED-006, Question 2.

[53] 4/16/2019 PG&E response to CPUC data request SED-006, Question 2.

[54] TD-1001M Electric Transmission Preventive Maintenance Manual, Section 1.5.3, Page 19 (Rev :03). The section states in part "… notifications that go beyond the due date should be documented as to the factor(s) that led to the notification not being completed on time." LC notification #103995542 was completed more than 6 months late with no documentation explaining the cause of the delay.

As a result of Line Corrective ("LC") Notification 114730861, which required a detailed [climbing] inspection of all steel structures on the Caribou-Palermo Transmission Line,[55] PG&E performed detailed climbing inspections on a portion of the towers of the Caribou-Palermo Transmission Line between September 19 and November 5, 2018. Before PG&E could inspect all the structures, the activity was halted by the Camp Fire. The Incident Tower was not one of the structures inspected within this timeframe. The reason for PG&E's inspections was to assess the condition of its lines for asset management strategy.[56] SED's review of PG&E's records for these inspections found that the inspectors had used an outdated inspection form TD-1001M-FXX 03/16 (Figure 10).[57] The form that was in effect at the time of the inspections was TD-1001M-F04 (09/18) (Figure 11).[58] Since PG&E did not follow its own procedure, it is in violation of GO 165, Section IV.

Also, the visible wear on the original runner arms on the Incident Tower (Figures 6 and 7) should have been an indication of the potential for similar problems with wear on the added hanger plates, triggering planned follow-up detailed climbing inspections. SED notes that during additional enhanced inspections that PG&E performed after the Camp Fire, PG&E assigned a Priority A code for 13 towers on the Caribou-Palermo Transmission Line where similar visible wear on the working eyes of the hanger plate was detected.[59]

Regarding the factors that trigger detailed climbing inspections, the ETPM Manual, page 41 states in part:

> "Triggers are specific conditions that require follow-up inspections and/or maintenance scheduled by the supervisor, independent of the routine schedule. The following triggers can be applied … [k]nown, recurring conditions that jeopardize line integrity …"[60]

However, based on PG&E's records of detailed climbing inspections that SED reviewed, PG&E did not perform any climbing inspections triggered by specific conditions on the Incident Tower between at least 2001 and the time of the Camp Fire. This omission is a violation of PG&E's own policy requiring climbing inspection on towers where recurring problems exist. SED notes that a climbing inspection of the Incident Tower during that time could have identified the worn C-hook before it failed, and that its timely replacement could have prevented ignition of the Camp Fire. For these reasons,

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[55] 4/23/2019 PG&E response to CAL FIRE data request.
[56] 10/18/2019 PG&E response to CPUC data request SED-008, Question 1.
[57] For example, Bates PGE-CAMP-CF-0000006474.
[58] Bates PGE-CAMP-CPUC-0000019432.
[59] Bates PGE-CAMP-CPUC-0000004144, Bates PGE-CAMP-CPUC-0000004297, Bates PGE-CAMP-CPUC-0000004270, Bates PGE-CAMP-CPUC-0000004439, Bates PGE-CAMP-CPUC-0000004232, Bates PGE-CAMP-CPUC-0000004359, Bates PGE-CAMP-CPUC-0000004327, Bates PGE-CAMP-CPUC-0000004371, Bates PGE-CAMP-CPUC-0000004255, Bates PGE-CAMP-CPUC-0000004218, Bates PGE-CAMP-CPUC-0000004430, Bates PGE-CAMP-CPUC-0000004237, Bates PGE-CAMP-CPUC-0000004337.
[60] TD-1001M Electric Transmission Preventive Maintenance Manual (Rev: 03).

PG&E's failure to conduct detailed climbing inspections of the Incident Tower is a violation of GO 165, Section IV.

e) PG&E's Transmission Infrastructure Patrol and Detailed Inspection Program

SED examined PG&E inspection records from January 2001 to October 2018 and found that PG&E inspected the Caribou-Palermo Transmission Line according to its own required time intervals. However, the inspections were not thorough. The C-hooks from the Incident Tower (Figure 4) and from Tower :24/199 (Figure 9) show significant wear that was not detected as part of PG&E's transmission infrastructure patrol and inspection program. For each of the two towers, this is a violation of GO 95, Rule 31.2, which states in part:

> *"Lines shall be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition so as to conform with these rules."*

D. Adequacy of PG&E's Transmission Inspection and Maintenance Programs Before the Camp Fire

Public Utilities Code Section 451 states in part:

Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities … as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

As set forth below, SED's investigation of the Camp Fire found that the identified shortcomings in PG&E's inspection and maintenance of the incident tower were not isolated, but rather indicative of an overall pattern of inadequate inspection and maintenance of PG&E's transmission facilities.

1. PGE's Electric Transmission Preventive Maintenance Manual

PG&E's ETPM Manual contains procedures for PG&E's transmission inspection and maintenance program. The version at the time of the Camp Fire incident and the previous two versions of the manual require detailed inspection (ground or aerial) every five years for transmission lines operating below 500 kV. All overhead transmission line facilities are patrolled annually. Detailed climbing or aerial lift inspection, while not routine, are required to be performed if triggered by specific conditions listed in the procedure.

The routine patrols and the ground and aerial inspections have been ineffective in finding cold-end hardware defects, which shows that the current and prior inspection and maintenance programs were inadequate.

Of particular importance, regarding the C-hook that failed and led to the Camp Fire, PG&E's historical patrol and detailed inspection forms did not specify or record results of cold-end hardware assessments. And climbing inspection forms did not contain assessment fields for such hardware until September 2018. See Figure 12 and Figure 13. This raises the question of whether inspectors were evaluating cold-end hardware even when they performed climbing inspections. As of September 2018, PG&E has made improvements and its current climbing inspection form includes assessment fields for cold-end hardware.

2. Enhanced Inspections Before and After the Camp Fire

PG&E performed detailed climbing inspections on a portion of the towers of the Caribou-Palermo Transmission Line, but not the Incident Tower, between September 19 and November 5, 2018.

In December 2018, PG&E launched what it called a Wildfire Safety Inspection Program (WSIP),[61] which included enhanced safety inspections of transmission, distribution, and other facilities in or near high fire threat areas. The inspections included climbing and/or drone inspections of overhead transmission facilities. The WSIP inspections, which were not part of PG&E's routine inspection program described in the ETPM Manual, found over 5,000 hazardous conditions that resulted in Priority A or Priority B tags on the inspected transmission lines, none of which had been identified previously by PG&E's routine patrol and detailed inspections.[62]

PG&E stated that it also performed climbing inspections of the Caribou-Palermo Transmission Line on or after November 8, 2018 but before the WSIP was launched.[63] As a result of the climbing inspections that PG&E performed after the Camp Fire but before WSIP, and the inspections performed as part of the WSIP program, PG&E found problems on the Caribou-Palermo Transmission line that led to 29 Priority A tags,[64] and also a total of 495 problems on the line that warranted Priority B, E, or F tags.[65]

In addition to the problems found on the Caribou-Palermo Transmission Line, SED notes in particular that PG&E's WSIP inspections found hazardous conditions on 22 towers of the Ignacio-Alto-Sausalito 60 kV Transmission Line that required emergency maintenance, including replacement of at least 10 steel lattice towers and reinforcement of 12 steel lattice towers.[66]

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[61] PG&E's presentation of Wildfire Safety Inspections, CPUC SED Meeting, June 18, 2019.
[62] PG&E's presentation of Electric Operations Prioritization to SED on August 20, 2019.
[63] March 6, 2019 letter from Meredith Allen of PG&E to Lee Palmer of the CPUC; March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC.
[64] Id.
[65] March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC.
[66] August 16, 2019 PGE-CPUC_06072019-DR_IgnacioAltoSausalito_Q04, PG&E's response to Data Request Question 4.

3. Exponent Study and SED Conclusions

PG&E retained Exponent to conduct an independent analysis of the cause of the relatively high number of high priority tags that the enhanced WSIP inspections found on the Caribou-Palermo Transmission Line compared to similar lines. Exponent has identified several items of note, including:

- From 2001 to November 2018, the Caribou-Palermo Transmission Line underwent patrol and detailed ground inspections at frequencies similar to the inspections of comparable transmission lines identified by Exponent. PG&E's routine patrol and detailed ground inspections yielded comparable numbers of normalized[67] high-priority tags for Caribou-Palermo and comparison lines.[68] However, the enhanced WSIP inspections found a much higher number of high priority tags for the Caribou-Palermo Line, relative to the comparable lines.[69]

  Based on these findings, SED concludes that PG&E's inspection and maintenance program before the Camp Fire was inadequate in identifying and correcting defects in the Caribou-Palermo Transmission Line.

- Cold-end insulator hardware-related problems were responsible for the highest number of Priority A tags that PG&E found post Camp Fire on the Caribou-Palermo Transmission Line.[70]

  Based on these findings, SED concludes that cold-end hardware defects were not being identified during routine inspection and maintenance activities, which is of particular concern because equipment failure of this type caused the Camp Fire.

- Tower foundation-related problems on the Caribou-Palermo Transmission Line accounted for the greatest number of Priority B tags that PG&E found on the line post Camp Fire.[71] Priority B tags require corrective action to be performed within 3 months.[72] Photographs show not only a buried foundation

[67] To best compare lines of different lengths with different numbers of structures, tag counts were normalized by dividing the number of tags by the number of single circuit steel lattice towers.
[68] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 76, Conclusion 10.
[69] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 1.
[70] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 3.
[71] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 3.
[72] TD-1001M Electric Transmission Preventive Maintenance Manual, Table 7, page 18 (Rev :03).

but also buried steel components.[73] This type of soil coverage can increase the risk of corrosion of steel components.[74]

The amount of soil movement shown in the photographs develops over time, so SED concludes that these problems were either undetected or ignored during routine inspections and maintenance.

- The Caribou-Palermo, Bucks Creek-Rock Creek, and Cresta-Rio Oso lines are located in the North Fork Feather River Canyon, and each of these lines exhibited high-priority cold-end hardware-related tag counts more than three times higher than the next highest comparison line when normalized for the number of steel lattice towers.[75] While the specific cause(s) of the cold-end hardware-related problems have not been identified, the Caribou-Palermo and the other North Fork Feather River Canyon lines appear to have some unique factors, such as exposure to high duration wind, structural characteristics, age, and/or historical inspection methodologies[76] that make them more susceptible to cold-end hardware-related problems.

  Regardless of the specific root causes of the problems, the fact is that PG&E had not identified this vulnerability. SED concludes that this indicates the inadequacy of PG&E's inspection and maintenance program to identify and account for local conditions in the North Fork Feather River Canyon.

4. SED's Conclusion of the Adequacy of PG&E's Transmission Inspection and Maintenance Programs

The initial climbing inspections after the Camp Fire, the enhanced WSIP inspections, and Exponent findings all demonstrate that PG&E's inspection and maintenance program was inadequate in identifying and correcting defects in its transmission lines, and inadequate in identifying local conditions that might trigger a need for enhanced inspection and maintenance activities. SED concludes that PG&E's transmission inspection and maintenance program prior to the Camp Fire was inadequate to ensure that PG&E's transmission lines, including the Caribou-Palermo Transmission Line, were in good condition to allow them to operate in a safe manner, in violation of Public Utilities Code Section 451.

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[73] March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC.
[74] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 20.
[75] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 75, Conclusion 5.
[76] Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019, page 76, Conclusion 14.

IV. Figures

Figure 1: Chart of SCADA data recorded at Circuit Breaker 152 on the Caribou-Palermo 115 kV Transmission Line just before the incident.[77]

[77] For certain times in the SCADA data provided by PG&E, more than one load reading was recorded for certain phases. SED used the minimum load reading for each phase to produce Figure 1.

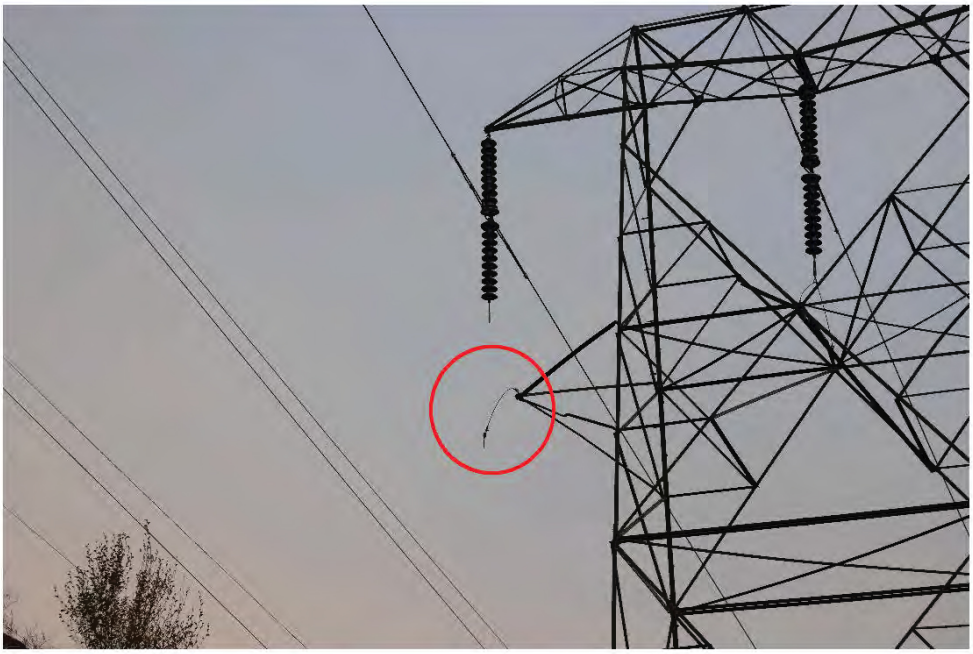

Figure 2. At Tower :27/221, an insulator hold-down anchor was disconnected. Photo provided by PG&E.[78]

Figure 3. At the Incident Tower, an insulator detached from the hanger plate and hung upside down. Photo provided by PG&E.[79]

[78] 1/17/2019 PG&E response to CPUC data request SED-003 (IMG_0038).
[79] 1/17/2019 PG&E response to CPUC data request SED-003 (IMG-0123).

Figure 4. The failed C-hook on the Incident Tower. Photo provided by PG&E.[80]

Figure 5. Flash marks on the transposition jumper and steel member on the Incident Tower. Photo provided by PG&E.[81]

[80] 1/17/2019 PG&E response to CPUC data request SED-003 (IMG_0204).
[81] 1/17/2019 PG&E response to CPUC data request SED-003 (PB130051).

CAMP-0023

Figure 6. The left runner arm and the added hanger plate from the Incident Tower.[82]

Figure 7. The right runner arm and the added hanger plate from the Incident Tower prior to removal from the tower for evidence. Photo provided by PG&E.[83]

[82] Photo taken by Chris Lee of the CPUC on 11/14/2018.
[83] 1/17/2019 PG&E response to CPUC data request SED-003 (PB130077).

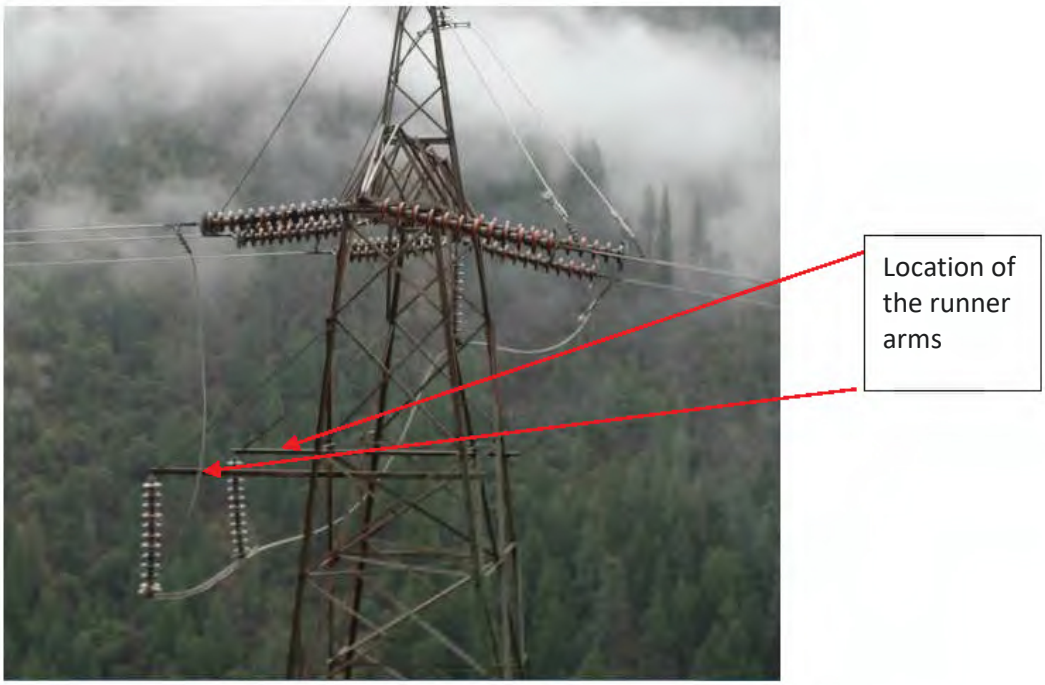

Figure 8. Typical location of runner arms on transmission towers similar to the Incident Tower. This is PG&E Tower :20/160 of the Caribou-Palermo 115 kV Transmission Line.[84]

Figure 9. The right phase suspension insulator C-hook removed from Tower :24/199.[85]

[84] Photo taken by Andie Biggs of the CPUC on 3/28/2019.

[85] Photo taken by Chris Lee of the CPUC on 3/29/2019.

Pacific Gas and Electric Company

Steel Structure Detailed Climbing Inspection (Non-500 kV Structures)

Elec. Trans. ETPM Form TD-1001M-FXX 03/16

The 500 kV Tower Line Climbing Inspection Form provides a ready reference to ensure a thorough inspection.

- It is intended that the items on Page 2 of the form will be inspected during the climbing inspection.
- Refer to the ETPM Manual for guidance regarding the Facility, Damage, and Action

Structure #: 10/86	Line Name: CARIBOU-PALERMO	Voltage: 115	SAP Structure ID #: 40816572
Date Inspected: 10/30/18	Inspected By: [redacted]		ETL #: 3190
Order #: 43382525	Notification Required:	No ☑	Yes ☐ Notification #:
Comments: Hiker : [redacted]			
Inspector Review: [redacted] (Signature)		LAN ID: [redacted]	Date: 10/30/18
Supervisor Review: (Signature)		LAN ID:	Date:

PRIORITY CODES

N/A	Does not apply to this location
NP	No problem found
	Using Priority Code requires a Condition and Action to be documented
PC	Problem corrected at the time of inspection
A	Perform work immediately
B	Perform work within 3 months
E	Perform work within 12 months
F	Perform work within 24 months

INSTRUCTIONS

1. The Facility, Damage, and Action Codes (FDA), are to be in accordance with the Electric Transmission Preventive Maintenance Manual.
2. Send completed forms to:
   Tower Dept. Davis
   500kv Inspection file
   315 "L" Street,
   Davis, CA 95616

Page 1 of 3

PGE-CAMP-CF-0000006474

Pacific Gas and Electric Company

Steel Structure Detailed Climbing Inspection (Non-500 kV Structures)

Elec. Trans. ETPM Form TD-1001M-FXX 03/16

CHECK THIS ITEM	Condition Found N/A	NP	PC	A	B	E	F	Damage	Action	COMMENTS
ANCHOR FOUNDATION										
Concrete is at least 6" above ground line	☑	☐	☐	☐	☐	☐	☐			
Concrete is not cracked or deteriorated	☑	☐	☐	☐	☐	☐	☐			
Concrete is sealed and water proofed	☑	☐	☐	☐	☐	☐	☐			
Earth around anchors is not eroded	☑	☐	☐	☐	☐	☐	☐			
Anchors have no evidence of pull out?	☑	☐	☐	☐	☐	☐	☐			
Do anchors consist of loops or rods?	☑	☐ Loops		☐ Rods						
GUY WIRE										
Guys are properly tensioned	☑	☐	☐	☐	☐	☐	☐			
Turnbuckle punched	☑	☐	☐	☐	☐	☐	☐			
Proper guy cable and hardware used	☑	☐	☐	☐	☐	☐	☐			
6" of travel left in turnbuckle	☑	☐	☐	☐	☐	☐	☐			
Preform cross bar properly installed	☑	☐	☐	☐	☐	☐	☐			
Guy wire dipped properly	☑	☐	☐	☐	☐	☐	☐			
Preform grips in thimbles	☑	☐	☐	☐	☐	☐	☐			
Correct number of guys	☑	☐	☐	☐	☐	☐	☐			
Automatic Guy Splice Present		☑ No		☐ Yes						
STRUCTURE FOUNDATIONS										
Concrete is at least 6" above ground line	☐	☑	☐	☐	☐	☐	☐			
Concrete is not cracked or deteriorated	☐	☑	☐	☐	☐	☐	☐			
Rebar Exposed	☐	☑	☐	☐	☐	☐	☐			
Concrete is sealed and water proofed	☐	☐	☑	☐	☐	☐	☐			
Earth around structure is not eroded	☐	☑	☐	☐	☐	☐	☐			
Direct buried steel grillage	☑	☐	☐	☐	☐	☐	☐			
Piles exposed	☑	☐	☐	☐	☐	☐	☐			
Piles rotted/deteriorated	☑	☐	☐	☐	☐	☐	☐			
STRUCTURE/STEEL										
Tower is plumb and not leaning	☐	☑	☐	☐	☐	☐	☐			
Tower legs straight, not bowed or twisted	☐	☑	☐	☐	☐	☐	☐			
High voltage signs per E.D. 322108	☐	☐	☑	☐	☐	☐	☐			
Tower no. & line name per E.D. 322108	☐	☑	☐	☐	☐	☐	☐			
Anti-climbing guard per E.D. 322108	☑	☐	☐	☐	☐	☐	☐			
Climbing steps installed correctly & are in good condition	☑	☐	☐	☐	☐	☐	☐			
Broken or bent members	☐	☑	☐	☐	☐	☐	☐			
Loose or missing steel members	☐	☑	☐	☐	☐	☐	☐			
Loose bolts	☐	☑	☐	☐	☐	☐	☐			
Missing bolts	☐	☑	☐	☐	☐	☐	☐			
All bolt threads are double punched	☐	☑	☐	☐	☐	☐	☐			
Galvanized finish is OK	☐	☑	☐	☐	☐	☐	☐			
Galvanic applied to unfinished areas	☐	☑	☐	☐	☐	☐	☐			
Working eyes and shackles free of wear	☐	☑	☐	☐	☐	☐	☐			
Bird nests present		☑ No		☐ Yes						
Cell antenna attachments		☑ No		☐ Yes						
Unauthorized attachments		☑ No		☐ Yes						
Bird Mitigation installed		☑ No		☐ Yes						
Bird Mitigation recommended		☑ No		☐ Yes						

Page 2 of 3

PGE-CAMP-CF-0000006475

Figure 10. Steel /Structure Detailed Climbing Inspection (Non-500 kV Structures) form used during climbing inspections conducted on 10/30/2018.

Pacific Gas and Electric Company.

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

ETPM Form
Elec Trans
09/18

The "**Steel Structure Detailed Climbing Inspection Form**" for non-500kV structures provides a ready reference to ensure a consistent and thorough inspection. TD-1001M-JA04 provides a reference to aid the inspector in recording line-related component deficiencies that may be noted during the inspection. It is intended that the checklist items on Pages 2-5 of the form will be inspected during the climbing inspection.

Structure #:	Line Name:	Voltage:	SAP Structure ID #:
Latitude:	Longitude:	Structure Type:	Foundation Type:
Date Inspected:	Inspected By:		ETL #:
Inspection Order #:	Notification Required: No ☐	Yes ☐	Notification #:
Comments:			
Inspector Review: (Signature)		LAN ID:	Date:
Supervisor Review: (Signature)		LAN ID:	Date:

PRIORITY CODES

N/A	Does not apply to this location
NP	No problem found
	Using Priority Code requires a Condition and Action to be documented
PC	Problem corrected at the time of inspection
A	Perform work immediately
B	Perform work within 3 months
E	Perform work within 12 months
F	Perform work within 24 months

INSTRUCTIONS

1. Inspect the structure using the form to record issues for each component. Determine the condition of each component. Consider all conditions to determine the appropriate Priority Code for any Notification, if required.
   - 5 = Heavy Damage with Safety Concerns
   - 4 = Heavy Damage
   - 3 = Moderate Damage
   - 2 = Light Damage
   - 1 = No Visible Damage
2. Completed forms and structure photograph* shall be distributed as follows
   - One copy to be retained by the Tower department
   - One copy to the local T-Line first line supervisor if line hardware / component work is required

1

PGE-CAMP-CPUC-0000019432

Pacific Gas and Electric Company.

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

ETPM Form
Elec Trans
09/18

- Inspection crew to create notification (if required). Notification to be attached to inspection report and Structure photograph* to be added to SAP and ET-GIS.

CHECK THIS ITEM	CHECK APPLICABLE			COMMENTS
ANCHOR FOUNDATION				
Concrete 6" or less above ground line (or steel interface buried)	☐ Yes	☐ No	☐ N/A	
Concrete cracked or deteriorated	☐ Yes	☐ No	☐ N/A	
Stub in concrete not sealed and water proofed	☐ Yes	☐ No	☐ N/A	
Anchor rod damage (e.g. corrosion, cracked, bent)	☐ Yes	☐ No	☐ N/A	
Earth around anchors eroded, soil movement, slide	☐ Yes	☐ No	☐ N/A	
Anchors have evidence of pull out?	☐ Yes	☐ No	☐ N/A	
Do anchors consist of "loops" or rods?	☐ Loops	☐ Rods	☐ N/A	
TSP Anchor bolts in poor conditions	☐ Yes	☐ No	☐ N/A	
Anchor Condition	☐ 5	☐ 4	☐ 3	☐ ☐ ☐ 2 1 N/A
GUYS				
Guys are loose	☐ Yes	☐ No	☐ N/A	
Guys are over-tensioned	☐ Yes	☐ No	☐ N/A	
Turnbuckle not punched	☐ Yes	☐ No	☐ N/A	
Improper guy cable and hardware used	☐ Yes	☐ No	☐ N/A	
6" or less of travel left in turnbuckle	☐ Yes	☐ No	☐ N/A	
Preform cross ties not properly installed	☐ Yes	☐ No	☐ N/A	
Guy tails not clipped properly	☐ Yes	☐ No	☐ N/A	
Preform grips not in thimbles	☐ Yes	☐ No	☐ N/A	
Guys in poor condition (e.g., corrosion, broken)	☐ Yes	☐ No	☐ N/A	
Guys insulator in poor condition	☐ Yes	☐ No	☐ N/A	
Guy marker missing	☐ Yes	☐ No	☐ N/A	
Automatic guy splice present (for records purpose)	☐ Yes	☐ No	☐ N/A	
Guy Condition	☐ 5	☐ 4	☐ 3	☐ ☐ ☐ 2 1 N/A

2

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage, N/A=Not Present

PGE-CAMP-CPUC-0000019433

Figure 11. TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures), Effective 09/18.

Pacific Gas and Electric Company

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

Elec. Trans.
ETPM Form
TD-1001M-F04
03/16

CHECK THIS ITEM	Condition Found							Damage	Action	Comments
	N/A	NP	PC	A	B	E	F			
CONDUCTOR										
Conductor is in good condition, no broken strands or birdcaging at the connectors or in the span	☐	☐	☐	☐	☐	☐	☐			
All dampers are present?	☐	☐	☐	☐	☐	☐	☐			
All dampers are in good condition, not fatigued with drooping messanger or missing weight	☐	☐	☐	☐	☐	☐	☐			
OVERHEAD GROUND WIRE										
Shield wire or OPGW is grounded properly	☐	☐	☐	☐	☐	☐	☐			
Shield wire is in good condition, no broken strands at the connectors or in the span	☐	☐	☐	☐	☐	☐	☐			
All dampers are in present?	☐	☐	☐	☐	☐	☐	☐			
All dampers are in good condition?	☐	☐	☐	☐	☐	☐	☐			
HARDWARE & INSULATORS										
Insulator cap(s) are free of corrosion	☐	☐	☐	☐	☐	☐	☐			
All insulators are intact and in good condition, not chipped or broken?	☐	☐	☐	☐	☐	☐	☐			
VEGETATION										
Vegetation impact foundation	☐	☐	☐	☐	☐	☐	☐			
Vegetation impact structure	☐	☐	☐	☐	☐	☐	☐			

Figure 12. Detailed Climbing Inspection Form (03/16)[86]

[86] Bates PGE-CAMP-CPU-0000020061, page 3.

Pacific Gas and Electric Company

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

ETPM Form
Elec. Trans.
09/18

HARDWARE & INSULATORS				
Insulator cap(s) show signs of corrosion?	☐ Yes	☐ No	☐ N/A	
Suspension / Dead-end conductor hardware hot-end/shoe assembly in poor condition	☐ Yes	☐ No	☐ N/A	
Suspension / Dead-end conductor hardware cold-end in poor condition	☐ Yes	☐ No	☐ N/A	
Insulator hanger plate in poor condition?	☐ Yes	☐ No	☐ N/A	
Are insulators in poor condition and/or contaminated? (Chipped, cracked, broken, dirty or "flashed")	☐ Yes	☐ No	☐ N/A	
Insulators are out-of-plumb	☐ Yes	☐ No	☐ N/A	
Grading/Corona rings in poor condition	☐ Yes	☐ No	☐ N/A	
Clamps in poor condition	☐ Yes	☐ No	☐ N/A	
Connectors in poor condition	☐ Yes	☐ No	☐ N/A	
Hardware & Insulators Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1 ☐ N/A

Figure 13. Detailed Climbing Inspection Form (09/18)[87]

V. Conclusion

Based on the evidence reviewed, SED's investigation has identified 12 violations of Commission General Orders and regulations and the California Public Utilities Code by PG&E:

1. PG&E failed to replace or reinforce the C-hook on the Incident Tower before its safety factor was reduced to less than two-thirds of the safety factor specified in Rule 44.1, a violation of **GO 95, Rule 44.3.**

2. The failure of the C-hook supporting the transposition jumper on the Incident Tower demonstrates that PG&E did not maintain the Incident Tower for its intended use and regard being given to the conditions under which it was to be operated; therefore, it is a violation of **GO 95, Rule 31.1.**

3. PG&E failed to inspect the Incident Tower thoroughly. Through its inspections, it failed to detect an immediate Safety Hazard or Priority A condition on the incident

[87] Bates PGE-CAMP-CPUC-0000019432, page 6.

C-hook which required replacement before its safety factor fell below 1.33, prior to the Camp Fire. This is a violation of **GO 95 Rule 31.2.**

4. PG&E failed to follow its procedures in the ETPM Manual by failing to document the factors and reasons that led to the delay in the repair work on the Incident Tower which was scheduled to be completed by November 2015; however, it was delayed until June 2016. PG&E did not document the reason for the delayed work, which is a violation of its own policy; therefore, a violation of **GO 165, Section IV.**

5. PG&E failed to conduct detailed climbing inspections when conditions to trigger climbing inspections were evident as specified in PG&E's procedures. Wear on the original working eyes that remained on the Incident Tower is an indication of a known condition with potential to recur on the added hanger plates with working eyes, which should have triggered detailed climbing inspection to examine the added hanger plates. This is a violation of **GO 165, Section IV**.

6. The condition of the C-hook (material loss > 50%) supporting the transposition jumper on Tower :24/199 demonstrates that PG&E did not maintain Tower :24/199 for its intended use; therefore, it is a violation of **GO 95, Rule 31.1.**

7. PG&E failed to inspect Tower :24/199 thoroughly. Through its inspections, it failed to detect a Safety Hazard or Priority A condition, which requires immediate response until the condition no longer presents a potential hazard. Based on ETPM Manual, Table 8 (Rev :03), the amount of wear (> 50%) on the C-hook on Tower :24/199 warranted Priority Code A. This is a violation of **GO 95 Rule 31.2.**

8. Based on PG&E EPTM Manual, Table 8 (Rev :03), the amount of material loss (> 50%) on the C-hook on Tower :24/199 warranted Priority Code A and immediate response until the condition no longer presents a potential hazard. PG&E's failure to detect and correct this Priority A condition as specified in PG&E's procedures is a violation of **GO 165, Section IV.**

9. PG&E assigned an incorrect priority for an immediate Safety Hazard represented by a disconnected insulator hold-down anchor. On September 11, 2018, a PG&E crew observed that an insulator hold-down anchor on Tower :27/221 had come apart. PG&E assigned the condition a Priority Code E. As defined in the ETPM Manual, the Priority E designation is for conditions which must receive corrective action within 12 months. However, several broken insulator hold-down anchors found during enhanced inspections after the Camp Fire were assigned Priority A. Incorrect prioritization is a violation of **GO 95, Rule 18.**

10. PG&E failed to follow its procedure by using an outdated inspection form during the detailed climbing inspections that PG&E conducted from September 19 to

November 5, 2018. It used TD-1001M-FXX that was implemented in March 2016, even though the form, effective as of September 2018, was TD-1001M-F04. Since PG&E did not follow its own procedure, it is in violation of **GO 165, Section IV.**

11. PG&E failed to report the reportable incident on Big Bend 1101 12kV Distribution Circuit in a timely manner. After learning of a possible second origin of fire through a CAL FIRE press conference on November 15, 2018, at approximately 1800 hours, PG&E submitted an electric incident report to the CPUC on November 16, 2018, at approximately 1600 hours, which was 22 hours later. This is a violation of **Appendix B of D.06-04-055, as amended by Resolution E-4184**, which requires reporting within 4 hours outside of normal working hours.

12. PG&E failed to maintain an effective inspection and maintenance program to identify and correct hazardous conditions on its transmission lines. This is a violation of **PU Code Section 451.** SED determined that PG&E's transmission inspection and maintenance program prior to the Camp Fire was inadequate to ensure that the Caribou-Palermo Transmission Line in particular, transmission lines in the North Fork Feather River Canyon, or PG&E's transmission lines in general were in good condition to furnish and maintain service, as is necessary to promote the safety and health of its patrons and the public.

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

VI. Attachments

Attachment A – Definitions

Attachment B - CAL FIRE News Release on May 15, 2019

Attachment C - PG&E Incident Report No. 181108-9002

Attachment D - PG&E Incident Report No. 181116-9015

Attachment E - PG&E's 20 Day Report, December 11, 2018

Attachment F - 2/1/2019 PG&E response to CPUC data request SED-001, Question 1 (timeline of the events)

Attachment G - Evidence Collection List, Update 12/18/2018, Bates PGE-CAMP-CPUC-0000000001

Attachment H - 11/5/2019 PG&E response to CPUC data request SED-010, Question 1 (list of evidence collected on March 28, 2019)

Attachment I - 11/5/2019 PG&E response to CPUC data request SED-010, Question 2 (list of evidence collected on March 29, 2019)

Attachment J - PG&E Response to Notice Re California Wildfires - Case 3:14-cr-00175-WHA, Document 956, Exhibit A, Filed 12/31/18

Attachment K - TD-1001M Electric Transmission Preventive Maintenance Manual, Rev: 03, Bates PGE-CAMP-CPUC-0000002535

Attachment L - March 6, 2019 letter from Meredith Allen of PG&E to Lee Palmer of the CPUC

Attachment M - March 20, 2019 letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC

Attachment N - Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation, November 1, 2019

Attachment O - 2/1/2019 PG&E response to CPUC data request SED-001 Big Bend Question 1

Attachment P - TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 09/18, Bates PGE-CAMP-CPUC-0000019432

Attachment Q - TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 03/16, Bates PGE-CAMP-CPUC-0000020061

Attachment R - TD-1001M-JA02 Detailed Climbing Inspection Job Aid (Effective 09/24/2018, Rev: 1), Bates PGE-CAMP-CPUC-0000019292

Attachment S - Aerial patrol records from 2018, Bates PGE-CAMP-CPUC-0000000516

Attachment T - LC Notification # 103995542, Bates PGE-CAMP-CPUC-0000000553

Attachment U - LC Notification # 105375996, Bates PGE-CAMP-CPUC-0000017701

Attachment V – PGE-CAMP-CPUC-0000004159 (enhanced inspection, disconnected insulator hold-down anchor)

Attachment W – PGE-CAMP-CPUC-0000004188 (enhanced inspection, disconnected insulator hold-down anchor)

Attachment X - 4/16/2019 PG&E response to CPUC data request SED-006 Caribou-Palermo 115 kV Transmission, Question 2 (PG&E records do not

identify the reason that the replacement work identified in LC Notification 103995542 was completed late)

Attachment Y - 10/25/2019 PG&E response to CPUC data request SED-009. Question 1(Detailed ground inspection reports for 2001, 2003, 2005)

Attachment Z - 3/1/2019 PG&E response to CPUC data request SED-001, Question 4(Detailed ground inspection reports for 2009 and 2014)

Attachment AA - 10/18/2019 PG&E response to CPUC data request SED-009, Question 2 (Detailed Climbing Records from September 19, 2018 – November 5, 2018)

Attachment AB - 10/8/2019 PG&E response to CPUC data request SED-008, Question 1 (Detailed climbing inspections from September 19, 2018 to November 5, 2018 were performed to assess the condition of the transmission line for asset management strategy)

Attachment AC – PG&E's Wildfire Safety Inspection Program Compliance Plan

Attachment A

Definitions

ATTACHMENT A

Definitions

Aerial Patrol – Visual observations to identify abnormalities (i.e., obvious structural problems or hazards) or circumstances that will negatively impact safety; aerial patrols are conducted by helicopter.

C-hook – Hardware that is part of an insulator assembly used to attach an insulator assembly to a structure or tower. It is part of the cold-end hardware.

Cold-End hardware - Components used to attach the nonconductor end (cold-end) of the insulator to the tower. Both the tower and the insulator attachment components are considered cold-end hardware.

Dead-end Tower - A dead-end tower is a fully self-supporting structure used in construction of overhead power lines. A dead-end transmission tower uses horizontal strain insulators at the end of conductors.

Insulator Assembly – A string of insulators and associated attachment hardware between a high-voltage conductor and a tower structure used to provide mechanical support and electrically isolate the conductor from the tower and other support structures.

Detailed Climbing Inspection – A detailed supporting-structure-based observation involving climbing of a structure to determine if there are any abnormal or hazardous conditions that adversely impact safety, service reliability, or asset life.

Detailed Ground Inspection – A detailed visual observation used to look for abnormalities or circumstances that will negatively impact safety, reliability, or asset life, typically done from the ground with binoculars. Individual elements and components are examined carefully through visual and/or routine diagnostic tests, and each abnormal condition is graded and/or recorded

Foundation: Components associated with the footings at the tower base.

Hanger plate – A part of a tower that serves as an attachment point from which insulator assemblies are suspended.

Hold-down anchor – Hardware used to anchor an insulator assembly from excessive movement, typically when the insulator assembly is subject to the effects of upward tension because of its location on a tower with lower elevation than an adjacent tower.

Runner arm – A steel cross-member on a structure that can be used to suspend insulator assemblies.

Suspension Insulator – A type of insulator that is suspended from the cross-members of a tower and is used to support conductors while electrically insulating them from the tower.

Tags – Corrective work orders on transmission facility. There are priority A, B, E and F tags in PG&E's ETPM.[1] Priority A requires immediate response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out. Corrective actions are required within 3 months, 12 months, and 24 months for priority levels B, E, and F respectively, from the date the condition is identified.

Transposition Jumper – A conductor used to complete a phase reconfiguration of the transmission line. The phase reconfiguration consists of a realignment of a phase conductor from the position it occupies on one side of the tower to a different position on the opposite side of the tower for the purpose of improving the electrical characteristics of the transmission line.

[1] TD-1001M Electric Transmission Preventive Maintenance Manual, Table 7, page 18 (Rev :03)

Attachment B

CAL FIRE News Release on May 15, 2019

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection

CONTACT: Michael Mohler
Deputy Director
(619) 933-2357

RELEASE DATE: May 15, 2019

CAL FIRE Investigators Determine Cause of the Camp Fire

Sacramento – The Camp Fire in Butte County, started the morning of November 8, 2018, and burned a total of 153,336 acres, destroying 18,804 structures and resulting in 85 civilian fatalities and several firefighter injuries. The Camp Fire is the deadliest and most destructive fire in California history.

CAL FIRE investigators were immediately dispatched to the Camp Fire and began working to determine the origin and cause of the fire. After a very meticulous and thorough investigation, CAL FIRE has determined that the Camp Fire was caused by electrical transmission lines owned and operated by Pacific Gas and Electricity (PG&E) located in the Pulga area.

The fire started in the early morning hours near the community of Pulga in Butte County. The tinder dry vegetation and Red Flag conditions consisting of strong winds, low humidity and warm temperatures promoted this fire and caused extreme rates of spread, rapidly burning into Pulga to the east and west into Concow, Paradise, Magalia and the outskirts of east Chico.

The investigation identified a second ignition sight near the intersection of Concow Rd. and Rim Rd. The cause of the second fire was determined to be vegetation into electrical distribution lines owned and operated by PG&E. This fire was consumed by the original fire which started earlier near Pulga.

During 2018 there were more than 7,571 wildfires that burned over 1.8 million acres within the state of California.

The Camp Fire investigative report has been forwarded to the Butte County District Attorney Mike Ramsey. For any questions related to the Camp Fire investigation, contact Mike Ramsey at (530) 538-7411 or at mramsey@buttecounty.net or mnoel@buttecounty.net .

Californians must remain vigilant and be prepared for wildfire. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov. CAL FIRE also offers a free Ready for Wildfire app for IPhones and Android phones.

###

Attachment C

PG&E Incident Report No. 181108-9002

From: webmaster@cpuc.ca.gov
Sent: Thursday, November 8, 2018 6:09:50 PM (UTC-08:00) Pacific Time (US & Canada)
To: USRB
Cc: MEAE@pge.com
Subject: Electric Safety Incident Reported- Pacific Gas & Electric Incident No: 181108-9002

The Following information regarding this incident has been reported:

Reporting Date: 11/8/2018 6:06:53 PM
Incident Date: 11/8/2018 @ 6:15 a.m.
Reported By: Meredith Allen, Sr. Director - Regulatory Relations
Utility Name: Pacific Gas & Electric
Phone Number: [redacted]
Email Address: MEAE@pge.com

Incident Location: Pulga Rd. Pulga,, Butte County

Reasons For Reporting:
- Fatalities? No (Utility: , Others:)
- Names of Fatalities:
- Injuries? (Utility: , Others:)
- Names of Injured:
- Damage? No (Utility: , Others:)
- Interruption? (Total Customers: , Total Hours:)
- Operator Judgement? Yes
- Media Coverage? No

Cause of Incident: Unknown (Other Cause:)

Agencies on Scene: Fire,

Facilities Affected:
- Utilities Facilities: Caribou-Palermo
- Voltage (KV): 115kV
- Customer's Facilities:

DigIn Information:
- Excavator Name:
- Contact:
- Phone: (___)___-____

Incident Recovery:
- On Scene Date & Time: @ 00:00 a.m.
- Service Restored: @ 00:00 a.m.

Summary: On November 8, 2018, at approximately 0615 hours, PG&E experienced an outage on the Caribou-Palermo 115 kV Transmission line in Butte County. In the afternoon of November 8, PG&E observed by aerial patrol damage to a transmission tower on the Caribou-Palermo 115 kV Transmission

line, approximately one mile north-east of the town of Pulga, in the area of the Camp Fire. This information is preliminary.

Attachment D

PG&E Incident Report No. 181116-9015

From: webmaster@cpuc.ca.gov <webmaster@cpuc.ca.gov>
Sent: Friday, November 16, 2018 4:03 PM
To: usrb@cpuc.ca.gov
Cc: Allen, Meredith <MEAe@pge.com>
Subject: Electric Safety Incident Reported- Pacific Gas & Electric Incident No: 181116-9015

The Following information regarding this incident has been reported:

Reporting Date: 11/16/2018 4:00:05 PM
Incident Date: 11/8/2018 @ 6:45 a.m.
Reported By: Meredith Allen, Sr. Director - Regulatory Relations
Utility Name: Pacific Gas & Electric
Phone Number: [redacted]
Email Address: MEAE@pge.com

Incident Location: Concow Concow, Butte

Reasons For Reporting:
- Fatalities? No (Utility: , Others:)
- Names of Fatalities:
- Injuries? (Utility: , Others:)
- Names of Injured:
- Damage? No (Utility: , Others:)
- Interruption? (Total Customers: , Total Hours:)
- Operator Judgement? Yes
- Media Coverage? No

Cause of Incident: Unknown (Other Cause:)

Agencies on Scene: Fire,

Facilities Affected:
- Utilities Facilities: Big Bend 1101
- Voltage (KV): 12kV
- Customer's Facilities:

DigIn Information:
- Excavator Name:
- Contact:
- Phone: (___)___-____

Incident Recovery:
- On Scene Date & Time: @ 00:00 a.m.
- Service Restored: @ 00:00 a.m.

Summary: On November 8, 2018, at approximately 0645 hours, PG&E experienced an outage on the Big Bend 1101 12kV Circuit in Butte County. CAL FIRE has collected PG&E equipment on that circuit. CAL FIRE has secured a location near PG&E facilities on that circuit. This information is preliminary. PG&E is cooperating with CAL FIRE.

Attachment E

PG&E's 20 Day Report

December 11, 2018

Pacific Gas and Electric Company

Meredith E. Allen
Pacific Gas and Electric Company
77 Beale Street, Mail Code B23A
San Francisco, CA 94105

December 11, 2018

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

Re: EIR No. EI181108A and No. EI181108B

Dear Ms. Malashenko:

This letter supplements the notices Pacific Gas and Electric Company ("PG&E") provided to the California Public Utilities Commission ("Commission") via the web-based reporting system on Thursday, November 8, 2018 at 6:06 p.m. and on Friday, November 16, 2018 at 4:00 p.m., regarding the above-referenced incidents. PG&E submits this information pursuant to Commission instructions and resolutions and the Public Utilities Code, and submits this report under Public Utilities Code Section 315.

On November 8, 2018, a wildland fire identified as the Camp Fire was reported at Pulga Road at Camp Creek Road near Jarbo Gap in Butte County, according to the website of the California Department of Forestry and Fire Protection ("CAL FIRE"). CAL FIRE is the lead investigative agency and has identified the start time of the fire as 6:33 a.m. On CAL FIRE's website, CAL FIRE has identified coordinates for the Camp Fire near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line. CAL FIRE's website also reports that approximately 153,336 acres have been burned, 18,793 structures have been destroyed, and that there were 85 civilian fatalities and 3 firefighter injuries. The Camp Fire has been fully contained.

On November 8, 2018, at approximately 6:15 a.m., the PG&E Caribou-Palermo 115kV Transmission Line relayed and deenergized. One customer was impacted by the transmission outage. At approximately 6:30 a.m. a PG&E employee observed fire in the vicinity of Tower :27/222, and this observation was reported to 911 by PG&E employees. In the afternoon of November 8, PG&E observed damage on the line at Tower :27/222, located near Camp Creek and Pulga Roads, near the Town of Pulga. Specifically, an aerial patrol identified that on Tower :27/222, a suspension insulator supporting a transposition jumper had separated from an arm on the tower. The suspension insulator and the transposition jumper remained suspended above the ground.

CAL FIRE initially restricted access to Tower :27/222 and adjacent Tower :27/221 on the Caribou-Palermo Transmission Line, but eventually permitted PG&E access for the limited purpose of cooperating with its investigation. On November 14, 2018, as part of its investigation of the Camp Fire, CAL FIRE requested assistance collecting assets from the two towers. PG&E assisted CAL FIRE with the requested collection, and Commission staff was on site to observe the collection. At the time of the collection at Tower :27/222, PG&E observed a broken C-hook attached to the separated suspension insulator that had connected the

suspension insulator to a tower arm, along with wear at the connection point. In addition, PG&E observed a flash mark on Tower :27/222 near where the transposition jumper was suspended and damage to the transposition jumper and suspension insulator. At Tower :27/221, there was an insulator hold down anchor that had become disconnected. The insulator hold down anchor is not an energized piece of equipment. After the evidence collection, CAL FIRE released the site. PG&E has not yet made repairs at either tower or restored service.

In addition to the events on the Caribou-Palermo 115kV Transmission Line, on November 8, 2018, at approximately 6:45 a.m., the PG&E Big Bend 1101 12 kV Circuit experienced an outage. Four customers on Flea Mountain were affected by the distribution outage. On November 9, 2018, a PG&E employee on patrol arrived at the location of the pole with Line Recloser ("LR") 1704 on the Big Bend 1101 Circuit and observed that the pole and other equipment was on the ground with bullets and bullet holes at the break point of the pole and on the equipment. On November 12, 2018, a PG&E employee was patrolling Concow Road north of LR 1704, when he observed wires down and damaged and downed poles at the intersection of Concow Road and Rim Road. This location is within the Camp Fire footprint. At this location, the employee observed several snapped trees, with some on top of the downed wires.

Beginning on November 13, 2018, PG&E assisted CAL FIRE in collecting evidence related to the Big Bend outage. CAL FIRE provided PG&E with receipts for evidence collected prior to PG&E's arrival at the site at the intersection of Concow Road and Rim Road. CAL FIRE has released the site. PG&E has not yet made repairs at this location or restored service to the four customers on Flea Mountain.

These incidents remain under investigation, and this information is preliminary. The cause of these incidents has not been determined and may not be fully understood until additional information becomes available, including information that can only be obtained through examination and testing of the equipment retained by CAL FIRE. PG&E is cooperating with CAL FIRE.

Sincerely,

Meredith E. Allen
Senior Director, Regulatory Relations

Attachment F

2/1/2019 PG&E Response to CPUC Data Request SED-001, Question 1 (timeline of the events)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-001

Requesters: Banu Acimis
Request Date: December 6, 2018
Response Sent: February 1, 2019

Question 1:
Please provide a timeline of the events for PG&E that occurred directly related to the fire locations. The timeline should cover from 12 hours prior to the start of the fire (CAL FIRE start time) to after CAL FIRE obtained PG&E facilities for evidence, CAL FIRE released the incident scene, or all repairs were made by PG&E, whichever event came last.

Response to Question 1:
For purposes of its response to this question, PG&E understands "fire locations" to mean Incident Locations 1 and 2, as defined by the SED's Data Request IV. In addition, for purposes of its response to this question, PG&E understands "events for PG&E that occurred directly related to the fire locations" as excluding observational visits to Incident Locations 1 and 2 by PG&E or its agents, governmental entities or their agents, civil plaintiffs or their agents, or civilians that occurred after CAL FIRE's release of those locations on November 17, 2018, and November 21, 2018, respectively.

A timeline of visits to Incident Locations 1 and 2 for the purposes of evidence collection is set forth in PG&E's response to SED Request 001, Question 42.

CAL FIRE's website identifies the start time of the Camp Fire as November 8, 2018 at 6:33 a.m. PG&E is not presently able to validate the information on CAL FIRE's website. Below are timelines of events directly related to Incident Locations 1 and 2, from 12 hours prior to the CAL FIRE start time until the date of this response.

Incident Location 1 (as defined by the SED's Data Request IV):

Date	Event
November 8, 2018, 6:15 a.m.	The PG&E Caribou-Palermo 115 kV Transmission Line relayed and de-energized.
November 8, 2018, approx. 6:28 a.m.	PG&E Hydro Supervisor reported seeing fire in a clearing beneath PG&E transmission lines north of Pulga.
November 8, 2018, approx. 6:44 a.m.	PG&E Electrical Machinist photographed the fire from Highway 70.

Date	Event
November 8, 2018, between approx. 6:30 and 7:00 a.m.	Syblon Reid employee photographed the fire from Highway 70.
November 8, 2018, between approx. 6:48 and 7:53 a.m.	Two PG&E Hydro employees photographed the fire from Cresta Dam.
November 8, 2018, approx. 7:01 and 7:03 a.m.	PG&E Operating Clerk photographed the fire from two points along Highway 70.
November 8, 2018, approx. 7:20 a.m.	PG&E employee observed fire moving from the vicinity of the Union Pacific Railroad tracks up the west side of Feather River Canyon south of Pulga.
November 8, 2018, between approx. 9:00 a.m. and 1:00 p.m.	A PG&E Troubleman conducted an aerial patrol of the Caribou-Palermo 115 kV Transmission Line.
November 8, 2018, 4:54 p.m.	PG&E aerial patrollers in a fixed wing aircraft captured video footage of the area surrounding Incident Location 1.
November 8, 2018, 6:06 p.m.	PG&E filed with the CPUC an Electric Safety Incident Report (Incident No. 181108-9002) concerning the 6:15 a.m. outage on the Caribou-Palermo 115 kV Transmission Line.
November 9, 2018	A PG&E Troubleman and PG&E investigators conducted an aerial patrol of the Caribou-Palermo 115 kV Transmission Line.
November 14, 15, and 17, 2018	PG&E assisted CAL FIRE with collection of evidence at the Camp 1 incident location and of Smart Meters in the vicinity of Pulga.
November 16 and 20, 2018	PG&E assisted CAL FIRE with collection of data from Smart Meters that had been collected in the vicinity of Pulga.
December 11, 2018	PG&E filed with the CPUC a 20-Day Supplemental Report regarding the Camp Fire.

Incident Location 2 (as defined by the SED's Data Request IV):

Date	Event
November 8, 2018, 6:45 a.m.	The PG&E Big Bend 1101 12 kV Distribution Circuit experienced an outage, and Line Recloser ("LR") 1704 opened.
November 9, 2018, approx. 2:24 p.m.	PG&E Lineman patrolled a section of the Big Bend 1101 12 kV Distribution Circuit up to the pole with LR 1704 and observed the pole and other equipment on the ground.

Date	Event
November 11, 2018	PG&E Sub-foreman surveyed the Big Bend 1101 12 kV Distribution Circuit from an area a few spans south of LR 1704 up to Flea Mountain, and observed LR 1704 and its pole on the ground.
November 12, 2018, approx. 9:30 a.m.	PG&E Troubleman patrolled Concow Road north of LR 1704 and observed damaged and downed poles and wires, as well as snapped trees, some of which lay on top of the downed wires.
November 14, 15 and 20, 2018	PG&E assisted CAL FIRE with collection of evidence at the Camp 2 incident location.
November 15 and 16, 2018	PG&E assisted CAL FIRE with collection of data from Line Reclosers and Smart Meters that had been collected in the vicinity of Concow.
November 16, 2018	PG&E filed with the CPUC an Electric Safety Incident Report concerning the 6:45 a.m. outage on the Big Bend 1101 12 kV Distribution Circuit.
December 11, 2018	PG&E filed with the CPUC a 20-Day Supplemental Report regarding the Camp Fire.

Response provided by:

Greg Gabbard, Director, Transmission Line Project Delivery, [redacted]

[redacted], Senior Manager, Distribution Work & Resource Management, [redacted]

Attachment G

Evidence Collection List

Update 12/18/2018

Bates PGE-CAMP-CPUC-0000000001

t Updated: 12/18/2018

dent Number	Incident Name	Collection Location	Item	Item Description
116-9015	Camp	Near intersection of Hwy. 70 and Deadwood Rd.	Recloser Controller	LR641808
116-9015	Camp	Concow Road 1 mile past pavement	Recloser Controller	LR1704
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Insulator	9 Right Phase Bells Lower
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Insulator	9 Left Phase Bells Lower
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Anchor wire	1 Right Phase Hold Down with Buckle
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Anchor wire	1 Left Phase Hold Down with Buckle
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Hook	2 C Hooks
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Tower Framing	1 Right Phase Arm
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/221	Tower Framing	1 Left Phase Arm
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/222	Insulator	31 Bells = 3 "I" String Jumper Supports
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/222	Hook	3 C Hooks
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/222	Conductor	1 Jumper Assembly
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/222	Tower Framing	1 Right Runner Jumper Support
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads, Tower :27/222	Tower Framing	1 Left Runner Jumper Support
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads	Photos	Photos of 11/14/2018 Cal Fire Evidence Collecti taken by PG&E Employee

108-9002	Camp	Near intersection of Pulga and Camp Creek Roads	Photos	Photos of 11/14/2018 Cal Fire Evidence Collecti taken by PG&E Employee
108-9002	Camp	Near intersection of Pulga and Camp Creek Roads	Photos	Photos of 11/14/2018 Cal Fire Evidence Collecti taken by PG&E Employee
116-9015	Camp	Dixie Rd., Flea Mountain at the Cell Repeater Station	Smart Meter	Meter #1007063595 (tag 3924) – Calfire named "Camera Meter"
116-9015	Camp	Dixie Rd., Flea Mountain at the Cell Repeater Station	Smart Meter	Meter #1009120598 (tag 3900) – Calfire named Building on Road Meter"
116-9015	Camp	Dixie Rd., Flea Mountain at the Cell Repeater Station	Smart Meter	Meter #1009120600 (tag 3901) – Calfire named "Bell Systems Meter"
116-9015	Camp	Dixie Rd., Flea Mountain at the Cell Repeater Station	Smart Meter	Meter #1009663142 (tag 3919) – Calfire named Battery Building Meter"
108-9002	Camp	Camp Creek Road, Pulga	Smart Meter	Meter #1010494303 (tag 3907) – Calfire named "Pulga Meter"
108-9002	Camp	[redacted]	Smart Meter	Meter #1007637774 (tag 3903) – Calfire named "13298 Concow Meter"
116-9015	Camp	3400 Crow Canyon Rd, San Ramon	Recloser Controller Data Download	LR1704
116-9015	Camp	3400 Crow Canyon Rd, San Ramon	Recloser Controller Data Download	LR641808
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1009120598
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1009120600
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1007637774
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1010494303
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1009663142
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1007063595
116-9015	Camp	Durham-Pentz and Hwy 99	Photos	Photographs taken by PG&E employee on 11/12/2018 on Concow Road
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1010384379 (tag 5379)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1010494301 (tag 5376)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1007486079 (tag 1146)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1007696124 (tag 1449)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1009121986 (tag 1425)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1008884269 (tag 1448)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1007696123 (tag 1445)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1010390542 (tag 1426)
108-9002	Camp	Pulga, CA	Smart Meter	Meter #: 1010494302 (tag 1447)
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1010384379
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1010494301
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1007486079

108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1007696124
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1009121986
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1008884269
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1007696123
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1010390542
108-9002	Camp	3400 Crow Canyon Rd, San Ramon	Smart Meter Data (Download from Physical Device)	Meter #: 1010494302
116-9015	Camp	Near intersection of Concow and Rim Roads	Power pole top with cross member	North Power Pole Top with cross member (Pole
116-9015	Camp	Near intersection of Concow and Rim Roads	Conductor Rolls	7 Conductor Rolls
116-9015	Camp	Near intersection of Concow and Rim Roads	Conductor Pieces	9 Conductor Pieces
116-9015	Camp	Near intersection of Concow and Rim Roads	Tie Wires	3 Tie Wires
116-9015	Camp	Near intersection of Concow and Rim Roads	Insulator	Insulator
116-9015	Camp	Near intersection of Concow and Rim Roads	Insulator	Insulator Bolts
116-9015	Camp	Near intersection of Concow and Rim Roads	Hardware	3 Pieces of Hardware (old)
116-9015	Camp	Near intersection of Concow and Rim Roads	Crossarm	Crossarm (old)
116-9015	Camp	Near intersection of Concow and Rim Roads	Pole	Middle Pole (Pole #2)
116-9015	Camp	Near intersection of Concow and Rim Roads	Pole Stump	Middle Pole (Pole #2) Stump
116-9015	Camp	Near intersection of Concow and Rim Roads	Insulator Bolts	2 Insulator Bolts
116-9015	Camp	Near intersection of Concow and Rim Roads	Crossmember	Crossmember from Pole #2
116-9015	Camp	Near intersection of Concow and Rim Roads	Pole Top with Hardware	South Pole Top with Hardware (Pole #3)
116-9015	Camp	Near intersection of Concow and Rim Roads	Pole Butt	Middle Pole (Pole #2) Butt
116-9015	Camp	Near intersection of Concow and Rim Roads	Photos	Photos of 11/20/2018 Cal Fire Evidence Collecti taken by PG&E Employee
116-9015	Camp	Near intersection of Concow and Rim Roads	Photos	Photos of 11/20/2018 Cal Fire Evidence Collecti taken by PG&E Employee
116-9015	Camp	Near intersection of Concow and Rim Roads	Photos	Photos of 11/20/2018 Cal Fire Evidence Collecti taken by PG&E Employee
116-9015	Camp	Near intersection of Concow and Rim Roads	Video	Video of 11/20/2018 Cal Fire Evidence Collectio taken by PG&E Employee

Attachment H

11/5/2019 PG&E Response to CPUC Data Request SED-010, Question 1 (list of evidence collected on March 28, 2019)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-010

Requesters: Banu Acimis
Request Date: October 28, 2019
Response Date: November 5, 2019

Question 1:
Please provide a list of evidence collected on March 28, 2019 from Tower: 20/160 on the Caribou-Palermo Transmission Line. Who took possession of the evidence? Where is it stored?

Response to Question 1:
On March 28, 2019, PG&E supported CAL FIRE and the Butte County District Attorney Office's collection of the following evidence from PG&E Tower :020/160 on the Caribou-Palermo 115 kV Transmission Line: 33 suspension insulator bells; three C-hooks; three corona plates with conductor hardware; one length of conductor with support bar; one left phase transposition arm; one right phase transposition arm; and two nut and bolt sets from the tower transposition support arm.

CAL FIRE, which was supporting the evidence collection for the Butte County District Attorney's office, took custody of the materials at the collection site. PG&E understands that the removed equipment was subsequently transferred to the custody of law enforcement but is not aware of its present storage location.

Attachment I

11/5/2019 PG&E Response to CPUC Data Request SED-010, Question 2 (list of evidence collected on March 29, 2019)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-010

Requesters: Banu Acimis
Request Date: October 28, 2019
Response Date: November 5, 2019

Question 2:
Please provide a list of evidence collected on March 29, 2019 from Tower :24/199 on the Caribou-Palermo Transmission Line. Who took possession of the evidence? Where is it stored?

Response to Question 2:
On March 29, 2019, PG&E supported CAL FIRE and the Butte County District Attorney Office's collection of the following evidence from Tower :24/199 on the Caribou-Palermo 115 kV Transmission Line: 30 suspension insulator bells; three insulator C-hooks; one right phase support arm cut to an approximately two-foot length; one left phase support arm cut to an approximately two-foot length; three corona shields with conductor mounts; and one length of conductor with support rod.

CAL FIRE, which was supporting the evidence collection for the Butte County District Attorney's office, took custody of the materials from the collection site. PG&E understands that the removed equipment was subsequently transferred to the custody of law enforcement but is not aware of its present storage location.

Attachment J

PG&E Response to Notice Re California Wildfires – Case 3:14-cr-00175-WHA, Document 956, Exhibit A, Filed 12/31/18

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

UNITED STATES OF AMERICA, Plaintiff, v. PACIFIC GAS AND ELECTRIC COMPANY, Defendant.	Case No. 14-CR-00175-WHA **RESPONSE TO NOTICE RE CALIFORNIA WILDFIRES** Judge: Hon. William Alsup Date: December 31, 2018

Defendant Pacific Gas & Electric Company ("PG&E") submits this response to the Court's Notice re California Wildfires dated November 27, 2018:

1. What requirements of the judgment herein, including the requirement against further federal, state, or local crimes, might be implicated were any wildfire started by reckless operation or

maintenance of PG&E power lines?

Response:

If it were determined that a wildfire had been started by reckless operation or maintenance of PG&E power lines, that would, if the specific circumstances gave rise to a violation of federal, state, or local statutes, implicate the requirements of Special Condition of Probation #1 of the judgment, which provides that while on probation, PG&E shall not commit another Federal, State, or local crime.

2. What requirements of the judgment herein might be implicated be any inaccurate, slow, or failed reporting of information about any wildfire by PG&E?

Response:

a. If it were determined that PG&E had failed to meet reporting requirements related to wildfires, the particular reporting failure would have to be reviewed for violation of federal, state, or local statutes. If any such criminal statutes were violated, that would implicate the requirements of Special Condition of Probation #1 of the judgment, which provides that while on probation, PG&E shall not commit another Federal, State, or local crime.

b. If it were determined that PG&E had failed to meet its reporting requirements to U.S. Probation in connection with wildfires, depending on the particular reporting failure, that would implicate the following requirements of the judgment:

   i. Condition of Probation #2, which requires PG&E to answer truthfully all inquiries by the probation officer and follow the instructions of the probation officer;

   ii. Condition of Probation #5, which requires PG&E to notify the probation officer within seventy-two hours of any criminal prosecution, major civil litigation, or administrative proceeding against PG&E;

iii. Special Condition of Probation #8, which requires PG&E to notify the probation officer immediately upon learning of the commencement of any major civil action, criminal prosecution, or administrative proceeding against PG&E, or any investigation or formal inquiry by governmental authorities regarding the organization.

3. What specific steps has the monitor herein taken to monitor and improve PG&E safety and reporting with respect to power lines and wildfires?

Response:

Following the January 2017 Judgement and Order in this matter, the Court appointed the Honorable Mark Filip (Ret.) to serve as independent federal monitor over certain aspects of PG&E's business. To meet the goals and the requirements of the Court's Order, in April of 2017 the Monitor and his team began reviewing and monitoring various areas, including: (1) PG&E's safety culture, (2) PG&E's enterprise Compliance and Ethics program, and (3) the specific requirements enumerated in paragraphs I.B.(1)-(15) of the Order. While much of this work focuses on PG&E's natural gas operations, certain aspects include an enterprise-wide evaluation, including aspects of safety, such as safety culture, risk management, and compliance and ethics. To conduct this scope of work, the Monitor assembled a team of dozens of lawyers and subject matter experts in varied areas such as integrity management, gas transmission, utility operations, risk evaluation, compliance and ethics, and safety.

In November 2017, as a result of the October 2017 North Bay wildfires, the Monitor, the United States Attorneys' Office and PG&E agreed that the Monitor team would also evaluate certain aspects of PG&E's electric distribution operations, including reviewing the adequacy of PG&E's: (1) vegetation management plan, (2) electric pole and equipment maintenance and inspection programs, and (3) emergency response and restoration practices. Given the multiple independent lawsuits related to the North Bay wildfires, as well as the ongoing regulatory

review by various state and local agencies, the parties further agreed that that the Monitor team would not evaluate or opine on the cause of any of the North Bay fires. Consistent with this supplemental scope, the Monitor onboarded new members to his team, including additional attorneys and industry veterans with expertise in the relevant areas of electric operations.

The Monitor team has undertaken numerous activities focused on PG&E's electric operations, including:

- Meeting with dozens of electric employees, ranging from the most senior leaders to field employees;
- Conducting multiple field visits, including to inspection projects related to electric distribution poles and equipment, base camp established for response and restoration in wildfire affected areas, and PG&E's Emergency Operations Center and Wildfire Safety Operations Center;
- Participating in operational meetings and telephone calls, such as status calls on operational performance and risks related to electric distribution and PG&E's Public Safety Power Shutoff program;
- Receiving real-time emergency response and operational updates during and following the 2017 and 2018 wildfires; and
- Receiving hundreds of files in response to data requests related to various aspects of electric operations, including: distribution maintenance programs, wildfire safety operations, pole and wire inspection and maintenance, vegetation clearance/management and emergency response.

More broadly, from the start of the monitorship, the Monitor team has been and remains engaged with PG&E on a wide range of areas, many of which relate to the company's overall safety and culture. For example, over approximately the last 20 months, the Monitor team has:

- Attended hundreds of meetings at all levels of the company, ranging from Board of

Directors and senior officer meetings to all-employee town halls, operational meetings and field visits;

- Periodically attended Board and Board Committee Meetings, including executive sessions with the Board;
- Traveled throughout PG&E's service territory to attend field projects such as equipment testing and inspection work, and conduct interviews and meetings with over 200 employees;
- Visited operational facilities including stations, natural gas storage fields, training facilities, crew yards, and service centers;
- Conducted panel discussions with dozens of employees, focused primarily on compliance and ethics and safety culture;
- Received thousands of files from PG&E (over 35 gigabytes of data) in response to requests for information;
- Maintained regular communications with PG&E, including participating in standing weekly calls to discuss emerging issues and general updates; and
- Established a Monitor Helpline for PG&E employees to raise concerns directly to the Monitor team, which PG&E has publicized among its workforce.

4. Provide an accurate and complete statement of the role, if any, of PG&E in causing and reporting the recent Camp Fire in Butte County and all other wildfires in California since the judgment herein.

Response:

PG&E's response to Question 4 is structured in three parts, as follows:

In part one, in response to the Court's request for information concerning PG&E's role in "reporting" wildfires, we provide an overview of the various ways in which PG&E has submitted information to its regulator, the California Public Utilities Commission ("CPUC"), as well as to the

California Department of Forestry and Fire Protection ("CAL FIRE"), since the Final Judgment.[1] This includes both routine required regulatory reports and responses to investigatory data, document and information requests. As discussed below, because of the volume of these materials, PG&E has not submitted to the Court all of the reports that PG&E has made to CAL FIRE and the CPUC related to wildfires in its service territory during 2017 and 2018, but will provide them at the Court's request.[2] We do, however, provide examples of these reports for the Court's review.

In part two, we provide a summary of the facts concerning the November 2018 Camp Fire that began in Butte County. CAL FIRE has not released its conclusions about the cause of the Camp Fire, although it has publicly identified two potential incident locations at which PG&E facilities are located. PG&E is actively cooperating with investigations into the Camp Fire by both CAL FIRE and the CPUC. To assist the Court in understanding the facts relevant to the potential cause of the Camp Fire, PG&E has included a factual report that is attached as Exhibit A. A glossary of terms referenced in that report is attached as Exhibit B and a guide to reviewing the information provided in the report is attached as Exhibit C.[3]

In part three, we discuss the wildfires that impacted the North Bay and other parts of Northern California during October 2017. While CAL FIRE has reported that more than 172 wildfires started on October 8 and the following days as strong winds moved through Northern California, the focus of the CPUC, CAL FIRE and civil plaintiffs has been on a subset (21) of those fires (referred to

[1] CAL FIRE is generally the lead investigator of all wildfires in the state. In certain instances, depending upon the location of a particular fire, local fire departments may also conduct investigations. Wildfires that occur on Federal property may be investigated by the United States Forest Service. The Safety and Enforcement Division ("SED") of the California Public Utilities Commission ("CPUC") also conducts investigations in connection with wildfires that may have been caused by PG&E's equipment.

[2] PG&E has interpreted Question 4 of the Court's order to refer only to wildfires that have occurred within PG&E's service territory, as fires that originated outside of PG&E's service territory could not have been caused by PG&E equipment.

[3] The guide attached as Exhibit C was previously provided to the CPUC in connection with the submission of fact reports to the CPUC by PG&E concerning the October 2017 North Bay Wildfires. Those reports are discussed further below.

here as the "North Bay Wildfires").

PG&E's investigation into the causes of the North Bay Wildfires is ongoing. Those wildfires are the subject of coordinated civil litigation pending before the Honorable Curtis E.A. Karnow in the Superior Court of California-County of San Francisco. That coordinated litigation involves more than 3,000 individual plaintiffs, dozens of insurance companies and various local and county-level government entities. Discovery is ongoing and there have not been any rulings with respect to cause and origin for any of the North Bay Wildfires. PG&E is still in the process of obtaining documents, data, photographs and eyewitness accounts of issues relevant to the cause and origin of each of the North Bay Wildfires.

PG&E is also awaiting the opportunity to review most of the reports that CAL FIRE has prepared concerning the North Bay Wildfires. In addition, PG&E has not been able to examine in detail any of the potentially relevant evidence that CAL FIRE collected from the various potential origin points. Generally speaking, when a large wildfire occurs, CAL FIRE will cordon off areas of interest and limit access to those locations until after it has completed its initial investigation and collected the evidence that it believes is relevant to the potential cause and origin of a particular fire. CAL FIRE will then take that evidence into its possession and restrict access to it. This is the approach that CAL FIRE took with respect to both the Camp Fire and the North Bay Wildfires and PG&E therefore has not yet had access to the evidence that appears CAL FIRE has identified as relevant.[4] Thus, while CAL FIRE has released at least its high-level conclusions with respect to 18 of the North Bay Wildfires and has, in each instance, determined that the relevant fire was attributable to PG&E's facilities, PG&E has not been able to review the detail behind most of those findings or the evidence related to any of them.

[4] PG&E, along with the civil plaintiffs in litigation concerning the North Bay Wildfires, have been working with CAL FIRE, the relevant district attorneys and the office of the Attorney General to arrange for access to the CAL FIRE evidence and reports.

In an effort to provide the Court with current, detailed information concerning the potential cause of each of the North Bay Wildfires, PG&E has included with this submission factual reports concerning the North Bay Wildfires that it previously provided to the CPUC in response to regulatory data requests. For each of those fires, PG&E also created supplemental reports for the Court that include additional information that is available to PG&E, including information that has become available through further investigation and the discovery process. PG&E did not submit factual reports to the CPUC for the Blue Fire, Pressley Fire, or the Highway 37 Fire ("37 Fire"), three of the North Bay Wildfires that did not meet the CPUC's reporting criteria. PG&E has therefore prepared a factual report for those fires for the Court in response to Question 4.[5]

The second and third parts described above, and the corresponding factual reports, provide detailed information concerning the Camp Fire and the 21 North Bay Wildfires that are alleged to have been attributable to PG&E's facilities since the Final Judgment. In responding to the Court's question, however, it is important to note that CAL FIRE has reported approximately 530 wildfires in PG&E's service territory during 2017 and 2018. Most of those wildfires are not alleged to relate to PG&E equipment. For example, one of the largest fires in 2018 in PG&E's service territory was the Carr fire, which CAL FIRE has indicated was caused by mechanical failure of a vehicle. Of the approximately 315 wildfires reported by CAL FIRE in 2017 in PG&E's service territory, approximately 40 of those fires (including the 21 North Bay Wildfires) have been alleged to be attributable to PG&E facilities.

With respect to wildfires that may involve PG&E equipment other than the Camp Fire and the North Bay Wildfires, PG&E has included a report that it submitted to the CPUC for the calendar year 2017. This report, which can be found at Exhibit D, includes information concerning wildfires

[5] The reports provided with this submission reference a significant amount of data, documents and testimony collected by PG&E. In light of the volume of these materials, PG&E has not included all of the cited materials with this submission but will provide that information to the Court upon request.

as well as non-wildfire fire events (such as structure fires) in PG&E's service territory, including information about the potential cause of each fire. A similar report for fires that occurred in 2018 will be filed with the CPUC in April 2019, which is when it is due. PG&E has, however, filed 17 electric incident reports ("EIR") with the CPUC in 2018 for incidents that may have been related to wildfires, including the two EIRs submitted concerning incidents that may be related to the Camp Fire. The EIR reports that may be related to the Camp Fire, described in additional detail below, are attached as Exhibits E & F.

I. PG&E Wildfire Reporting Mechanisms

PG&E routinely submits EIRs to the CPUC when the Commission's reporting criteria are met. The CPUC requires electric utilities such as PG&E to report to the CPUC incidents that are attributable or allegedly attributable to utility-owned facilities and (1) result in a fatality or personal injury rising to the level of in-patient hospitalization; (2) are the subject of significant public attention or media coverage; or (3) involve damage to property of the utility or others estimated to exceed $50,000. (CPUC Decision 06-04-055 Appendix B.) Within 20 business days of a reportable incident, the utility must provide the CPUC with a written account of the incident, including a description of the nature of the incident, its cause and estimated damage, as well as a description of the utility's response to the incident and the measures it took to repair facilities and/or remedy any related problems on the system which may have contributed to the incident (the "20 day report"). An example of each type of report can be found at Exhibits G & H.

PG&E has submitted a total of 131 EIRs from January 1, 2017 to December 20, 2018. Of those 131 EIRs, 86 EIRs could relate to fire incidents. Not all of those fire-related EIRs, however, are potentially related to wildfires. Of the 86 EIRs, 43 EIRs potentially relate to wildfires: 26 EIRs in 2017 and 17 EIRs in 2018.[6]

[6] An example of a potentially fire-related EIR that does not relate to a wildfire is attached as Exhibit I. That EIR concerns a structure fire (i.e., house fire) that may have been related to an electrical incident.

In addition, on February 5, 2014, the CPUC adopted a Fire Incident Data Collection Plan, which requires all electric utilities to submit an annual report to the CPUC of all fire-related reportable events that could include PG&E facilities meeting the following conditions: "(a) A self-propagating fire of material other than electrical and/or communication facilities, [where] (b) The resulting fire traveled greater than one linear meter from the ignition point, and (c) The utility has knowledge that the fire occurred". (CPUC Decision 14-02-015.) Fires whose ignition is not associated with utility facilities are excluded from this reporting requirement, (*id.* Appendix C-3 n.4), as the CPUC's objective is the collect data "for all fires started by overhead power-line facilities". (*Id.* at 79.) Pursuant to the Fire Incident Data Collection Plan, PG&E reported to the CPUC 362 reportable fire-related incidents between January 1, 2017 and December 31, 2017. Many of the fires contained in the report are not wildfires. Many of those incidents also involve third-parties (such as, for example, a helicopter or a car contacting PG&E's facilities). A copy of that report is attached as Exhibit D. As noted, the 2018 report will be submitted in April 2019.

In addition to the EIRs and the materials submitted pursuant to the Fire Incident Data Collection Plan, PG&E routinely provides data, documents and information to the CPUC, CAL FIRE and other entities investigating PG&E's potential role in wildfires. By way of example, in connection with the October 2017 North Bay Wildfires (discussed in further detail below), PG&E has responded to more than 400 specific requests for information and documents from the CPUC. In connection with those responses, PG&E has produced to the CPUC more than 6,500 documents totaling more than 23,000 pages. PG&E is continuing to respond to requests from the CPUC regarding the October 2017 North Bay Wildfires.

PG&E has also been actively responding to data and information requests from CAL FIRE in connection with the October 2017 North Bay Wildfires. As of the date of this submission, PG&E has responded to at least 8 CAL FIRE data requests for the 2017 North Bay Wildfires, many of

which contain multiple questions, and produced more than 5,000 files constituting more than 140,000 pages.

PG&E is similarly responding to requests from both CAL FIRE and the CPUC with respect to the more recent Camp Fire.

In certain instances, PG&E will also report the existence of a wildfire to emergency personnel if PG&E is a witness to the initial origin or spread of a wildfire. For example, as discussed in further detail below, a PG&E employee called the PG&E switchboard in the first hour of the Camp Fire (based on CAL FIRE's estimated time of origin) to report the fire, and the switchboard called emergency services.

II. November 2018 Camp Fire

According to information provided by CAL FIRE, the Camp Fire began at 6:33 a.m. on the morning of November 8, 2018. By the time it was fully contained, the Camp Fire burned a reported 153,336 acres and destroyed a reported total of 18,793 structures. CAL FIRE has reported 86 fatalities from the Camp Fire.

CAL FIRE has publicly identified two potential origin points for the Camp Fire. One location is approximately one mile northwest of the unincorporated town of Pulga near a series of PG&E transmission lines and, in particular, near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line (the "Camp 1 incident location"). The other location is off Pulga Road at Camp Creek Road near Jarbo Gap, in the vicinity of a PG&E distribution line (the "Camp 2 incident location").

On November 8, 2018, PG&E filed with the CPUC an EIR (Incident No. 181108-9002) concerning an outage on the Caribou-Palermo 115 kV Transmission Line in Butte County at approximately

6:15 a.m. on November 8, 2018. This EIR concerns the Camp 1 incident location and is attached as Exhibit E.

On November 16, 2018, PG&E filed with the CPUC an EIR (Incident No. 181116-9015) concerning an outage on the Big Bend 1101 12 kV Circuit in Butte County at approximately 6:45 a.m. on November 8, 2018. This EIR concerns the Camp 2 incident location and is attached as Exhibit F.

On December 11, 2018, PG&E filed with the CPUC a 20-Day Supplemental Report providing additional information related to the events described in those EIRs. That report is attached as Exhibit J. As described in the 20-Day Supplemental Report, PG&E observed damage to PG&E equipment at both incident locations during patrols that took place after the onset of the Camp Fire and when it assisted CAL FIRE in collecting evidence at the incident locations.

PG&E additionally submitted a report to the Department of Energy. This report is attached as Exhibit K.

PG&E employees working at nearby facilities were also among the first to observe the Camp Fire. One of those employees called the fire into a PG&E switchboard, which then contacted emergency services. This call included an observation of fire, which was in the vicinity of Tower :27/222.

Exhibit A is a factual report that PG&E has prepared for this submission concerning the potential cause and origin of the Camp Fire.

III. <u>October 2017 North Bay Wildfires</u>

Beginning on October 8, 2017, multiple wildfires spread through Northern California, including Napa, Sonoma, Butte, Humboldt, Mendocino, Lake, Nevada and Yuba Counties, as well as in the

area surrounding Yuba City. According to the CAL FIRE California Statewide Fire Summary of something that dated October 30, 2017, at the peak of the wildfires, there were 21 major wildfires in Northern California that, in total, burned over 245,000 acres and destroyed an estimated 8,900 structures. The wildfires resulted in a reported 44 fatalities.

As noted above, PG&E previously provided detailed factual reports concerning a number of these fires to the CPUC at its request. PG&E is submitting those detailed reports in response to the Court's request for information concerning PG&E's role in causing any wildfires since the Final Judgment.

Since receiving the Court's November 27, 2018, Order, PG&E has undertaken an effort to collect additional potentially relevant information concerning the North Bay Wildfires for which it previously submitted factual reports to the CPUC. PG&E has also drafted a factual report for the Court related to the Blue Fire, the Pressley Fire and the 37 Fire since they were not reported to the CPUC per the required reporting criteria. In preparing these additional reports, PG&E gathered information from among the following sources: (1) formal third-party witness discovery in the North Bay Wildfires Litigation (including, for example, third-party depositions); (2) information identified within PG&E as part of its ongoing investigations or response to litigation discovery requests; and (3) publicly available information that PG&E has gathered since submitting its initial fact reports.

The factual reports concerning the 2017 North Bay Wildfires are organized as follows:

Fire Name[7]	Original CPUC Report	Report Prepared in Response to Question 4
Abode	Exhibit L	Exhibit EE

[7] This table identifies reports for 23 fires, rather than 21, because: (1) the CPUC requested separate reports for the Potter Valley and Redwood incidents, both of which CAL FIRE has treated together as part of the Redwood/Potter Valley Fire; and (2) we are providing the Court with a report for the Sullivan fire, which the CPUC did not previously request, and which is not one of CAL FIRE's 21 major wildfires, but is part of pending litigation.

Fire Name[7]	Original CPUC Report	Report Prepared in Response to Question 4
Atlas	Exhibit M	Exhibit FF
Blue	N/A[8]	Exhibit GG
Cascade	Exhibit N	Exhibit HH
Cherokee	Exhibit O	Exhibit II
Honey	Exhibit P	Exhibit JJ
LaPorte	Exhibit Q	Exhibit KK
Lobo	Exhibit R	Exhibit LL
Maacama	Exhibit S	Exhibit MM
McCourtney	Exhibit T	Exhibit NN
Norrbom	Exhibit U	Exhibit OO
Nuns	Exhibit V	Exhibit PP
Oakmont	Exhibit W	Exhibit QQ
Partrick	Exhibit X	Exhibit RR
Pocket	Exhibit Y	Exhibit SS
Point	Exhibit Z	Exhibit TT
Potter Valley	Exhibit AA	Exhibit UU
Pressley	N/A	Exhibit VV
Redwood	Exhibit BB	Exhibit WW
Sullivan	N/A	Exhibit XX
Sulphur	Exhibit CC	Exhibit YY
Tubbs	Exhibit DD	Exhibit ZZ
37	N/A	Exhibit AAA

[8] N/A applies to situations where the CPUC did not request a factual report (i.e., the Blue, Pressley, Sullivan and 37 Fires).

As noted, the North Bay Wildfires are subject to litigation in a coordinated proceeding before Judge Curtis E.A. Karnow in the Superior Court for the State of California, San Francisco. As part of that litigation, PG&E has produced voluminous data and documents and has had dozens of its employees deposed. PG&E and plaintiffs have also deposed a number of third-party witnesses to certain of the October 2017 North Bay Wildfires. Discovery is ongoing and the parties have not yet begun expert disclosures. PG&E has not included its protected work product as part of this submission.

As noted, the North Bay Wildfires are subject to litigation in a coordinated proceeding before Judge Curtis E.A. Karnow in the Superior Court for the State of California, San Francisco. As part of that litigation, PG&E has produced voluminous data and documents and has had dozens of its employees deposed. PG&E and plaintiffs have also deposed a number of third-party witnesses to some of the October 2017 North Bay Wildfires. Discovery is ongoing and the parties have not yet begun expert disclosures. PG&E has not included its protected work product as part of this submission.

Finally, as additional relevant background to the Court's question, we note that CAL FIRE has issued its determination on the causes of 18 of the North Bay Wildfires.[9] In each instance, CAL FIRE has alleged that the relevant fire was caused by PG&E's equipment. CAL FIRE has also alleged that 11 of the 18 North Bay Wildfires for which it has completed its investigations involved violations of state law. In those instances, CAL FIRE referred the relevant wildfire to the local

[9] CAL FIRE has not yet announced its determination of cause for the Tubbs fire, which is the largest of the North Bay Wildfires. The Tubbs fire, located in Napa and Sonoma counties, started the evening of October 8, 2017, and burned a reported total of 36,807 acres and destroyed a reported total of 5,636 structures. There were 21 reported civilian fatalities. Pursuant to the governing accounting requirements, PG&E has disclosed in its filings with the United States Securities & Exchange Commission that PG&E has determined that a loss for claims in connection with 14 of the North Bay Wildfires—La Porte, McCourtney, Lobo, Honey, Redwood, Sulphur, Cherokee, Blue, Pocket and Sonoma/Napa merged fires (which include the Nuns, Norrbom, Adobe, Partrick and Pythian fires)—is probable and estimable.

district attorney's office for review.[10]

While CAL FIRE publicly released its investigative reports for the wildfires for which it did not allege violations of state law, it has yet to release the investigative reports for any of the fires that have been referred to county district attorneys' offices. In addition, PG&E has not been able to examine potentially relevant evidence that CAL FIRE collected from the potential areas of origin of each of the North Bay Wildfires. As a result, PG&E, its counsel and its expert investigators have not yet been able to view the potentially most significant evidence with respect to any of the October 2017 North Bay Wildfires.

For the Court's convenience, PG&E has attached CAL FIRE press releases concerning the results of its investigations into 18 of the 21 North Bay Wildfires as Exhibits BBB through DDD.[11]

[10] CAL FIRE forwarded its investigation report related to the Cascade Fire to the local district attorney's office, although it acknowledged in its press release that it found no violations of the Public Resource Code. On the same day that CAL FIRE announced its investigative findings, the Yuba County District Attorney announced that he did not intend to file charges against PG&E concerning the Cascade Fire. CAL FIRE subsequently released its investigation report.

[11] PG&E understands that those North Bay Wildfires that have been referred to local district attorney's offices remain under review by those offices, except for the Honey, LaPorte and Cherokee fires which were resolved through civil settlements.

Respectfully Submitted,

Dated: December 31, 2018

JENNER & BLOCK LLP

By: /s/ Reid J. Schar
Randy Mehrberg (*pro hac vice*)
Reid J. Schar (*pro hac vice*)

CLARENCE DYER & COHEN LLP
Kate Dyer (Bar No. 171891)

Attorneys for Defendant PACIFIC GAS AND ELECTRIC COMPANY

EXHIBIT A

CAMP FIRE INCIDENT DESCRIPTION & FACTUAL SUMMARY

Background:

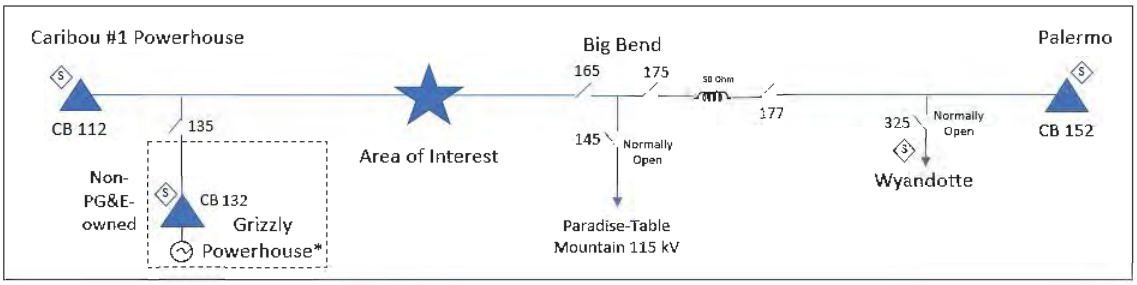
CAL FIRE's website identifies the start time of the Camp Fire as November 8, 2018 at 6:33 a.m. The website lists the location of the fire as Pulga Road at Camp Creek Road near Jarbo Gap. CAL FIRE provides coordinates for the fire that are one mile northeast of the unincorporated town of Pulga, which is near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line (the "Camp 1 incident location").

On November 8, 2018, PG&E filed with the California Public Utilities Commission ("CPUC") an Electric Safety Incident Report ("EIR") (Incident No. 181108-9002) concerning an outage on the Caribou-Palermo 115 kV Transmission Line in Butte County that occurred on the same day at approximately 6:15 a.m. On November 16, 2018, PG&E filed with the CPUC an EIR (Incident No. 181116-9015) concerning an outage on the Big Bend 1101 12 kV Circuit in Butte County at approximately 6:45 a.m. on November 8, 2018 ("Camp 2 incident location"). On December 11, 2018, PG&E filed with the CPUC a 20-Day Supplemental Report providing additional information related to the events described in the foregoing EIRs.

As described in the 20-Day Supplemental Report and as described below, PG&E observed damage to PG&E equipment at both incident locations during patrols that took place after the onset of the Camp Fire and when PG&E assisted CAL FIRE with evidence collection at the incident locations.

Incident Overview:

Camp 1 Incident Location



Single Line Diagram of the Caribou-Palermo 115 kV Transmission Line

On November 8, 2018, at approximately 6:15 a.m., the PG&E Caribou-Palermo 115 kV Transmission Line relayed and de-energized. What is now referred to as the Caribou-Palermo 115 kV transmission line was placed into service in the 1920s by the Great Western Power Company, which PG&E acquired in 1930. One customer, the Grizzly Powerhouse, was impacted by the transmission outage. Auto-reclosing on the line had been disabled previously as part of PG&E's wildfire mitigation program. As a result, the line did not test after it de-energized.

On the morning of November 8, 2018, certain PG&E employees and contractors observed fire in the Feather River Canyon area near Pulga. At about 6:28 a.m., a PG&E Hydro Generation Supervisor, then traveling northeast on Highway 70, radioed the Rock Creek Switching Station to report an approximately 100' x 100' fire in a clearing beneath PG&E transmission lines about one mile north of Pulga, near Poe Dam, which is near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line. PG&E's Rock Creek Switching Station reported the fire to authorities.

A PG&E Electrical Machinist heard the Hydro Supervisor's radio transmission while driving north from Chico along Highway 70. The Electrical Machinist pulled into a station operated by the California Department of Transportation located along Highway 70 south of Poe Dam. From that vantage point, the Electrical Machinist took two photos of the fire, both timestamped 6:44 a.m., November 8, 2018. These photographs have been provided by PG&E to CAL FIRE.

At approximately 6:48 a.m. on November 8, 2018, two other PG&E employees, a Hydro Electrician and a Hydro Sub-foreman, then staging at the PG&E Cresta Powerhouse, were alerted by two PG&E contractors affiliated with Syblon Reid of a nearby fire. Those employees observed a fire from their vantage point, from which they took photos and videos of the fire. The Sub-foreman provided to PG&E eight photos and three videos of the fire bearing timestamps ranging from 6:48 a.m. to 7:53 a.m., November 8, 2018. The Hydro Electrician also took photos of the fire from Cresta Dam and provided to PG&E 13 photos bearing timestamps ranging from 7:05 a.m. to 7:53 a.m., November 8, 2018. These photographs and videos have been provided by PG&E to CAL FIRE.

At approximately 7:00 a.m. on November 8, 2018, a PG&E Operating Clerk was driving south along Highway 70 when the Operating Clerk observed smoke rising from Feather River Canyon. The Operating Clerk pulled over at mile marker 42.87 on Highway 70, where the Operating Clerk took two photos of the smoke, each bearing a timestamp of 7:01 a.m., November 8, 2018. The Operating Clerk then continued down Highway 70 to a retaining wall near mile marker 42.66, where the Operating Clerk pulled over and took two photos of the flames, each bearing a timestamp of 7:03 a.m., November 8, 2018. These photographs have been provided by PG&E to CAL FIRE.

Between approximately 6:30 a.m. and 7:00 a.m. on November 8, 2018, a Syblon Reid welding truck operator took two photos of the fire from a location at Highway 70 near Poe Dam. These photographs have been provided by PG&E to CAL FIRE.

At approximately 7:20 a.m. on November 8, 2018, another PG&E Electrical Machinist, who also had heard the Hydro Supervisor's radio call while driving north on Highway 70, observed a fire moving from the vicinity of the Union Pacific Railroad tracks up the west side of Feather River Canyon, south of Pulga.

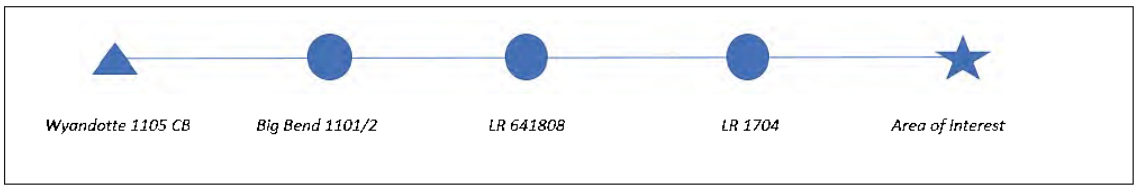
In the afternoon of November 8, 2018, PG&E conducted an aerial patrol of the Caribou-Palermo 115 kV Transmission Line at Tower :27/222. The patrol identified on Tower :27/222 a suspension insulator supporting a transposition jumper that had

separated from an arm on the tower. The suspension insulator and the transposition jumper remained suspended approximately 20-30 feet above the ground. As noted above, on the same day, PG&E filed with the CPUC an EIR (Incident No. 181108-9002) concerning an outage on the line and the results of the aerial patrol of the line that day, including the condition of Tower :27/222.

On November 14, 2018, at CAL FIRE's request, PG&E assisted CAL FIRE's collection of assets from Tower :27/222 and the adjacent Tower :27/221. CPUC staff were on site to observe the collection. At the time of the collection, at Tower :27/222, PG&E observed a broken C-hook that had attached the suspension insulator to a tower arm, along with wear at the connection point. In addition, PG&E observed a flash mark on Tower :27/222 near where the jumper was suspended and damage to the transposition jumper and suspension insulator.

At Tower :27/221, there was an insulator hold down anchor that had become disconnected. The insulator hold down anchor is not an energized piece of equipment. As noted below, this issue had already been identified for repair during an aerial patrol in September 2018.

Camp 2 Incident Location



Single Line Diagram of the Big Bend 1101 12 kV Distribution Circuit

On November 8, 2018, at approximately 6:45 a.m., the PG&E Big Bend 1101 12 kV Distribution Circuit experienced an outage. At that time, LR 1704 (which protects assets downstream of it on the Big Bend 1101 12 kV Distribution Circuit) opened. Four customers on Flea Mountain were affected by the outage (PG&E, AT&T Inc., DigitalPath, Inc. and Yankee Hill Fire Council). At the time of the Camp Fire, auto-reclosing for LR 1704 was disabled as part of PG&E's wildfire mitigation program.

According to certain November 16, 2018 media reports, a review of first responder radio transmissions on the morning of November 8, 2018 indicated a possible second ignition point for the Camp Fire on Rim Road east of Concow Reservoir.

On November 9, 2018, a PG&E Lineman patrolling the Big Bend 1101 12 kV Distribution Circuit arrived at LR 1704. The Lineman had been dispatched to identify a means of isolating the fault detected on the line. The Lineman observed that the LR 1704 pole and other equipment were on the ground.

On November 11, 2018, a PG&E General Construction ("GC") Sub-foreman and Lineman patrolled the Big Bend 1101 12 kV Distribution Circuit from an area a few

spans south of LR 1704 up to Flea Mountain. The Sub-foreman noted bullets and bullet holes at the break point of the LR 1704 pole and bullet dents on the LR 1704 control box. He also noted shotgun pellets embedded in the LR 1704 pole. The Sub-foreman took photos from multiple locations along Concow Road. These photographs have been provided by PG&E to CAL FIRE.

On November 12, 2018, a PG&E Troubleman patrolled the Big Bend 1101 12 kV Distribution Circuit from an area several spans south of LR 1704 up to Flea Mountain. The Troubleman observed fallen trees, wires down, and poles that were damaged and/or down near the intersection of Concow Road and Rim Road. The Troubleman observed that some of the fallen trees lay on top of the downed conductors. The location at which the Troubleman observed trees on conductors is approximately two-thirds of a mile north of LR 1704. The Troubleman took photos from multiple locations along Concow Road. These photographs have been provided by PG&E to CAL FIRE.

A burnt Dodge truck was observed near the Camp 2 incident location by PG&E employees assisting CAL FIRE with evidence collection.

Patrol and Inspection History:

Camp 1 Incident Location

Tower :27/222

Steel structures on PG&E's 115 kV transmission lines, such as Tower :27/222, are subject to maintenance patrols annually and detailed inspections every five years. During a detailed inspection of a transmission line, PG&E personnel are instructed to look for and document abnormalities or circumstances that will negatively impact safety, reliability, or asset life. Detailed inspections are typically done by ground.

PG&E's understanding based upon its records is that a 2009 detailed inspection of the Caribou-Palermo 115 kV Transmission Line identified for replacement the three-bolt connectors associated with Tower :27/222, as well as those associated with other towers on the line. Three-bolt connectors are pieces of equipment used to join two ends of conductor together in a way that allows electrical current to continue to flow through the conductor segments. Three-bolt connectors are different from the C-hook that appears to have failed at Tower :27/222.

PG&E's understanding based upon its records is that the next detailed inspection for Tower :27/222 was completed in August 2014. PG&E's understanding based upon its records is that no new findings were reported. Likewise, no new findings were reported for Tower :27/222 during PG&E aerial patrols conducted between 2009 and 2018. PG&E's understanding based upon its records is that, since the last detailed inspection in 2014, PG&E has conducted aerial patrols in July 2015, August 2016, September 2017 and, most recently, September 2018.

PG&E also performs non-routine patrols on the Caribou Palermo 115 kV Transmission Line on an as-needed basis. These patrols may, but do not always, include the entire line. PG&E's understanding based upon its records is that, in the five years preceding the Camp Fire, PG&E performed non-routine aerial patrols on the Caribou-Palermo 115 kV Transmission Line in May 2014, April 2015, May 2015, December 2015, October 2016 and August 2017. PG&E performed the non-routine aerial patrol in May 2014 due to a CAISO maintenance review. PG&E performed the non-routine aerial patrol in April 2015 in response to a notification by the Grid Control Center ("GCC"). PG&E performed the non-routine aerial patrols in May 2015 and December 2015 in response to outages on the line. PG&E performed the non-routine aerial patrol in October 2016 in response to an outage on the line caused by lightning in the area. PG&E performed the non-routine aerial patrol in August 2017 in response to a relay. PG&E's understanding based upon its records is that no issues were reported for Tower :27/222 as a result of the foregoing non-routine patrols.

PG&E also conducts emergency aerial patrols in response to a momentary or sustained outage caused by an unknown condition on an overhead or underground transmission line. As with non-routine aerial patrols, emergency aerial patrols on the Caribou-Palermo 115 kV Transmission Line may, but do not always, include the entire line. PG&E's understanding based upon its records is that, in the five years preceding the Camp Fire, PG&E performed emergency aerial patrols on the Caribou-Palermo 115 kV Transmission Line in November 2013, February 2015, January 2017 and February 2017. PG&E's understanding based upon its records is that no new findings were reported for Tower :27/222 as a result of these patrols.

PG&E's understanding based upon its records is that PG&E also performed infrared ("IR") patrols of the Caribou-Palermo 115 kV Transmission Line in October 2008, May 2010, May 2012, May 2014, June 2015, May 2016, May 2017 and May 2018. IR patrols use thermographic technology to identify abnormal conditions on electrical equipment, and are typically done by air. PG&E's understanding based upon its records is that these patrols did not identify any new issues related to Towers :27/222.

The Caribou-Palermo 115 kV Transmission Line is also subject to Light Detection and Ranging ("LiDAR") surveys to create a three-dimensional model of the transmission facilities and surrounding vegetation. These surveys are generally performed as part of PG&E's vegetation management program. LiDAR surveys are intended to identify trees that are within defined vegetation clearance distances of transmission lines, and identify trees capable of striking the lines and pole or tower structures. PG&E conducts follow-up foot patrols to evaluate trees that are dead, leaning, uprooted, rotten or defected with cracks in the trunks. PG&E's understanding based upon its records is that vegetation management conducted LiDAR surveys of the Caribou-Palermo 115 kV Transmission Line in December 2012, April 2014, April 2015, April 2016, October 2016, October 2017 and, most recently, September 2018. PG&E's understanding based upon its records is that no vegetation management work related to Tower :27/222 was prescribed as a result of the 2017 survey. The analysis of the September 2018 survey data for year 2019 work has not yet been completed.

PG&E's understanding based upon its records is that the three-bolt connector replacement work on Tower :27/222 was completed in 2016 by the transmission division of PG&E's GC group. The three-bolt connectors along the Caribou-Palermo 115 kV Transmission Line were replaced with parallel groove connectors. Three-bolt connectors and parallel groove connectors are different from the C-hook that appears to have failed.

Tower :27/221

PG&E's understanding based upon its records is that during the last detailed inspection of Tower :27/221 in 2014, no new findings were reported. Similarly, no new findings were reported for Tower :27/221 as a result of routine aerial patrols of the Caribou-Palermo 115 kV Transmission Line in July 2015, August 2016 and September 2017. No new findings were reported for Tower :27/221 as a result of non-routine aerial patrols of the Caribou-Palermo 115 kV Transmission Line in May 2014, April 2015, May 2015, December 2015, October 2016 and August 2017. No new findings were reported for Tower :27/221 as a result of the emergency aerial patrols conducted in November 2013, February 2015, January 2017 and February 2017. No new findings were reported for Tower :27/221 as a result of the IR patrols conducted in October 2008, May 2010, May 2012, May 2014, June 2015, May 2016, May 2017 and May 2018. PG&E's understanding based upon its records is that vegetation management conducted a LiDAR survey of the Caribou-Palermo 115 kV Transmission Line in December 2012, April 2014, April 2015, April 2016, October 2016, October 2017 and, most recently, September 2018. PG&E's understanding based upon its records is that no vegetation management work related to Tower :27/221 was prescribed as a result of the 2017 survey. The analysis of the September 2018 survey data for year 2019 work has not yet been completed.

PG&E's understanding based upon its records is that during the most recent routine aerial patrol of the line, in September 2018, a new finding was reported for Tower :27/221 because an insulator hold down anchor's turnbuckle had become disconnected and required repair. This is the same issue that was identified during CAL FIRE's November 14, 2018 collection of evidence. As noted above, an insulator hold down anchor is not an energized piece of equipment. As a result of the September 2018 aerial patrol, a notification was created to repair the insulator hold down anchor within 12 months. That notification was open at the time of the Camp Fire in November 2018.

<u>Camp 2 Incident Location</u>

For distribution lines, PG&E performs patrols and inspections on a plat map-by-plat map basis. The Camp 2 incident location on the Big Bend 1101 12 kV Distribution Circuit falls within the area of Plat Maps R36 and S36.

PG&E's understanding based upon its records is that PG&E inspected the area corresponding to Plat Map R36 in March 2014, March 2015, February 2016 and March 2017. In addition, PG&E's understanding based upon its records is that PG&E

conducted a ground patrol of this area in April 2018. During these inspections and patrols, no findings were reported for the area, except that bird shot damage to a conductor and a damaged conductor on an insulator were reported as a result of the February 2016 inspection, and minor work was performed during that inspection. PG&E's understanding based upon its records is that during the February 2016 inspection, in an area approximately one mile north of the intersection of Concow Road and Rim Road, minor work identified as "Marking—Install/Replace" was performed on one pole, and minor work identified as "High Sign—Install" was performed on two poles. PG&E's understanding based upon its records is that the bird shot damage to a conductor was repaired in April 2016. PG&E's understanding based upon its records is that the damaged conductor on an insulator was also repaired in April 2016.

PG&E's understanding based upon its records is that PG&E inspected the area corresponding to Plat Map S36 in March 2014, March 2015, February 2016 and February 2017. In addition, PG&E's understanding based upon its records is that PG&E conducted a ground patrol of this area in February 2018. No findings were reported as a result of the March 2014, March 2015 and February 2017 inspections. PG&E's understanding based upon its records is that during the February 2016 inspection, minor work identified as "Marking—Install/Replace" was performed on a pole two poles northeast of LR 1704.

PG&E's understanding based upon its records is that PG&E vegetation management contractors performed inspections of the area near the intersection of Concow Road and Rim Road in August 2015, May 2016, June 2017, September 2017, April 2018 and August 2018. No vegetation management work was prescribed as a result of the September 2017, April 2018 and August 2018 inspections. As a result of the August 2015 vegetation management inspection, in October 2015, the top was pruned from a Douglas Fir, a Ponderosa Pine and a Sugar Pine were pruned, and a Cedar was removed. As a result of the May 2016 vegetation management inspection, a White Fir was removed in September 2016 and a Ponderosa Pine was removed in October 2016. As a result of the June 2017 vegetation management inspection, a Tan Oak was pruned in August 2017 and the top was pruned from a Cedar tree in November 2017.

CAL FIRE Evidence Collection:

CAL FIRE initially restricted access to Tower :27/222 and adjacent Tower :27/221 on the Caribou-Palermo 115 kV Transmission Line, but eventually permitted PG&E access for the limited purpose of cooperating with their investigation. On November 14, 2018, as part of their investigation of the Camp Fire, CAL FIRE requested PG&E's assistance collecting assets from Towers :27/222 and :27/221. PG&E assisted CAL FIRE with the requested collection, and CPUC staff were on site to observe. It was during the CAL FIRE collection in November 2018 that PG&E observed a broken C-hook at Tower :27/222 that had attached the suspension insulator to a tower arm, along with wear at the connection point. It was also at this time that PG&E observed a flash mark on Tower :27/222 near where the transposition jumper was suspended, and damage to the transposition jumper and suspension insulator.

During November 2018, PG&E assisted CAL FIRE's collection of the following items from Towers :27/222 and :27/221: (i) five insulator strings consisting of a total of 49 insulator bells, (ii) two hold down anchors, (iii) two hold down arms, (iv) five C-hooks, (v) a jumper assembly and (vi) two jumper support arms.

During November 2018, CAL FIRE also requested assistance from PG&E to collect evidence related to the Camp 2 incident location. CAL FIRE provided PG&E with receipts for evidence collected prior to PG&E's arrival at the site at the intersection of Concow Road and Rim Road.

With respect to the Camp 2 incident location, PG&E assisted CAL FIRE's collection of Recloser Controllers for Line Reclosers 1704 and 641808 from the area near Concow Road and the area near the intersection of Highway 70 and Deadwood Road. At CAL FIRE's request, PG&E provided CAL FIRE Recloser Controller data from Line Reclosers 1704 and 641808. During November 2018, PG&E also assisted CAL FIRE's collection of the following items from the area near the intersection of Concow Road and Rim Road: (i) a power pole top with cross member, (ii) seven conductor rolls, (iii) nine conductor pieces, (iv) three tie wires, (v) an insulator and insulator bolts, (vi) three pieces of hardware, (vii) a crossarm, (viii) a middle pole and middle pole stump, (ix) a crossmember, (x) a south pole top with hardware and (xi) a middle pole butt.

In addition, PG&E has assisted CAL FIRE's collection of one Smart Meter from Camp Creek Road, Pulga, one Smart Meter from 13298 Concow Road, Oroville, four Smart Meters from the PG&E Cell Repeater Station at Dixie Road on Flea Mountain, and nine Smart Meters from the Pulga area. At CAL FIRE's request, PG&E downloaded and provided to CAL FIRE data contained within these Smart Meters.

Timeline:

Event	**CAL FIRE Bates Number Reference**
October 2008: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	
August 2009: Detailed inspection of Caribou-Palermo 115 kV Transmission Line.	
May 2010: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	
August 2010: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
August 2011: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
May 2012: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	

Event	CAL FIRE Bates Number Reference
August 2012: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
December 2012: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
August 2013: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
November 2013: Emergency aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
March 2014: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map R36.	
March 2014: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map S36.	
April 2014: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
May 2014: Non-routine aerial patrol on the Caribou-Palermo 115 kV Transmission Line.	
May 2014: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	
August 2014: Detailed inspection of Caribou-Palermo 115 kV Transmission Line.	
February 2015: Emergency aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
March 2015: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map R36.	PGE-CAMP-CF-0000000079-82
March 2015: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map S36.	PGE-CAMP-CF-0000000091-94
April 2015: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
April 2015: Non-routine aerial patrol on the Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000171
May 2015: Non-routine aerial patrol on Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000172
June 2015: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000173
July 2015: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000017-78
August 2015: Vegetation Management inspection of the area near the intersection of Concow Road and Rim Road.	
October 2015: The top was pruned from a Douglas Fir, a Ponderosa Pine and a Sugar Pine were pruned, and a Cedar was removed in the area near the intersection of Concow Road and Rim Road.	

Event	CAL FIRE Bates Number Reference
December 2015: Non-routine aerial patrol on Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000174-75
February 2016: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map S36.	PGE-CAMP-CF-0000000095-102
February 2016: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map R36.	PGE-CAMP-CF-0000000083-90
April 2016: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
April 2016: Damaged conductor and insulator on Big Bend 1101 12 kV Distribution Circuit repaired.	PGE-CAMP-CF-0000000139-165
May 2016: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000176-178
May 2016: Vegetation Management inspection of the area near the intersection of Concow Road and Rim Road.	
June 2016: Three-bolt connectors on Tower :27/222 are replaced.	PGE-CAMP-CF-0000000166-167
August 2016: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000012-16
September 2016: A White Fir was removed in the area near the intersection of Concow Road and Rim Road.	
October 2016: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
October 2016: Non-routine aerial patrol on Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000179-800
October 2016: A Ponderosa Pine was removed in the area near the intersection of Concow Road and Rim Road.	
January 2017: Emergency aerial patrols of Caribou-Palermo 115 kV Transmission Line.	
February 2017: Emergency aerial patrol of Caribou-Palermo 115 kV Transmission Line.	
February 2017: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map S36.	PGE-CAMP-CF-0000000116-120
March 2017: Inspection of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map R36.	PGE-CAMP-CF-0000000111-115
May 2017: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000181
June 2017: Vegetation Management inspection of the area near the intersection of Concow Road and Rim Road.	
August 2017: Non-routine aerial patrol on Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000182-186
August 2017: A Tan Oak was pruned in the area near the intersection of Concow Road and Rim Road.	

Event	**CAL FIRE Bates Number Reference**
September 2017: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000001-06
September 2017: Vegetation Management inspection of the area near the intersection of Concow Road and Rim Road.	
October 2017: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
November 2017: The top was pruned from a Cedar in the area near the intersection of Concow Road and Rim Road.	
February 2018: Patrol of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map S36.	PGE-CAMP-CF-0000000107-110
April 2018: Patrol of facilities on the Big Bend 1101 12 kV Distribution Circuit covered by Plat Map R36.	PGE-CAMP-CF-0000000103-106
April 2018: Vegetation Management inspection of the area near the intersection of Concow Road and Rim Road.	
May 2018: Infrared patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000187-188
August 2018: Vegetation Management inspection of the area near the intersection of Concow Road and Rim Road.	
September 2018: Vegetation Management LiDAR Survey of Caribou-Palermo 115 kV Transmission Line.	
September 2018: Aerial patrol of Caribou-Palermo 115 kV Transmission Line.	PGE-CAMP-CF-0000000007-11
November 8, 2018, 6:15 a.m.: The PG&E Caribou-Palermo 115 kV Transmission Line relayed and de-energized.	
November 8, 2018, approx. 6:28 a.m.: PG&E Hydro Supervisor reported seeing fire in a clearing beneath PG&E transmission lines north of Pulga.	
November 8, 2018, 6:44 a.m.: PG&E Electrical Machinist photographed the fire from Highway 70.	
November 8, 2018, 6:45 a.m.: The PG&E Big Bend 1101 12 kV Distribution Circuit experienced an outage, and LR 1704 opened.	
November 8, 2018, between approx. 6:30 and 7:00 a.m.: Syblon Reid employee photographed the fire from Highway 70.	
November 8, 2018, between approx. 6:48 and 7:53 a.m.: Two PG&E Hydro employees photographed the fire from Cresta Dam.	
November 8, 2018, approx. 7:01 and 7:03 a.m.: PG&E Operating Clerk photographed the fire from two points along Highway 70.	

Event	**CAL FIRE Bates Number Reference**
November 8, 2018, approx. 7:20 a.m.: PG&E employee observed fire moving from the vicinity of the Union Pacific Railroad tracks up the west side of Feather River Canyon south of Pulga.	
Nov. 8, 2018, between approx. 9:00 a.m. and 1:00 p.m.: A PG&E Troubleman conducted an aerial patrol of the Caribou-Palermo 115 kV Transmission Line.	
November 8, 2018, 6:06 p.m.: PG&E filed with the CPUC an Electric Safety Incident Report (Incident No. 181108-9002) concerning the 6:15 a.m. outage on the Caribou-Palermo 115 kV Transmission Line.	
November 9, 2018, approx. 2:24 p.m.: PG&E Lineman patrolled a section of the Big Bend 1101 12 kV Distribution Circuit up to the pole with LR 1704 and observed the pole and other equipment on the ground.	
November 11, 2018: PG&E Sub-foreman surveyed the Big Bend 1101 12 kV Distribution Circuit from an area a few spans south of LR 1704 up to Flea Mountain, and observed LR 1704 and its pole on the ground.	
November 12, 2018, approx. 9:30 a.m.: PG&E Troubleman patrolled Concow Road north of LR 1704 and observed damaged and downed poles and wires, as well as snapped trees, some of which lay on top of the downed wires.	
November 14, 2018: PG&E assisted CAL FIRE with collection of evidence at the Camp 1 incident location.	
November 14, 15 and 20, 2018: PG&E assisted CAL FIRE with collection of evidence at the Camp 2 incident location.	
November 16, 2018: PG&E filed with the CPUC an Electric Safety Incident Report concerning the 6:45 a.m. outage on the Big Bend 1101 12 kV Distribution Circuit.	
December 11, 2018: PG&E filed with the CPUC a 20-Day Supplemental Report regarding the Camp Fire.	

Source List:

Source	Brief Description
Corrective Work Form Electric Transmission Line (November 23, 2013); Corrective Work Form Electric Transmission Line (February 7, 2015); Corrective Work Form Electric Transmission Line (January 9, 2017); Corrective Work Form Electric Transmission Line (January 24, 2017); Corrective Work Form Electric Transmission Line (February 21, 2017)	Emergency Patrol Records of Caribou-Palermo Transmission Line
Corrective Work Form Electric Transmission Line (June 18, 2016)	June 2016, Maintenance performed on Tower :27/222
Corrective Work Form Electric Transmission Line (May 5, 2014); PGE-CAMP-CF-0000000171; PGE-CAMP-CF-0000000172; PGE-CAMP-CF-0000000174; PGE-CAMP-CF-0000000179; PGE-CAMP-CF-0000000182	Non-Routine Aerial Patrol Records on Caribou-Palermo Transmission Line
Caribou-Palermo Detailed Inspection 2014	August 2014, Overhead detailed inspection of Caribou-Palermo Transmission Line
Corrective Work Form Electric Transmission Line (November 23, 2013); Corrective Work Form Electric Transmission Line (February 7, 2015); Corrective Work Form Electric Transmission Line (January 9, 2017); Corrective Work Form Electric Transmission Line (January 24, 2017); Corrective Work Form Electric Transmission Line (February 21, 2017)	Emergency Patrol Records of Caribou-Palermo Transmission Line

Source	Brief Description
Corrective Work Form Electric Transmission Line (June 18, 2016)	June 2016, Maintenance performed on Tower :27/222
Corrective Work Form Electric Transmission Line (May 5, 2014); PGE-CAMP-CF-0000000171; PGE-CAMP-CF-0000000172; PGE-CAMP-CF-0000000174; PGE-CAMP-CF-0000000179; PGE-CAMP-CF-0000000182	Non-Routine Aerial Patrol Records on Caribou-Palermo Transmission Line
Enterprise-Record, *The Mystery Camp Fire 'Second Start': Was It Captured on Firewatch Camera?* (Nov. 16, 2018)	Chico Enterprise-Record News Article, https://www.chicoer.com/2018/11/16/was-possible-second-camp-fire-ignition-caught-on-firewatch-camera/
PGE-CAMP-CF-0000000017; PGE-CAMP-CF-0000000012; PGE-CAMP-CF-0000000001; PGE-CAMP-CF-0000000007	Aerial Patrol Records of Caribou-Palermo Transmission Line
PGE-CAMP-CF-0000000166	Corrective Work Form Electric Transmission Line (September 16, 2009), Maintenance performed on Tower :27/222
R36 Inspection 2014; PGE-CAMP-CF-0000000079; PGE-CAMP-CF-0000000083; PGE-CAMP-CF-0000000111; PGE-CAMP-CF-0000000103; S36 Inspection 2014; PGE-CAMP-CF-0000000091; PGE-CAMP-CF-0000000095; PGE-CAMP-CF-0000000116; PGE-CAMP-CF-0000000107	Electric Maintenance Overhead Inspection and Patrol Records for Plat Maps R36 and S36
PGE-CAMP-CF-0000000139-165	Electric Overhead Tag 111417029 for damaged conductor, identified February 24, 2016
PGE-CAMP-CF-0000000139-41	Electric Overhead Tag for bird shot damage to conductor, identified February 24, 2016
Corrective Work Form Electric Transmission Line (October 17, 2008); Corrective Work Form	Infrared Patrol of Caribou-Palermo Transmission Line

Source	Brief Description
Electric Transmission Line (May 4, 2010); Corrective Work Form Electric Transmission Line (May 31, 2012); Corrective Work Form Electric Transmission Line (May 22, 2014); PGE-CAMP-CF-0000000173; PGE-CAMP-CF-0000000176; PGE-CAMP-CF-0000000181; PGE-CAMP-CF-0000000187	

EXHIBIT B

Glossary[1]

1. **Conductor** – The power line or other equipment that carries electricity through an electric power system.

2. **Electrical Fault** – An abnormal electric current on an electric power system. Faults may occur, for example, when energized lines make contact with other conductors or the ground.

3. **Transmission Line** – A power line that transfers electricity in bulk at high voltages.

4. **Distribution Circuit/Line** – A power line that carries electricity at lower voltages than transmission lines and serves customers.

5. **Substation** – A facility that includes equipment to transform voltage from high to low or vice versa. In many cases, electricity is transferred from transmission lines onto distribution lines at a substation.

    a. When discussing the flow of electricity on a distribution circuit, the "source side" or "upstream" direction is the direction towards the substation. In most cases, the electricity originates from the direction of the substation.

    b. The "load side" or "downstream" direction is the direction away from the substation, and, in most cases, is the direction towards which electricity flows.

6. **Distribution Line Device** – An electrical device on a distribution circuit. The nearest device upstream of a certain point on a distribution circuit may be referred to as the "source side device." Similarly, the nearest device downstream of a certain point on a distribution circuit may be referred to as the "load side device." A number of types of distribution devices are described below.

    a. **Line Recloser** – An electrical device that measures data associated with the distribution circuit at its position on the line. Line reclosers may be programmed to "open" upon detection of certain data (*e.g*, fault conditions), thereby de-energizing the downstream portions of the line, and protecting or isolating the upstream portions of the line. Line Reclosers may also be programmed to automatically re-energize the line ("close") after a certain period of time to restore power in the case of a temporary fault. If fault conditions persist, a recloser will "lock out" in an open position until the line has been deemed safe to restore.

    b. **Circuit Breaker** – Similar to a line recloser, a circuit breaker is a device located in a substation that protects substation equipment by measuring data associated with the distribution circuit and opening upon detection of fault conditions.

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[1] This glossary contains simplified explanations of components that make up PG&E's complex electrical system and which are referenced or discussed in the factual reports submitted with this filing.

c. **Sectionalizer** – An electrical device that has the functionality to automatically open, or disconnect, a section of circuit when it senses that it has lost power from its source. In some circumstances, this enables electricity to flow around the portion of the circuit that has been disconnected and continue to reach customers downstream.

d. **Fuse** – A device that will automatically "open," if the current flowing through it exceeds a certain threshold for a certain amount of time, thereby de-energizing the downstream portions of the line and protecting the upstream portions of the line. Fuses are installed in mechanisms known as "cutouts" placed on the line.

e. **Switch** – A device that allows personnel to de-energize or re-energize a section of a circuit manually. These devices typically do not operate automatically, but may be able to be operated remotely.

7. **Primary Line and Secondary Line** – PG&E's electric distribution system is divided between primary line and secondary line. Primary line carries electricity at voltages greater than 480V. Transformers attached to primary line transform those higher voltages to lower voltages for delivery to customers on secondary line.

8. **Single Line Diagram** – A diagram that outlines the high-level configuration of a circuit or line. The single line diagrams PG&E has submitted with this filing display how power flows from substations through protective devices, such as fuses and reclosers, to certain locations of interest.

9. **Smart Meter** – An electric meter that tracks and stores a customer's energy usage and certain electrical events, and transmits it wirelessly to the utility.

10. **Troubleman** – An employee who, amongst other responsibilities, is tasked with responding to events on electrical circuits.

11. **Vegetation Management Reliability Program** – The Vegetation Management Reliability Program (formerly called Enhanced Electric Vegetation Management and Public Safety & Reliability) is dedicated to performing tree work that exceeds regulatory requirements. The program targets circuit protection zones based on past vegetation outage data and/or other sources of risk rating, including, but not limited to, history of past vegetation maintenance work, feedback from local Outage Reduction Team, number of customers in protection zones, vegetation management ignition data and High Fire Threat District zone designations. In these select zones, inspectors apply a PG&E created prescription guide and exercise professional judgement to select individual trees to be worked to prevent branches or entire trees from falling into conductors. This tree work only proceeds if written authorization is granted by the tree owners.

12. **Fire Risk Reduction (FRR) Program** – Starting in 2014, PG&E expanded its fire risk reduction efforts. The new effort included a more rigorous assessment for the highest fire risk locations in PG&E's service territory. To identify the highest risk locations, PG&E worked with fire risk experts to develop a comprehensive catastrophic wildfire risk model. PG&E completed this work in 2015.

EXHIBIT C

October 2017 Wildfires
CPUC Data Request – Common

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

Question 62:
Please provide PG&E's internal investigation report. If not available by due date, please provide expected completion date and provide the report upon completion.

Response to Question 62:

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.

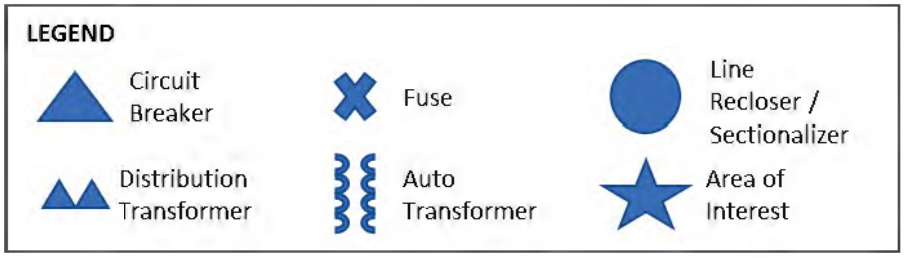
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

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.

Response provided by:

Ahmad Ababneh, Senior Director, Electric Distribution Asset Management, Pacific Gas & Electric Company, 77 Beale Street, San Francisco, CA 94105

EXHIBIT D

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Location				Fire			Utility Facility					Outage			Field Observations				
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor
38.66287	-121.74803	Vegetation	Urban	< 3 Meters	Fire Agency	Woodland fire dept 530-666-8920	101589774	Unknown	0 – 750	Conductor	Overhead	Yes	1/1/17	15:57	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.75380	-121.15641	Building	Urban	Structure Only	Unknown	N.A.	100065079	Unknown	12,000	Conductor	Overhead	Yes	1/10/17	15:55	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.38388	-121.80884	Building	Urban	Structure Only	Unknown	N.A.	100564835	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	1/18/17	15:34	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.36159	-121.95091	Building	Urban	Structure Only	Fire Agency	Unknown	T8550	Unknown	12,000	Transformer	Subsurface	Yes	1/29/17	09:45	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
37.56153	-122.02772	Vegetation	Urban	< 3 Meters	Fire Agency	jeff	100938466	Unknown	12,000	Conductor	Overhead	Yes	2/3/17	10:00	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.43314	-122.71902	Building	Urban	Structure Only	Fire Agency	Santa Rosa Fire Dept	102014637	PACIFIC BELL	12,000	Conductor	Overhead	Yes	2/7/17	04:50	Other	N.A.	N.A.	N.A.	Unknown
38.27175	-122.01971	Other	Urban	< 0.25 Acres	Fire Agency	Unknown	101561532	PACIFIC BELL	12,000	Conductor	Overhead	Yes	3/16/17	12:43	Contact From Object	N.A.	Vehicle	Pole	Human Error
38.11532	-121.42216	Other	Rural	Structure Only	Fire Agency	911	102044732	PACIFIC BELL	21,000	Conductor	Overhead	Yes	3/17/17	09:37	Contact From Object	N.A.	Vehicle	Electric Facility	Human Error
39.76209	-121.85247	Vegetation	Urban	< 3 Meters	Fire Agency	CHICO FIRE DEPT 911	100441377	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	3/19/17	17:06	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.36975	-121.85218	Other	Urban	< 3 Meters	Fire Agency	SJFD disp 408-277-8950 Icident# F170829041	103485262	Unknown	12,000	Transformer	Subsurface	Yes	3/23/17	07:04	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
34.88092	-120.41992	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	103397961	YES	12,000	Conductor	Overhead	Yes	3/28/17	12:15	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.18823	-120.95764	Vegetation	Rural	< 0.25 Acres	Fire Agency	engine 74 mrced fire agency	102318665	Unknown	12,000	Conductor	Overhead	Yes	4/1/17	14:54	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
35.68851	-120.76533	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101945026	None	12,000	Conductor	Overhead	Yes	4/4/17	13:29	Contact From Object	N.A.	Vehicle	Pole	Human Error
37.29584	-121.93295	Vegetation	Urban	< 3 Meters	Customer	N.A.	100591136	None	12,000	Conductor	Overhead	Yes	4/4/17	14:54	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
35.61751	-119.74296	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	100128630	Unknown	21,000	Conductor	Overhead	No			Contact From Object	N.A.	Animal	Electric Facility	Unknown
37.79671	-121.25210	Other	Urban	Structure Only	Fire Agency	MANTECA CITY	102104500	VERIZON CALIFO	17,000	Conductor	Overhead	Yes	4/13/17	14:21	Contact From Object	N.A.	Vehicle	Pole	Human Error
35.58053	-119.14227	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103833904	Unknown	12,000	Conductor	Overhead	Yes	4/16/17	15:14	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
37.37407	-120.71688	Vegetation	Urban	< 3 Meters	Fire Agency	209-966-3621	101205903	Unknown	12,000	Transformer	Overhead	No			Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
36.07345	-120.93450	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101726333	Unknown	12,000	Conductor	Overhead	Yes	4/23/17	7:10	Contact From Object	N.A.	Vehicle	Pole	Human Error
36.18990	-121.15129	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101718856	None	12,000	Conductor	Overhead	Yes	4/24/17	11:52	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.65832	-120.97622	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101376746	Unknown	0 – 750	Transformer	Overhead	Yes	4/25/17	12:38	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
36.23725	-119.78071	Other	Rural	Structure Only	Self Extinguished	N.A.	100716676	Unknown	0 – 750	Conductor	Overhead	Yes	4/25/17	18:26	Contact From Object	N.A.	Vehicle	Pole	Human Error
38.15608	-121.67886	Vegetation	Rural	< 0.25 Acres	Fire Agency	CAPT KENNY WILLIAMS (707)374-2233	103826165	Unknown	21,000	Conductor	Overhead	Yes	4/26/17	15:55	Contact From Object	N.A.	Other	Electric Facility	Other
34.58848	-120.10568	Vegetation	Rural	< 0.25 Acres	Fire Agency	805-683-2724	101900122	Unknown	12,000	Conductor	Overhead	Yes	4/28/17	5:55	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.12469	-121.62488	Vegetation	Urban	< 0.25 Acres	Fire Agency	Cal Fire	103098414	Unknown	0 – 750	Conductor	Overhead	Yes	4/28/17	14:35	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.76786	-120.96253	Vegetation	Rural	< 0.25 Acres	Fire Agency	chris paper fire investigator, 530/677-1868. incident #caaeuo11821	101409833	PACIFIC BELL	21,000	Conductor	Overhead	Yes	4/28/17	15:49	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.03486	-119.52423	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100678661	Unknown	12,000	Conductor	Overhead	Yes	4/29/17	15:07	Contact From Object	N.A.	Animal	Electric Facility	Unknown
35.63491	-118.95629	Vegetation	Rural	< 0.25 Acres	Fire Agency	661-324-6551	100216308	Unknown	21,000	Conductor	Overhead	Yes	4/30/17	9:32	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
36.02269	-119.95837	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	CORCORAN STATION 559-992-2156	Pole 076/015	Unknown	70,000	Conductor	Overhead	Yes	5/1/17	14:20	Contact From Object	N.A.	Other	Electric Facility	Other
36.81613	-119.63202	Vegetation	Rural	< 0.25 Acres	Fire Agency	eng 44 Eric connors 559-324-2294	100770906	PACIFIC BELL	12,000	Conductor	Overhead	Yes	5/3/17	10:04	Contact From Object	N.A.	Animal	Electric Facility	Unknown
38.19080	-121.66150	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103834798	None	21,000	Conductor	Overhead	Yes	5/3/17	12:51	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
35.55728	-120.75348	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101934476	Unknown	21,000	Conductor	Overhead	Yes	5/4/17	16:19	Contact From Object	N.A.	Animal	Electric Facility	Unknown
40.37758	-123.00187	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	101501566	None	12,000	Conductor	Overhead	Yes	5/5/17	15:52	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.32997	-120.83297	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103834182	Unknown	12,000	Conductor	Overhead	Yes	5/6/17	1:56	Contact From Object	N.A.	Vehicle	Pole	Human Error
40.79512	-124.02902	Vegetation	Rural	< 3 Meters	Fire Agency	chief rick harden 7074423352	103661154	Unknown	12,000	Conductor	Overhead	Yes	5/6/17	11:18	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
40.76227	-124.16195	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100998152	Unknown	12,000	Conductor	Overhead	Yes	5/6/17	12:43	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.24580	-123.77854	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	102185559	Unknown	12,000	Conductor	Overhead	Yes	5/6/17	15:00	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.16537	-120.37372	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	100741510	PACIFIC BELL	12,000	Conductor	Overhead	Yes	5/6/17	23:46	Contact From Object	N.A.	Vehicle	Pole	Human Error
40.05970	-122.18895	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	101531151	PACIFIC BELL	12,000	Conductor	Overhead	Yes	5/9/17	11:15	Contact From Object	N.A.	Vehicle	Pole	Human Error
39.54650	-121.85667	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100404826	Unknown	12,000	Conductor	Overhead	No			Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
40.86892	-123.51559	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	todd wright fire chief. 5307392493	103796045	Unknown	12,000	Conductor	Overhead	Yes	5/9/17	18:26	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.85066	-121.31683	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	102347828	Unknown	21,000	Conductor	Overhead	Yes	5/12/17	15:16	Contact From Object	N.A.	Balloons	Electric Facility	Human Error
39.67845	-121.77802	Vegetation	Rural	< 0.25 Acres	Fire Agency	911	100355502	Unknown	12,000	Conductor	Overhead	Yes	5/13/17	21:49	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown
38.07980	-122.86650	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	102247059	PACIFIC BELL	12,000	Conductor	Overhead	Yes	5/14/17	11:59	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
35.60167	-119.65665	Vegetation	Rural	10 - 99 Acres	Fire Agency	661-391-7000	100131572	Unknown	21,000	Conductor	Overhead	Yes	5/14/17	16:09	Contact From Object	N.A.	Vehicle	Pole	Human Error
35.62610	-120.89616	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101873299	Unknown	21,000	Conductor	Overhead	No			Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.19694	-121.40951	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	102071491	Unknown	12,000	Transformer	Overhead	No			Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
37.17665	-119.81887	Vegetation	Rural	< 0.25 Acres	Fire Agency	SHAUN FAIRBANKS 559-683-4823	101108423	SIERRA	21,000	Conductor	Overhead	Yes	5/15/17	16:00	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.67253	-122.04559	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101589358	Unknown	21,000	Conductor	Overhead	Yes	5/15/17	20:57	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
35.37590	-119.14413	Vegetation	Urban	< 0.25 Acres	Fire Agency	324-6551	103264300	Unknown	12,000	Conductor	Overhead	Yes	5/16/17	17:21	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.22500	-120.48326	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101154662	Unknown	12,000	Transformer	Overhead	Yes	5/17/17	14:49	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
36.24862	-121.03830	Other	Rural	10 - 99 Acres	Fire Agency	Unknown	101764465	None	12,000	Conductor	Overhead	Yes	5/17/17	15:13	Contact From Object	N.A.	Animal	Electric Facility	Unknown
40.03343	-122.09887	Vegetation	Rural	< 0.25 Acres	Fire Agency	INCIDENT NUMBER 004751	101534483	Unknown	0 – 750	Conductor	Overhead	Yes	5/19/17	9:37	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.20861	-121.09683	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	Pole 044/004	Unknown	115,000	Conductor	Overhead	Yes	5/19/17	10:52	Contamination	N.A.	N.A.	N.A.	Unknown
36.65278	-119.80121	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100649202	Unknown	0 – 750	Conductor	Overhead	Yes	5/20/17	12:20	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
39.42773	-121.69795	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100379216	Unknown	12,000	Conductor	Overhead	Yes	5/21/17	11:36	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.06453	-122.56982	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	102238142	PACIFIC BELL	12,000	Transformer	Overhead	Yes	5/21/17	22:47	Contact From Object	N.A.	Animal	Electric Facility	Unknown
36.37529	-121.04797	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101770874	Unknown	21,000	Other	Overhead	No			Equipment/ Facility Failure	Voltage Regulator	N.A.	N.A.	Unknown
37.75450	-121.41930	Vegetation	Urban	< 0.25 Acres	Fire Agency	TRACY	102119359	Unknown	12,000	Conductor	Overhead	Yes	5/22/17	17:52	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.83404	-121.11965	Vegetation	Rural	< 3 Meters	Fire Agency	Fire Capt	103838109	None	12,000	Conductor	Overhead	Yes	5/24/17	16:24	Contact From Object	N.A.	Vehicle	Pole	Human Error
37.45264	-121.88900	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	ERIC EMMANUELE OFFICE (408)586-3365 DIRECT (408)586-3383	100557380	Unknown	12,000	Transformer	Overhead	Yes	5/25/17	11:09	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
36.52168	-121.84729	Vegetation	Rural	< 0.25 Acres	Fire Agency	Buddy Bloxham 831-236-5659	101778611	PACIFIC BELL	12,000	Conductor	Overhead	Yes	5/25/17	15:05	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.39860	-122.98760	Vegetation	Rural	< 3 Meters	Utility: PG&E	N.A.	101974034	Unknown	12,000	Conductor	Overhead	Yes	5/25/17	16:55	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.22451	-121.37525	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101304842	PACIFIC BELL	12,000	Conductor	Overhead	No			Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.80045	-121.77018	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	101707398	Unknown	12,000	Conductor	Overhead	Yes	5/30/17	11:40	Contact From Object	N.A.	Animal	Electric Facility	Unknown

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
Location				Fire			Utility Facility					Outage			Field Observations					
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor	
38.75403	-121.22378	Vegetation	Rural	< 0.25 Acres	Fire Agency	Placer Co. fire	100063341	ROSEVILLE	12,000	Conductor	Overhead	Yes	5/31/17	2:06	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	thirc
37.02750	-120.07067	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101113852	Unknown	12,000	Conductor	Overhead	Yes	5/31/17	5:24	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
40.18301	-122.26654	Vegetation	Rural	< 0.25 Acres	Fire Agency	MARK FRITZ	101546068	Unknown	12,000	Conductor	Overhead	Yes	6/1/17	9:11	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
41.05570	-121.38690	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101550337	FRONTIER COMM	12,000	Conductor	Overhead	Yes	6/1/17	21:35	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.65394	-121.62918	Vegetation	Rural	< 3 Meters	Fire Agency	Salinas FD	101732390	Unknown	12,000	Lightning Arrestor	Overhead	Yes	6/1/17	22:14	Equipment/ Facility Failure	Lightning Arrestor	N.A.	N.A.	Unknown	
38.90174	-121.20559	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100043664	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/3/17	13:26	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.83229	-119.63327	Vegetation	Rural	< 3 Meters	Fire Agency	CLOVIS F.D. CHIEF	100768082	Unknown	12,000	Conductor	Overhead	Yes	6/3/17	20:52	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.98200	-120.03471	Vegetation	Rural	< 0.25 Acres	Fire Agency	Mike Gomez 559 906-1621 Incident #17cammu011185	103837406	None	12,000	Conductor	Overhead	Yes	6/4/17	00:08	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	thirc
36.74591	-120.06018	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100645872	Unknown	12,000	Conductor	Overhead	Yes	6/4/17	13:12	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.23420	-121.21311	Vegetation	Rural	< 3 Meters	Unknown	N.A.	102083982	PACIFIC BELL	12,000	Transformer	Overhead	Yes	6/5/17	0:52	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
37.85680	-120.88150	Vegetation	Rural	< 0.25 Acres	Fire Agency	209 5523911	102333651	None	17,000	Conductor	Overhead	Yes	6/5/17	7:56	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
36.94243	-121.46123	Vegetation	Rural	10 - 99 Acres	Fire Agency	Leo Alvarez 831-6364324	101717332	Unknown	21,000	Conductor	Overhead	Yes	6/5/17	17:12	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
36.45426	-119.13382	Vegetation	Rural	< 0.25 Acres	Fire Agency	TIM ROGERS, 559-358-7120	102306658	Unknown	12,000	Conductor	Overhead	Yes	6/6/17	9:15	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
36.99857	-120.93690	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	101199765	Unknown	12,000	Conductor	Overhead	Yes	6/6/17	09:48	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.17110	-121.67825	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101666656	FRONTIER COMM	21,000	Fuse	Overhead	No			Contact From Object	N.A.	Animal	Electric Facility	Unknown	
35.09398	-119.41607	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	100192567	Unknown	12,000	Conductor	Overhead	No			Contact From Object	N.A.	Animal	Electric Facility	Unknown	
39.56030	-122.10768	Vegetation	Rural	< 3 Meters	Utility: PG&E	N.A.	103838281	Unknown	12,000	Conductor	Overhead	Yes	6/7/17	10:13	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
36.23884	-120.30164	Vegetation	Rural	.26 - 9.99 Acres	Unknown	N.A.	100743822	Unknown	12,000	Conductor	Overhead	Yes	6/8/17	5:33	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
37.12759	-120.01930	Vegetation	Rural	100 - 299 Acres	Fire Agency	Jeff Mc Carroll (559) 806 - 8815	103205823	Unknown	12,000	Conductor	Overhead	Yes	6/8/17	0:26	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	thirc
34.60580	-120.02140	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	SHAWN STEINER	101947678	Unknown	12,000	Conductor	Overhead	Yes	6/8/17	15:08	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.69563	-119.71863	Vegetation	Rural	< 0.25 Acres	Fire Agency	FRESNO COUNTY	100793555	Unknown	12,000	Conductor	Overhead	Yes	6/9/17	10:40	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
36.73820	-119.82038	Vegetation	Rural	< 0.25 Acres	Fire Agency	FFD INC # 703 4018	100895732	Unknown	12,000	Conductor	Overhead	Yes	6/9/17	13:27	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
35.79741	-120.53892	Vegetation	Rural	10 - 99 Acres	Fire Agency	Unknown	103406061	Unknown	12,000	Conductor	Overhead	Yes	6/9/17	17:20	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
35.43590	-120.49570	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101890429	Unknown	21,000	Conductor	Overhead	Yes	6/10/17	07:37	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.96720	-120.09309	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101136946	Unknown	12,000	Conductor	Overhead	Yes	6/12/17	15:28	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	thirc
35.36381	-118.82556	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	103371824	Unknown	12,000	Transformer	Overhead	Yes	6/12/17	18:04	Contact From Object	N.A.	Other	Electric Facility	Other	bird
37.85265	-122.18529	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	Tower 005/035c	Unknown	115,000	Conductor	Overhead	Yes	6/13/17	14:30	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	thirc
39.75591	-121.59343	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100324481	PACIFIC BELL	12,000	Fuse	Overhead	Yes	6/14/17	22:23	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown	
40.29899	-122.43185	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101511631	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/15/17	2:58	Vandalism/Theft	N.A.	N.A.	N.A.	Human Error	pow
36.82613	-121.67456	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101712958	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/15/17	5:02	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
39.22756	-121.23476	Vegetation	Rural	< 0.25 Acres	Fire Agency	FIRE CHIEF	103676075	Unknown	21,000	Conductor	Overhead	Yes	6/15/17	7:39	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
39.39127	-123.30541	Vegetation	Rural	< 0.25 Acres	Fire Agency	STEPHEN	103838176	YES	12,000	Conductor	Overhead	Yes	6/15/17	15:01	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
38.70880	-122.90160	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101957366	Unknown	0 – 750	Conductor	Overhead	Yes	6/15/17	16:21	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.79696	-121.20690	Vegetation	Urban	< 0.25 Acres	Fire Agency	Cal Fire	100058437	Unknown	21,000	Conductor	Overhead	Yes	6/15/17	17:18	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
35.45050	-120.61690	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101889864	Unknown	21,000	Conductor	Overhead	Yes	6/16/17	13:50	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.84496	-120.01918	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	101212782	Unknown	0 – 750	Conductor	Overhead	Yes	6/16/17	14:22	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
39.22260	-121.00411	Vegetation	Rural	< 3 Meters	Fire Agency	GVFIRE	100036908	Unknown	12,000	Conductor	Overhead	Yes	6/16/17	16:17	Contact From Object	N.A.	Vehicle	Electric Facility	Human Error	thirc
37.30938	-122.04719	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100555441	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	6/16/17	17:59	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.34429	-122.78122	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101970801	Unknown	0 – 750	Conductor	Overhead	Yes	6/16/17	19:14	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.03734	-122.18465	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101424286	Unknown	21,000	Conductor	Overhead	Yes	6/16/17	22:30	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown	
37.33567	-120.58295	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101147424	Unknown	12,000	Conductor	Overhead	Yes	6/17/17	02:53	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
36.93896	-119.68463	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	103406061	Unknown	21,000	Conductor	Overhead	Yes	6/17/17	15:49	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
39.19494	-122.96321	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	102160857	Unknown	12,000	Conductor	Overhead	Yes	6/18/17	23:49	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.72578	-119.79068	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100894729	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	6/18/17	12:22	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.23703	-122.67015	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	102007208	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/18/17	13:10	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown	
37.55165	-122.29253	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100309893	Unknown	21,000	Conductor	Overhead	Yes	6/18/17	18:09	Equipment/ Facility Failure	Guy/Span Wire	N.A.	N.A.	Unknown	
38.88844	-122.02044	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101650987	None	12,000	Lightning Arrestor	Overhead	Yes	6/18/17	20:16	Equipment/ Facility Failure	Lightning Arrestor	N.A.	N.A.	Unknown	
37.83974	-121.28643	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	102085809	Unknown	12,000	Conductor	Overhead	Yes	6/18/17	21:07	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
38.53900	-122.79203	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	102029435	Unknown	12,000	Other	Overhead	Yes	6/18/17	22:12	Equipment/ Facility Failure	Voltage Regulator	N.A.	N.A.	Unknown	
36.75747	-119.66455	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100780126	PACIFIC BELL	12,000	Conductor	Overhead	No			Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
38.89731	-121.29467	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	103782395	Unknown	12,000	Conductor	Overhead	Yes	6/18/17	23:31	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
35.36762	-118.95521	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100252360	PACIFIC BELL	21,000	Conductor	Overhead	Yes	6/19/17	01:23	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
39.90633	-122.17660	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	103841797	YES	12,000	Conductor	Overhead	Yes	6/19/17	13:51	Contact From Object	N.A.	Vehicle	Pole	Human Error	thirc
37.79272	-121.23058	Other	Urban	Structure Only	Utility: PG&E	N.A.	103582825	Unknown	17,000	Transformer	Subsurface	Yes	6/19/17	16:18	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
37.93783	-120.60897	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101282825	Unknown	17,000	Other	Overhead	No			Equipment/ Facility Failure	Recloser	N.A.	N.A.	Unknown	
36.76268	-120.37580	Vegetation	Rural	< 3 Meters	Unknown	N.A.	101094343	Unknown	12,000	Transformer	Overhead	Yes	6/19/17	17:31	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
38.45496	-121.82416	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101594910	PACIFIC BELL	12,000	Lightning Arrestor	Overhead	Yes	6/19/17	18:00	Equipment/ Facility Failure	Lightning Arrestor	N.A.	N.A.	Unknown	
38.10123	-120.86969	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101233468	Unknown	12,000	Transformer	Overhead	Yes	6/19/17	20:22	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
39.74900	-121.89975	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	100437523	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/20/17	00:49	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
39.19754	-121.49499	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101306700	Unknown	12,000	Conductor	Overhead	Yes	6/20/17	09:12	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
39.03668	-121.07630	Vegetation	Urban	< 3 Meters	Fire Agency	JERRY GOOD 530 268-0844	100023174	None	12,000	Conductor	Overhead	Yes	6/20/17	10:08	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.92473	-122.08954	Vegetation	Urban	< 3 Meters	Fire Agency	contra costa fire	100476159	PACIFIC BELL	12,000	Capacitor Bank	Overhead	Yes	6/20/17	13:37	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown	
40.11262	-123.76774	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	100987107	Unknown	12,000	Conductor	Overhead	Yes	6/20/17	15:17	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
40.31556	-124.06111	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101006039	Unknown	12,000	Conductor	Overhead	Yes	6/20/17	11:51	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.92810	-121.23323	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	102132644	Unknown	12,000	Conductor	Overhead	Yes	6/20/17	18:32	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
38.90764	-121.26030	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100085621	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/20/17	20:46	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
35.63750	-120.85660	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101873622	Unknown	12,000	Conductor	Overhead	Yes	6/20/17	23:16	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
39.16997	-122.15731	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101637081	Unknown	12,000	Conductor	Overhead	Yes	6/21/17	08:41	Contact From Object	N.A.	Other	Electric Facility	Human Error	helic
38.99208	-121.35362	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	100027499	PACIFIC BELL	12,000	Transformer	Overhead	Yes	6/21/17	14:23	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
38.39647	-120.47274	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101251777	Unknown	12,000	Conductor	Overhead	Yes	6/22/17	9:36	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown	
39.61307	-121.68724	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	100347529	None	12,000	Conductor	Overhead	Yes	6/22/17	16:30	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.75831	-120.71764	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101401088	Unknown	12,000	Conductor	Overhead	Yes	6/22/17	18:07	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error	Thir
35.58886	-120.66910	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101912249	Unknown	21,000	Conductor	Overhead	Yes	6/22/17	19:29	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thir

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
Location				Fire			Utility Facility					Outage			Field Observations					
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor	
39.30510	-122.48618	Vegetation	Rural	10 - 99 Acres	Fire Agency	Unknown	100329817	Unknown	0 – 750	Conductor	Overhead	Yes	6/23/17	13:00	Vandalism/Theft	N.A.	N.A.	N.A.	Human Error	pow
40.38565	-122.28408	Vegetation	Urban	< 0.25 Acres	Fire Agency	kieth foster 530-347-4737	101505644	Unknown	12,000	Conductor	Overhead	Yes	6/23/17	20:09	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown	Boo
39.78294	-121.86700	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100397376	None	12,000	Conductor	Overhead	Yes	6/23/17	19:23	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.94379	-121.04466	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100090318	PACIFIC BELL	12,000	Transformer	Overhead	Yes	6/24/17	10:31	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
38.36218	-120.76381	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101255656	Unknown	12,000	Fuse	Overhead	Yes	6/24/17	14:51	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown	
38.29083	-120.84900	Vegetation	Rural	10 - 99 Acres	Fire Agency	CONTACT BOBBY BOWMAN	101238865	None	12,000	Conductor	Overhead	Yes	6/24/17	22:27	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
37.32357	-120.55914	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101159230	Unknown	12,000	Conductor	Overhead	Yes	6/25/17	0.7625	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
39.40434	-123.38687	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	102193088	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/25/17	0:23	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown	
39.07743	-121.52937	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101314125	Unknown	12,000	Conductor	Overhead	Yes	6/25/17	6:02	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown	
34.93950	-119.69246	Vegetation	Rural	100 - 299 Acres	Fire Agency	805-686-5074	100191652	None	12,000	Conductor	Overhead	Yes	6/25/17	15:37	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown	
39.02503	-121.57873	Vegetation	Rural	< 3 Meters	Fire Agency	Olivehurst FD	101314072	Unknown	21,000	Conductor	Overhead	Yes	6/25/17	22:14	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.27331	-120.52573	Vegetation	Rural	< 0.25 Acres	Self Extinguished	N.A.	103218794	Unknown	12,000	Conductor	Overhead	Yes	6/26/17	8:18	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
35.97817	-120.11694	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	HENNAGIN 559 386 555	103243976	Unknown	21,000	Conductor	Overhead	Yes	6/26/17	14:29	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
37.95588	-122.61762	Vegetation	Rural	10 - 99 Acres	Fire Agency	marin county fire	102260068	UNFILED	12,000	Conductor	Overhead	Yes	6/27/17	9:23	Other	N.A.	N.A.	N.A.	Unknown	
39.51264	-122.20333	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100341056	None	21,000	Conductor	Overhead	Yes	6/27/17	17:47	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
35.90555	-120.84214	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	101765453	Unknown	12,000	Conductor	Overhead	No			Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown	
34.92757	-119.62041	Building	Rural	Structure Only	Fire Agency	(805)683-2724)	100190548	Unknown	21,000	Conductor	Overhead	Yes	6/28/17	13:09	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
38.44450	-122.89990	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	102021185	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	6/29/17	18:31	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
35.98040	-121.09557	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	103312369	Unknown	12,000	Transformer	Overhead	Yes	6/29/17	21:55	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
39.02621	-121.54317	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	101341770	Unknown	21,000	Conductor	Overhead	Yes	6/30/17	10:24	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
39.82098	-121.58834	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103840463	YES	12,000	Conductor	Overhead	Yes	6/30/17	01:20	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
38.57941	-122.88349	Vegetation	Rural	< 3 Meters	Customer	N.A.	101958804	PACIFIC BELL	12,000	Conductor	Overhead	Yes	6/30/17	23:54	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
39.82093	-121.64183	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	Pole 003/039	Unknown	60,000	Conductor	Overhead	Yes	7/1/17	12:02	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
36.99950	-119.97648	Vegetation	Rural	< 0.25 Acres	Fire Agency	2099663621	101015895	Unknown	0 – 750	Conductor	Overhead	Yes	7/1/17	3:54	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.19517	-122.91971	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103855493	Unknown	12,000	Conductor	Overhead	Yes	7/1/17	3:12	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown	
39.27788	-121.68748	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101294919	Unknown	12,000	Other	Overhead	Yes	7/1/17	10:41	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown	
39.86055	-121.62736	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	Pole 000/017c	Unknown	60,000	Conductor	Overhead	Yes	7/2/17	13:28	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
36.95878	-120.89268	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101205043	Unknown	12,000	Conductor	Overhead	Yes	7/2/17	3:49	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	Thin
38.79229	-120.94384	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101388730	PACIFIC BELL	21,000	Conductor	Overhead	Yes	7/3/17	20:26	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
40.38303	-122.31503	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101506140	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/4/17	13:56	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
38.87628	-121.13185	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100050181	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	7/4/17	16:16	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
40.42283	-122.39748	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	SCOTT CORN 530-448-2414	101481860	Unknown	0 – 750	Conductor	Overhead	Yes	7/4/17	20:16	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
38.68451	-121.01176	Vegetation	Urban	< 0.25 Acres	Fire Agency	JUSTIN RHAMES	101380157	PACIFIC BELL	21,000	Fuse	Overhead	Yes	7/5/17	3:25	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
39.21046	-121.22662	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	STEVE ROBERTSON 530 906 4892	100010286	Unknown	21,000	Conductor	Overhead	Yes	7/5/17	11:58	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
35.68475	-120.10996	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	661-324-6551 LOG325962	100171224	Unknown	21,000	Capacitor Bank	Overhead	No			Contact From Object	N.A.	Animal	Electric Facility	Unknown	
36.74020	-119.76128	Vegetation	Urban	< 0.25 Acres	Unknown	N.A.	100864107	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	7/6/17	15:18	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error	Thin
39.30091	-122.51726	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100414219	Unknown	12,000	Conductor	Overhead	Yes	7/6/17	14:02	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	Thin
39.59874	-121.90988	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100436921	None	12,000	Conductor	Overhead	Yes	7/6/17	20:07	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
35.55618	-120.75520	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101934472	Unknown	21,000	Conductor	Overhead	Yes	7/6/17	23:30	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
40.90536	-122.38061	Vegetation	Rural	.26 - 9.99 Acres	Unknown	N.A.	101455950	Unknown	12,000	Conductor	Overhead	Yes	7/7/17	15:09	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.49900	-119.79900	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	STEVEN WARD OFFICE 209-966-3542 CELL559-706-8811	103855637	Unknown	21,000	Conductor	Overhead	Yes	7/7/17	14:31	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error	PG&
38.55354	-121.53680	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101584938	Unknown	0 – 750	Conductor	Overhead	Yes	7/8/17	4:03	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.28217	-122.01887	Other	Urban	< 0.25 Acres	Fire Agency	Unknown	100540958	Unknown	0 – 750	Conductor	Overhead	Yes	7/8/17	15:59	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
35.46529	-120.67132	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	103392970	Unknown	0 – 750	Conductor	Overhead	Yes	7/8/17	18:16	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
40.29354	-122.40890	Vegetation	Rural	10 - 99 Acres	Fire Agency	TOM STROING, RED BLUFF	101526269	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/8/17	18:49	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.50920	-121.44651	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	103011964	Unknown	12,000	Conductor	Overhead	Yes	7/9/17	7:07	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
39.42015	-121.54390	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100394209	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/9/17	11:00	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.20742	-121.23350	Vegetation	Rural	< 3 Meters	Customer	N.A.	102083900	Unknown	0 – 750	Conductor	Overhead	Yes	7/10/17	09:07	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
40.26028	-123.82528	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	103139646	Unknown	12,000	Conductor	Overhead	Yes	7/10/17	12:32	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.96201	-120.85839	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	EFRAIN CHAVARRIA	101203174	Unknown	12,000	Conductor	Overhead	Yes	7/10/17	16:39	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
37.37677	-122.35967	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	David Hibdon 831-254-1763	100270370	Unknown	12,000	Conductor	Overhead	No			Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.13370	-121.10542	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	102072316	None	21,000	Other	Overhead	Yes	7/11/17	8:11	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.03382	-121.32243	Vegetation	Urban	< 0.25 Acres	Utility: PG&E	N.A.	102118581	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	7/11/17	11:53	Wire-Wire Contact	N.A.	N.A.	N.A.	Unknown	
39.45061	-121.71535	Vegetation	Rural	< 0.25 Acres	Fire Agency	chip fowler	100423597	Unknown	0 – 750	Conductor	Overhead	Yes	7/11/17	13:56	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.01217	-121.94972	Vegetation	Rural	< 3 Meters	Fire Agency	CAPT PHIL CRAMBLET 831-479-6842	101676689	PACIFIC BELL	21,000	Conductor	Overhead	Yes	7/11/17	22:12	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
40.65308	-122.33429	Vegetation	Rural	.26 - 9.99 Acres	Unknown	N.A.	Structure 000/001	Unknown	60,000	Conductor	Overhead	Yes	7/12/17	16:04	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.39320	-121.80440	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101584920	Unknown	12,000	Conductor	Overhead	Yes	7/12/17	05:51	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.96254	-120.04632	Other	Urban	< 0.25 Acres	Fire Agency	Barbera Riley 661-5499 ext. 2	103222654	None	0 – 750	Conductor	Overhead	Yes	7/12/17	10:48	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
37.14908	-122.00371	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	103565794	Unknown	21,000	Conductor	Overhead	Yes	7/12/17	15:09	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
40.08083	-123.83389	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	103841917	Unknown	12,000	Conductor	Overhead	Yes	7/12/17	20:21	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.12011	-122.18577	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	Tower 025/173	Unknown	115,000	Conductor	Overhead	Yes	7/13/17	5:13	Contact From Object	N.A.	Other	Electric Facility	Other	bird
39.40638	-122.12630	Vegetation	Rural	< 3 Meters	Fire Agency	AXS-N/A FIRE NEAR POLE PER FD. NO STDBY. WANT CHECK OF POLE 530-458-0200	100406386	None	0 – 750	Conductor	Overhead	Yes	7/13/17	07:43	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
36.85038	-119.54996	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	chis waters bat.chief 559-281-4308	100728986	Unknown	0 – 750	Conductor	Overhead	No			Contact From Object	N.A.	Animal	Electric Facility	Unknown	
37.70950	-121.29210	Vegetation	Rural	< 0.25 Acres	Fire Agency	TRACY	102070196	Unknown	12,000	Conductor	Overhead	Yes	7/14/17	17:54	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
39.62313	-121.53281	Vegetation	Rural	< 0.25 Acres	Fire Agency	russ fowler	100404385	Unknown	12,000	Conductor	Overhead	Yes	7/15/17	14:34	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.30740	-122.03550	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100538519	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	7/15/17	14:56	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
39.45902	-121.53134	Vegetation	Rural	< 3 Meters	Fire Agency	oroville station	100429093	Unknown	12,000	Conductor	Overhead	Yes	7/15/17	20:16	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown	

Pacific Gas and Electric Company - Fire Incident Data Collection Plan
Annual Report for 2017

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Location				Fire			Utility Facility					Outage			Field Observations				
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor
38.21284	-121.83399	Vegetation	Rural	10 - 99 Acres	Fire Agency	Unknown	101658237	Unknown	21,000	Conductor	Overhead	Yes	7/15/17	21:01	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown
40.34139	-123.87861	Vegetation	Rural	< 3 Meters	Fire Agency	707-726-1280	100990019	Unknown	12,000	Conductor	Overhead	Yes	7/16/17	10:39	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.66692	-121.75148	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101761892	None	21,000	Fuse	Overhead	Yes	7/16/17	11:59	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown
35.66129	-120.92200	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101942626	Unknown	21,000	Conductor	Overhead	Yes	7/16/17	12:10	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
37.34415	-122.03630	Vegetation	Urban	< 3 Meters	Fire Agency	sunnyvale fire	100532224	PACIFIC BELL	0 – 750	Transformer	Overhead	Yes	7/16/17	17:07	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
40.16532	-122.22279	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101543808	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/17/17	07:39	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
35.95605	-120.85152	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	101765495	Unknown	12,000	Conductor	Overhead	Yes	7/17/17	10:00	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
38.88853	-121.98984	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Dunnigan Fire Dept	101602915	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/17/17	18:58	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.04843	-120.55653	Vegetation	Rural	.26 - 9.99 Acres	Unknown	N.A.	Structure 012/071	Unknown	115,000	Conductor	Overhead	Yes	7/18/17	11:30	Contact From Object	N.A.	Animal	Electric Facility	Unknown
38.00311	-122.20926	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	Pole 000/002 to 000/003	Unknown	60,000	Conductor	Overhead	Yes	7/18/17	21:40	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
38.07038	-120.54518	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101269434	Unknown	0 – 750	Other	Overhead	Yes	7/18/17	07:39	Other	N.A.	N.A.	N.A.	Unknown
36.83081	-119.86228	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100624764	PACIFIC BELL	21,000	Capacitor Bank	Overhead	Yes	7/18/17	11:45	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown
37.09047	-119.60469	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	Tower 003/001	Unknown	115,000	Conductor	Overhead	Yes	7/19/17	5:52	Contact From Object	N.A.	Other	Electric Facility	Unknown
35.34462	-118.86086	Vegetation	Rural	< 3 Meters	Unknown	N.A.	100159158	Unknown	12,000	Capacitor Bank	Overhead	Yes	7/19/17	09:33	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown
39.41242	-123.81234	Vegetation	Rural	< 0.25 Acres	Fire Agency	DRUE RHOADS 707 964 5673	102201550	YES	12,000	Conductor	Overhead	Yes	7/19/17	17:19	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.73609	-122.49208	Building	Urban	Structure Only	Unknown	N.A.	101813719	Unknown	0 – 750	Conductor	Overhead	Yes	7/20/17	20:57	Wire-Wire Contact	N.A.	N.A.	N.A.	Unknown
36.52545	-119.68200	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100830639	Unknown	0 – 750	Lightning Arrestor	Overhead	Yes	7/20/17	01:46	Equipment/ Facility Failure	Lightning Arrestor	N.A.	N.A.	Unknown
38.06420	-120.87106	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	chris costales 209 754 2735	102142834	Unknown	12,000	Conductor	Overhead	Yes	7/20/17	04:27	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
35.08036	-120.55383	Vegetation	Rural	10 - 99 Acres	Fire Agency	PAUL LEE 805 903-3416 INC # 8291	101941116	Unknown	12,000	Conductor	Overhead	Yes	7/20/17	13:45	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown
37.92651	-121.23203	Vegetation	Urban	< 3 Meters	Customer	N.A.	103384380	PACIFIC BELL	12,000	Capacitor Bank	Overhead	Yes	7/20/17	17:00	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown
38.26854	-120.93718	Vegetation	Rural	.26 - 9.99 Acres	Unknown	N.A.	101245524	Unknown	12,000	Conductor	Overhead	Yes	7/21/17	13:27	Contact From Object	N.A.	Vehicle	Pole	Human Error
41.06550	-121.39320	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101549629	Unknown	12,000	Conductor	Overhead	Yes	7/21/17	20:26	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
40.87950	-123.76380	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Josh , comander chief of forest service.	100980577	Unknown	12,000	Conductor	Overhead	Yes	7/22/17	12:25	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error
37.29945	-122.16306	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	100265488	Unknown	12,000	Conductor	Overhead	Yes	7/22/17	14:38	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
40.83143	-124.05389	Vegetation	Rural	< 0.25 Acres	Fire Agency	BATTALION CHIEF CURT WATKINS, 707-825.2000	100983827	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/22/17	16:01	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error
40.64201	-122.23025	Vegetation	Rural	< 0.25 Acres	Fire Agency	CAPT?	101459708	FRONTIER COMM	12,000	Conductor	Overhead	Yes	7/23/17	09:22	Contact From Object	N.A.	Animal	Electric Facility	Unknown
36.24055	-119.81283	Vegetation	Rural	< 0.25 Acres	Fire Agency	Brandon Jones (559) 852-2884	100783832	Unknown	12,000	Conductor	Overhead	Yes	7/23/17	16:32	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
39.67233	-123.53360	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	103823226	Unknown	12,000	Conductor	Overhead	Yes	7/23/17	18:25	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.21714	-119.90973	Vegetation	Rural	< 0.25 Acres	Fire Agency	Brandon Jones (559) 852-2884	103846605	Unknown	12,000	Conductor	Overhead	Yes	7/23/17	19:41	Contact From Object	N.A.	Vehicle	Pole	Human Error
37.26349	-122.33643	Vegetation	Rural	< 0.25 Acres	Fire Agency	mike klink 650-879-0121	100322130	Unknown	0 – 750	Conductor	Overhead	Yes	7/24/17	14:01	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.25369	-121.96760	Vegetation	Urban	< 0.25 Acres	Fire Agency	C1702050039	103447162	Unknown	0 – 750	Conductor	Overhead	Yes	7/24/17	16:07	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.35192	-120.71029	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101263632	Unknown	12,000	Conductor	Overhead	Yes	7/24/17	19:31	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
35.60243	-120.92107	Vegetation	Rural	10 - 99 Acres	Fire Agency	Unknown	101860186	Unknown	12,000	Conductor	Overhead	Yes	7/24/17	21:45	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.37795	-122.53878	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	102031447	Unknown	12,000	Conductor	Overhead	Yes	7/25/17	15:51	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.59970	-121.44490	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100403612	Unknown	12,000	Conductor	Overhead	Yes	7/25/17	19:12	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
36.78124	-119.75525	Vegetation	Urban	< 3 Meters	Fire Agency	FRESNO FIRE, BATALION 1, FULMER 559 993 2661	100866522	PACIFIC BELL	12,000	Conductor	Overhead	Yes	7/26/17	06:55	Contact From Object	N.A.	Vehicle	Pole	Human Error
40.99973	-121.95793	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101512624	Unknown	12,000	Conductor	Overhead	Yes	7/28/17	14:02	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
35.47270	-120.99080	Vegetation	Rural	10 - 99 Acres	Fire Agency	TOM MCEWEN 805-903-3409	101933868	Unknown	12,000	Conductor	Overhead	Yes	7/28/17	16:57	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
35.72756	-120.99030	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	San Luis Obispo CDF	101945496	None	21,000	Conductor	Overhead	Yes	7/28/17	19:20	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.46313	-121.45951	Vegetation	Rural	< 0.25 Acres	Fire Agency	russ fowler 530 521 8056	103846763	Unknown	12,000	Conductor	Overhead	Yes	7/29/17	13:18	Contact From Object	N.A.	Vehicle	Pole	Human Error
35.45229	-120.38344	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101889516	Unknown	0 – 750	Conductor	Overhead	Yes	7/29/17	13:28	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
37.05999	-122.00113	Vegetation	Urban	< 0.25 Acres	Fire Agency	Scotts Valley Fire Dept.	101679068	PACIFIC BELL	21,000	Conductor	Overhead	Yes	7/29/17	14:52	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.02507	-121.53583	Vegetation	Rural	< 3 Meters	Fire Agency	GEORGE MARSHALL	100610842	Unknown	21,000	Conductor	Overhead	Yes	7/29/17	17:56	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
37.94875	-121.34571	Vegetation	Rural	< 0.25 Acres	Fire Agency	911	102126507	Unknown	12,000	Conductor	Overhead	Yes	7/29/17	18:08	Contact From Object	N.A.	Vehicle	Pole	Human Error
35.45171	-120.61711	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101941008	Unknown	0 – 750	Conductor	Overhead	Yes	7/29/17	20:45	Contact From Object	N.A.	Balloons	Electric Facility	Human Error
38.91318	-122.61788	Vegetation	Rural	< 0.25 Acres	Fire Agency	mike wink	102151066	None	0 – 750	Conductor	Overhead	Yes	7/30/17	09:46	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.09707	-122.27965	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101679025	Unknown	0 – 750	Conductor	Overhead	No			Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
35.97865	-120.11100	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	100695130	Unknown	21,000	Conductor	Overhead	Yes	7/31/17	14:10	Contact From Object	N.A.	Animal	Electric Facility	Unknown
38.79675	-121.13288	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	103782414	Unknown	12,000	Conductor	Overhead	Yes	7/31/17	14:41	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.04123	-119.50529	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	100661556	Unknown	0 – 750	Other	Overhead	Yes	8/1/17	12:23	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
39.22744	-123.10811	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	Pole 5/0	None	60,000	Conductor	Overhead	Yes	8/2/17	9:42	Contact From Object	N.A.	Animal	Electric Facility	Unknown
40.79856	-123.39614	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	100974913	Unknown	12,000	Conductor	Overhead	Yes	8/2/17	5:54	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.56179	-121.94860	Vegetation	Rural	< 0.25 Acres	Fire Agency	FREMONT FIRE DEPT. 911	100940374	PACIFIC BELL	12,000	Other	Overhead	Yes	8/2/17	8:58	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown
37.31632	-122.07225	Vegetation	Urban	< 0.25 Acres	Fire Agency	TONY RAINIERI 408-378-4010	100534186	Unknown	12,000	Conductor	Overhead	No			Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.39296	-120.62127	Vegetation	Urban	< 3 Meters	Fire Agency	2099663621	101190510	PACIFIC BELL	12,000	Transformer	Overhead	Yes	8/2/17	18:16	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
39.07320	-121.08679	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	100072742	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/3/17	10:53	Contact From Object	N.A.	Vehicle	Pole	Human Error
38.11924	-122.50154	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	SSR172150008	102227219	Unknown	12,000	Conductor	Overhead	Yes	8/3/17	11:16	Contact From Object	N.A.	Vehicle	Pole	Human Error
39.07110	-121.48700	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	ART PAQUETTE 530-633-0861	101335644	PACIFIC BELL	12,000	Unknown	Overhead	No			Unknown	N.A.	N.A.	N.A.	Unknown
38.60394	-121.05918	Vegetation	Rural	< 3 Meters	Fire Agency	D. Franks 530-622-3858, Incident #022602	101411052	PACIFIC BELL	21,000	Capacitor Bank	Overhead	Yes	8/4/17	09:54	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown
35.61928	-120.65890	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101912293	PACIFIC BELL	12,000	Fuse	Overhead	Yes	8/4/17	18:14	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown
38.45835	-120.86954	Vegetation	Rural	< 0.25 Acres	Fire Agency	JEFF MICHEL- 530 409 2223	101236223	Unknown	0 – 750	Conductor	Overhead	Yes	8/5/17	08:33	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.09683	-123.21466	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	102196629	Unknown	12,000	Conductor	Overhead	Yes	8/5/17	18:08	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.96750	-120.08993	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	911	101136476	Unknown	12,000	Conductor	Overhead	Yes	8/5/17	18:09	Contact From Object	N.A.	Animal	Electric Facility	Unknown
36.76912	-119.61010	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100725102	Unknown	12,000	Other	Overhead	Yes	8/5/17	19:21	Equipment/ Facility Failure	Recloser	N.A.	N.A.	Unknown
36.58574	-121.71213	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101747125	Unknown	12,000	Conductor	Overhead	Yes	8/6/17	11:38	Contact From Object	N.A.	Vehicle	Pole	Human Error
40.60120	-122.23460	Vegetation	Rural	< 3 Meters	Fire Agency	17CASH4007992	101470083	Unknown	12,000	Other	Overhead	Yes	8/6/17	18:21	Contact From Object	N.A.	Other	Electric Facility	Weather

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Location				Fire			Utility Facility					Outage			Field Observations				
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor
38.43664	-122.72596	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	Tower 005/090	None	115,000	Conductor	Overhead	Yes	8/8/17	13:46	Contact From Object	N.A.	Other	Electric Facility	Human Error
35.42687	-119.05719	Vegetation	Urban	< 0.25 Acres	Unknown	N.A.	100167715	PACIFIC BELL	12,000	Unknown	Subsurface	Yes	8/8/17	0:36	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.49485	-122.66849	Vegetation	Rural	< 3 Meters	Fire Agency	911	102025742	PACIFIC BELL	12,000	Transformer	Overhead	Yes	8/8/17	4:10	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
37.04448	-121.63431	Vegetation	Urban	< 3 Meters	Utility: PG&E	N.A.	100613200	VERIZON CALIFO	21,000	Capacitor Bank	Overhead	Yes	8/8/17	11:27	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown
37.26367	-119.71027	Vegetation	Rural	< 0.25 Acres	Fire Agency	TROY CHEEK1-209-966-3621	103793352	Unknown	0 – 750	Conductor	Overhead	Yes	8/8/17	20:35	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.65323	-120.62732	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101402496	PACIFIC BELL	21,000	Conductor	Overhead	Yes	8/9/17	11:29	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
38.26485	-120.97476	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101253880	None	12,000	Conductor	Overhead	Yes	8/11/17	07:55	Contact From Object	N.A.	Animal	Electric Facility	Unknown
34.66890	-120.02860	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103391912	Unknown	12,000	Conductor	Overhead	Yes	8/12/17	09:08	Vandalism/Theft	N.A.	N.A.	N.A.	Human Error	wire
38.50939	-122.77004	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	101961046	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/13/17	13:11	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
40.11642	-123.80645	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	100986364	Unknown	12,000	Conductor	Overhead	Yes	8/14/17	6:14	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.12721	-122.16895	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	Pole 015/127	None	60,000	Conductor	Overhead	Yes	8/14/17	23:52	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
39.17938	-120.97608	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100083743	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/14/17	07:56	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
39.50371	-121.27826	Vegetation	Rural	< 3 Meters	Unknown	N.A.	100396172	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/15/17	19:28	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
35.78134	-119.91533	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	Span 0/6 to 0/7	None	70,000	Conductor	Overhead	Yes	8/16/17	20:24	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
39.19342	-121.42271	Vegetation	Rural	< 0.25 Acres	Fire Agency	911	101304315	Unknown	12,000	Conductor	Overhead	Yes	8/17/17	2:33	Vandalism/Theft	N.A.	N.A.	N.A.	Human Error	pole
39.37033	-121.04842	Vegetation	Rural	< 0.25 Acres	Fire Agency	PHIL MICHAEL 265-2894 INCIENT # CA NEV 21642	100083029	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/17/17	15:15	Contact From Object	N.A.	Animal	Electric Facility	Unknown
37.09214	-121.66909	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100608897	VERIZON CALIFO	21,000	Conductor	Overhead	Yes	8/18/17	17:09	Other	N.A.	N.A.	N.A.	Human Error	CIP
37.68910	-121.25060	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	102053834	Unknown	17,000	Conductor	Overhead	Yes	8/19/17	11:31	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
40.57523	-122.29847	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101464623	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/19/17	21:16	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.27636	-122.14067	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101634861	Unknown	12,000	Conductor	Overhead	Yes	8/20/17	11:38	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.60798	-122.35312	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Aaron Latta 707 339 2918	102254922	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	8/21/17	15:07	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.72577	-121.82052	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100341323	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/21/17	19:31	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.49020	-122.89178	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	102001687	Unknown	0 – 750	Conductor	Overhead	Yes	8/22/17	14:17	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
36.59050	-119.59286	Vegetation	Rural	< 3 Meters	Fire Agency	ca fku 012333	100897456	Unknown	12,000	Conductor	Overhead	Yes	8/24/17	6:32	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
39.02509	-121.57752	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101314075	Unknown	21,000	Conductor	Overhead	Yes	8/25/17	9:47	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.82516	-121.39528	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100101888	Unknown	0 – 750	Conductor	Overhead	Yes	8/26/17	7:10	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	Thin
38.47073	-122.64717	Vegetation	Urban	< 3 Meters	Fire Agency	Santa Rosa Fire Dept	101966474	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/26/17	20:39	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.70657	-121.01929	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101382231	Unknown	0 – 750	Conductor	Overhead	Yes	8/26/17	20:53	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
37.99158	-121.34788	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	Unknown	103193823	Unknown	21,000	Conductor	Overhead	Yes	8/27/17	18:11	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
38.91654	-121.15100	Vegetation	Rural	< 0.25 Acres	Fire Agency	530-477-0641 x7, log 22629	100077184	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/27/17	20:04	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.35848	-120.85030	Vegetation	Rural	< 0.25 Acres	Fire Agency	CHRIS ALLEN 209-634-7086	103346364	Unknown	12,000	Conductor	Overhead	Yes	8/27/17	22:16	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
35.42183	-119.03040	Vegetation	Urban	< 0.25 Acres	Fire Agency	BCFD/KCFD 661-324-6551	103139674	Unknown	0 – 750	Conductor	Overhead	Yes	8/28/17	6:32	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
35.72450	-119.53414	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	100171751	Unknown	12,000	Conductor	Overhead	Yes	8/28/17	8:36	Contact From Object	N.A.	Animal	Electric Facility	Unknown
38.74430	-122.64906	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	103781085	Unknown	0 – 750	Conductor	Overhead	Yes	8/28/17	9:14	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.04720	-120.78589	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	FORESTHILL	100019525	Unknown	12,000	Conductor	Overhead	Yes	8/28/17	10:07	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error	Thin
37.68570	-120.80670	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	102327313	None	0 – 750	Conductor	Overhead	Yes	8/28/17	13:55	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
38.63402	-122.41945	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	102253236	Unknown	21,000	Conductor	Overhead	Yes	8/28/17	14:06	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.50540	-120.75916	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101260228	PACIFIC BELL	12,000	Fuse	Overhead	Yes	8/28/17	14:23	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown
40.28528	-123.87278	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	100990599	Unknown	12,000	Conductor	Overhead	Yes	8/28/17	14:59	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
40.11971	-123.64400	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	103844288	Unknown	12,000	Conductor	Overhead	Yes	8/28/17	23:56	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.23650	-122.46080	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101998998	Unknown	12,000	Conductor	Overhead	Yes	8/29/17	6:08	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
38.36871	-122.00121	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	101661402	PACIFIC BELL	12,000	Lightning Arrestor	Overhead	Yes	8/29/17	10:27	Contact From Object	N.A.	Animal	Electric Facility	Unknown
38.20657	-121.15763	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	102082031	Unknown	12,000	Conductor	Overhead	Yes	8/29/17	10:40	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
37.45070	-119.64538	Vegetation	Rural	> 5000 Acres	Fire Agency	USFS	101017368	Unknown	12,000	Conductor	Overhead	Yes	8/29/17	12:49	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error	PG&
38.30196	-122.54314	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	911	102026119	PACIFIC BELL	12,000	Fuse	Overhead	Yes	8/29/17	15:54	Contact From Object	N.A.	Animal	Electric Facility	Unknown
35.35283	-119.05377	Vegetation	Urban	< 0.25 Acres	Fire Agency	BCFD/KCFD 661-324-6551	100145928	Unknown	0 – 750	Conductor	Overhead	Yes	8/30/17	16:17	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
40.62430	-122.30386	Vegetation	Rural	< 0.25 Acres	Fire Agency	CASHU008896	103151338	YES	12,000	Conductor	Overhead	Yes	8/30/17	18:21	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.99933	-120.98871	Vegetation	Rural	< 3 Meters	Fire Agency	Andy 530-889-0111	100026238	PACIFIC BELL	12,000	Conductor	Overhead	Yes	8/30/17	22:37	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.16621	-121.93815	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	suisun	103850994	Unknown	12,000	Conductor	Overhead	Yes	8/30/17	22:39	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
35.61599	-120.85770	Vegetation	Rural	< 0.25 Acres	Fire Agency	Derrick	101860075	Unknown	21,000	Conductor	Overhead	Yes	8/31/17	6:42	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.13786	-121.99658	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100519201	Unknown	21,000	Conductor	Overhead	Yes	8/31/17	11:33	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.39169	-122.31951	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	102291943	PACIFIC BELL	21,000	Conductor	Overhead	Yes	8/31/17	11:51	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
41.06048	-124.10377	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100977438	Unknown	12,000	Conductor	Overhead	Yes	8/31/17	21:07	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.81501	-119.77632	Vegetation	Urban	< 3 Meters	Customer	N.A.	100851402	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	8/31/17	22:50	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
36.19489	-120.70786	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101705717	Unknown	12,000	Fuse	Overhead	Yes	9/1/17	6:09	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown
37.37567	-119.88862	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101067028	Unknown	0 – 750	Conductor	Overhead	Yes	9/1/17	8:00	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
40.59381	-124.13596	Vegetation	Rural	< 3 Meters	Fire Agency	DISPATCH FIRE 707-725-7550	100993250	PACIFIC BELL	12,000	Lightning Arrestor	Overhead	No			Equipment/ Facility Failure	Lightning Arrestor	N.A.	N.A.	Unknown
37.16670	-121.70690	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100601982	VERIZON CALIFO	21,000	Conductor	Overhead	Yes	9/1/17	12:52	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown
38.45270	-122.78450	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	102015626	PACIFIC BELL	12,000	Fuse	Overhead	Yes	9/1/17	12:59	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
36.65180	-121.72490	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	MCFD	103155761	Unknown	12,000	Conductor	Overhead	Yes	9/1/17	17:48	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
38.29390	-122.50390	Other	Rural	< 0.25 Acres	Fire Agency	BOB NORRBOM 707 996 2102	101982894	PACIFIC BELL	12,000	Fuse	Overhead	Yes	9/1/17	18:42	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown
37.66445	-121.92227	Vegetation	Rural	< 3 Meters	Customer	N.A.	100956020	PACIFIC BELL	21,000	Conductor	Overhead	Yes	9/2/17	12:01	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.26897	-121.80564	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100584311	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	9/2/17	16:18	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.93380	-122.40690	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	102347407	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/2/17	18:00	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thin
37.37432	-122.21838	Vegetation	Rural	< 0.25 Acres	Fire Agency	Local	100270106	Unknown	12,000	Conductor	Overhead	Yes	9/3/17	7:12	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.21616	-119.48067	Vegetation	Rural	1000 - 4999 Acres	Fire Agency	Cal Fire	103345573	Unknown	0 – 750	Conductor	Overhead	Yes	9/3/17	12:52	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.49559	-119.83667	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	209-966-3621	101086621	Unknown	21,000	Transformer	Overhead	Yes	9/3/17	17:52	Contact From Object	N.A.	Other	Electric Facility	Weather	light
36.09533	-120.51699	Vegetation	Rural	100 - 299 Acres	Fire Agency	CHRIS CHRISTOPHERSON 559-281-4320	100739435	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/3/17	22:57	Contact Between Third Party Facility	N.A.	N.A.	N.A.	Weather	[redacted]
36.80240	-119.82540	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100856132	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	9/4/17	0:57	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.83171	-121.84441	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	102300100	PACIFIC BELL	12,000	Conductor	Overhead	No			Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.45463	-121.93311	Other	Rural	Structure Only	Customer	N.A.	100557780	PACIFIC BELL	21,000	Conductor	Overhead	Yes	09/04/17	6:43	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Location				Fire			Utility Facility					Outage			Field Observations				
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor
39.43168	-121.55285	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100420238	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/5/17	1:24	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.67273	-123.51279	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	102194697	VERIZON CALIFO	12,000	Conductor	Overhead	Yes	9/5/17	6:58	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.71095	-121.79724	Vegetation	Rural	< 3 Meters	Fire Agency	(530) 538-6841	100355255	Unknown	12,000	Conductor	Overhead	Yes	9/5/17	7:20	Wire-Wire Contact	N.A.	N.A.	N.A.	Unknown
38.18972	-121.31746	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103218208	Unknown	12,000	Conductor	Overhead	Yes	9/5/17	13:51	Contact From Object	N.A.	Vehicle	Pole	Human Error
38.34067	-122.25777	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	102284869	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/5/17	17:51	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
40.83920	-122.36350	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103643183	Unknown	12,000	Conductor	Overhead	Yes	9/6/17	19:26	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.29255	-122.29403	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100256917	Unknown	12,000	Conductor	Overhead	Yes	9/6/17	20:08	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.74778	-120.85905	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101391575	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/8/17	4:47	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.60388	-120.92748	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101379094	PACIFIC BELL	21,000	Conductor	Overhead	Yes	9/8/17	17:21	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.96038	-120.37636	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	John Lite 209-984-5623	101042521	Unknown	17,000	Conductor	Overhead	Yes	9/8/17	21:14	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.66181	-121.54766	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101769870	Unknown	12,000	Conductor	Overhead	Yes	9/9/17	18:36	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
39.25988	-121.49023	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	TYLER LOPEZ	101289867	None	12,000	Conductor	Overhead	Yes	9/10/17	1:22	Contact From Object	N.A.	Animal	Electric Facility	Unknown
37.30393	-120.52747	Vegetation	Rural	10 - 99 Acres	Fire Agency	Merced County FD	101161316	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	9/10/17	16:30	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.00083	-121.66674	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100621936	VERIZON CALIFO	0 – 750	Conductor	Overhead	No			Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.95146	-121.84204	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	101790954	PACIFIC BELL	21,000	Fuse	Overhead	Yes	9/11/17	8:50	Contact From Object	N.A.	Other	Electric Facility	Weather
40.86724	-124.08827	Vegetation	Urban	< 3 Meters	Fire Agency	BOB	100964579	Unknown	12,000	Conductor	Overhead	Yes	9/11/17	23:50	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.74095	-121.60787	Vegetation	Rural	< 0.25 Acres	Fire Agency	911	100330302	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/12/17	9:24	Contact From Object	N.A.	Vehicle	Pole	Human Error
39.45106	-121.60519	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	tom klage 530 538-7888	100419482	Unknown	12,000	Conductor	Overhead	Yes	9/12/17	17:18	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.11112	-121.55647	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101320308	None	12,000	Switch	Overhead	Yes	9/14/17	11:02	Equipment/ Facility Failure	Switch	N.A.	N.A.	Unknown
39.50393	-121.54528	Vegetation	Urban	< 0.25 Acres	Fire Agency	530-538-2448	100372805	Unknown	12,000	Conductor	Overhead	Yes	9/14/17	12:09	Contact From Object	N.A.	Animal	Electric Facility	Unknown
40.29421	-123.81736	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100989497	Unknown	12,000	Conductor	Overhead	Yes	9/14/17	14:06	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.74607	-121.48853	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100335239	Unknown	12,000	Conductor	Overhead	Yes	9/15/17	14:55	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.64729	-119.38613	Vegetation	Rural	< 3 Meters	Customer	N.A.	100738741	VERIZON CALIFO	0 – 750	Conductor	Overhead	Yes	9/17/17	15:05	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.99459	-121.02607	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100029537	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/17/17	17:38	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.38885	-121.40538	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	103795057	Unknown	0 – 750	Conductor	Overhead	Yes	9/18/17	13:01	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.60135	-122.05551	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	103849874	Unknown	12,000	Conductor	Overhead	Yes	9/18/17	15:10	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.21975	-122.54300	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101997149	Unknown	12,000	Conductor	Overhead	Yes	9/18/17	18:01	Contact From Object	N.A.	Vehicle	Pole	Human Error
38.07423	-122.82861	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	102229215	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/18/17	19:01	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.90879	-120.48652	Vegetation	Rural	10 - 99 Acres	Fire Agency	incident comander geoff marshall 209-419-4407	101040882	Unknown	17,000	Conductor	Overhead	Yes	9/18/17	23:50	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
35.47836	-119.29591	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100207112	Unknown	12,000	Conductor	Overhead	Yes	9/19/17	19:13	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error
37.25968	-122.32223	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100322388	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/20/17	2:06	Contact From Object	N.A.	Vehicle	Pole	Human Error
36.94037	-120.90142	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	Pole 2/6 - Arburua Tap	None	70,000	Conductor	Overhead	Yes	9/20/17	8:41	Contact From Object	N.A.	Other	Electric Facility	Other
39.61470	-121.72582	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	100347380	Unknown	0 – 750	Conductor	Overhead	Yes	9/21/17	8:39	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
36.09612	-120.05766	Vegetation	Rural	< 0.25 Acres	Fire Agency	SAME AS TAG. FD NOT STANDING BY UPON ARRIVAL	100663084	Unknown	12,000	Capacitor Bank	Overhead	No			Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown
37.01267	-120.62562	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101181497	Unknown	12,000	Conductor	Overhead	Yes	9/23/17	9:16	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
40.65090	-122.29740	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	DARREN STEWART 448-2421	101467221	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/23/17	14:17	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error
38.10460	-120.98901	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	Pole 016/297	Unknown	60,000	Conductor	Overhead	Yes	9/24/17	2:13	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.40140	-122.02740	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100515206	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/24/17	7:54	Contact From Object	N.A.	Animal	Electric Facility	Unknown
38.38690	-122.96670	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	DOUG JONES	101973946	PACIFIC BELL	12,000	Conductor	Overhead	Yes	9/24/17	16:42	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
36.81370	-121.72098	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	Tower 058/249	Unknown	230,000	Conductor	Overhead	Yes	9/25/17	19:49	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown
38.06427	-122.80563	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	102228291	Unknown	12,000	Other	Overhead	Yes	9/26/17	17:44	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
39.01626	-122.86854	Vegetation	Rural	< 3 Meters	Customer	N.A.	102143577	PACIFIC BELL	12,000	Transformer	Overhead	Yes	9/27/17	9:11	Contact From Object	N.A.	Animal	Electric Facility	Unknown
39.48450	-121.35450	Vegetation	Rural	< 0.25 Acres	Fire Agency	bill lopez cell 530 521-8052	100429924	PACIFIC BELL	12,000	Fuse	Overhead	Yes	9/27/17	12:12	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
40.75920	-123.99500	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	103660812	Unknown	12,000	Conductor	Overhead	Yes	9/27/17	19:06	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.98840	-122.09700	Vegetation	Urban	< 3 Meters	Fire Agency	(510)374-7070	103627505	Unknown	21,000	Conductor	Overhead	Yes	9/28/17	18:28	Contact From Object	N.A.	Vehicle	Electric Facility	Human Error
39.53174	-122.18567	Vegetation	Urban	< 3 Meters	Unknown	N.A.	100419384	Unknown	21,000	Transformer	Padmounted	Yes	9/29/17	2:01	Contact From Object	N.A.	Animal	Electric Facility	Unknown
37.41091	-121.17474	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	Tower 030/132	None	230,000	Conductor	Overhead	Yes	9/30/17	15:08	Vandalism/Theft	N.A.	N.A.	N.A.	Human Error
37.91400	-122.37710	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101437028	Unknown	12,000	Transformer	Overhead	Yes	10/1/17	7:24	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown
39.79696	-122.11853	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103850270	Unknown	0 – 750	Conductor	Overhead	Yes	10/1/17	16:11	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
40.01920	-122.14520	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	MARK FRITZ	101534592	Unknown	12,000	Conductor	Overhead	Yes	10/1/17	23:51	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.33137	-120.52428	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	209-966-3621	101160137	Unknown	12,000	Conductor	Overhead	Yes	10/2/17	2:55	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.29490	-122.10660	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101658181	Unknown	0 – 750	Transformer	Overhead	Yes	10/2/17	7:07	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown
39.63135	-122.00685	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	103224422	Unknown	12,000	Conductor	Overhead	Yes	10/2/17	12:22	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.91023	-120.91853	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	100110800	None	21,000	Other	Overhead	Yes	10/2/17	14:56	Contact From Object	N.A.	Vehicle	Pole	Human Error
38.71820	-120.97560	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101375963	Unknown	21,000	Conductor	Overhead	Yes	10/2/17	16:05	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
38.36340	-122.28458	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	102282538	PACIFIC BELL	12,000	Conductor	Overhead	No			Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
35.10842	-119.37855	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	span 001/019 - 001/020	Unknown	70,000	Conductor	Overhead	Yes	10/3/17	17:48	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown
37.81692	-121.27147	Vegetation	Rural	< 0.25 Acres	Fire Agency	LATHROP	102091094	Unknown	0 – 750	Other	Overhead	No			Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.65539	-120.99340	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101375442	PACIFIC BELL	12,000	Other	Overhead	Yes	10/4/17	23:42	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
38.00524	-121.75446	Vegetation	Rural	< 3 Meters	Fire Agency	911	100456226	Unknown	21,000	Switch	Subsurface	Yes	10/5/17	0:20	Equipment/ Facility Failure	Switch	N.A.	N.A.	Unknown
39.46636	-122.16704	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100343435	PACIFIC BELL	21,000	Other	Overhead	Yes	10/5/17	10:57	Contact From Object	N.A.	Other	Electric Facility	Other
38.56070	-121.76425	Vegetation	Urban	< 3 Meters	Fire Agency	5307583600	101639481	PACIFIC BELL	12,000	Lightning Arrestor	Overhead	Yes	10/6/17	7:24	Equipment/ Facility Failure	Lightning Arrestor	N.A.	N.A.	Unknown
39.46450	-122.11238	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100344016	Unknown	21,000	Conductor	Overhead	Yes	10/6/17	12:03	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
40.97124	-124.03716	Vegetation	Rural	< 0.25 Acres	Fire Agency	JO BOB	100978977	Unknown	12,000	Conductor	Overhead	Yes	10/6/17	16:04	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.19880	-121.83250	Vegetation	Urban	< 0.25 Acres	Fire Agency	JOHN PAVLOFF	100600703	PACIFIC BELL	21,000	Other	Overhead	Yes	10/7/17	10:11	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown
40.32520	-124.28810	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100987374	FRONTIER COMM	12,000	Conductor	Overhead	Yes	10/8/17	5:11	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.58900	-122.20150	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100341037	Unknown	0 – 750	Conductor	Overhead	Yes	10/8/17	16:41	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
40.88760	-123.99175	Vegetation	Rural	10 - 99 Acres	Fire Agency	Cal Fire	100972408	Unknown	12,000	Conductor	Overhead	Yes	10/8/17	16:43	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
38.53311	-121.54236	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101585529	Unknown	12,000	Conductor	Overhead	Yes	10/8/17	17:39	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.20714	-121.86200	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100622560	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/8/17	19:11	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.74459	-121.59704	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	100330456	Unknown	12,000	Conductor	Overhead	Yes	10/8/17	19:44	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.63150	-121.42250	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100347747	Unknown	12,000	Conductor	Overhead	Yes	10/8/17	20:35	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
39.45540	-121.04981	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100099226	Unknown	12,000	Conductor	Overhead	Yes	10/8/17	21:10	Contact From Object	N.A.	Vegetation	Electric Facility	Weather

Pacific Gas and Electric Company - Fire Incident Data Collection Plan
Annual Report for 2017

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
Location				Fire			Utility Facility					Outage			Field Observations					
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor	
39.25949	-120.99650	Vegetation	Urban	< 0.25 Acres	Fire Agency	PHILLIP NUNNICK 530 273-3158 INCENDENT # 26264	100072730	PACIFIC BELL	12,000	Other	Overhead	Yes	10/8/17	21:46	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown	
39.73711	-121.64642	Vegetation	Rural	< 3 Meters	Fire Agency	911	103319605	Unknown	0 – 750	Conductor	Overhead	Yes	10/8/17	22:19	Contact From Object	N.A.	Vegetation	Electric Facility	Weather	Oct
38.32262	-121.94307	Vegetation	Rural	< 0.25 Acres	Fire Agency	vaca	101561309	PACIFIC BELL	21,000	Conductor	Overhead	Yes	10/8/17	22:30	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown	
35.55276	-118.96809	Vegetation	Rural	.26 - 9.99 Acres	Unknown	N.A.	pan 7/87-7/88, Vedder Ta	Unknown	115,000	Conductor	Overhead	Yes	10/8/17	22:54	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
39.36423	-121.11307	Vegetation	Rural	< 3 Meters	Fire Agency	INCIDENT NUMBER 26268	100068104	PACIFIC BELL	12,000	Conductor	Overhead	Yes	10/8/17	22:58	Contact From Object	N.A.	Vegetation	Electric Facility	Weather	Oct
38.27585	-121.96167	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	707-428-7305	101660727	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/8/17	23:51	Wire-Wire Contact	N.A.	N.A.	N.A.	Unknown	
38.70368	-120.67250	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	101408485	Unknown	21,000	Other	Overhead	Yes	10/9/17	1:02	Contact From Object	N.A.	Vegetation	Electric Facility	Weather	Oct
38.10103	-122.21965	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	102218775	PACIFIC BELL	0 – 750	Conductor	Overhead	No			Contact From Object	N.A.	Vegetation	Electric Facility	Weather	Oct
38.19062	-121.94974	Vegetation	Rural	10 - 99 Acres	Unknown	N.A.	101559973	Unknown	21,000	Conductor	Overhead	Yes	10/9/17	1:25	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown	
37.84157	-121.95827	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100501933	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/9/17	1:29	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
38.85755	-122.72207	Vegetation	Rural	< 0.25 Acres	Fire Agency	wink	103570679	Unknown	12,000	Conductor	Overhead	Yes	10/9/17	1:45	Contact From Object	N.A.	Vegetation	Electric Facility	Weather	Oct
37.72931	-122.13783	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100903727	PACIFIC BELL	12,000	Conductor	Overhead	Yes	10/9/17	2:27	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
38.26428	-122.04877	Vegetation	Urban	< 3 Meters	Fire Agency	Fairfield	101660707	Unknown	0 – 750	Conductor	Overhead	Yes	10/9/17	4:36	Contact From Object	N.A.	Vegetation	Electric Facility	Weather	Oct
35.40672	-118.96231	Vegetation	Urban	< 3 Meters	Customer	N.A.	100252698	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/9/17	12:05	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
38.93098	-123.30235	Vegetation	Rural	< 3 Meters	Customer	N.A.	102214553	Unknown	0 – 750	Conductor	Overhead	Yes	10/10/17	13:36	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.31478	-122.70673	Vegetation	Urban	.26 - 9.99 Acres	Unknown	N.A.	101996286	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/10/17	16:17	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
37.25591	-121.95862	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100542800	VERIZON CALIFO	12,000	Conductor	Overhead	Yes	10/10/17	16:29	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
38.50153	-123.02367	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101974930	Unknown	12,000	Conductor	Overhead	Yes	10/11/17	11:57	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
38.67900	-121.94870	Vegetation	Rural	< 3 Meters	Fire Agency	ESPARTO FIRE PROTECTION DISTRICT-(530) 787-3300	101591668	Unknown	0 – 750	Conductor	Overhead	Yes	10/11/17	16:41	Unknown	N.A.	N.A.	N.A.	Unknown	
38.02343	-122.53764	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	102246021	Unknown	0 – 750	Transformer	Overhead	Yes	10/13/17	8:30	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
37.05607	-122.02057	Vegetation	Urban	< 0.25 Acres	Fire Agency	Scotts Valley Fire Dept.	101677721	Unknown	21,000	Conductor	Overhead	Yes	10/13/17	10:27	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.94153	-120.03973	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101224900	PACIFIC BELL	12,000	Conductor	Overhead	Yes	10/13/17	19:15	Contact From Object	N.A.	Vehicle	Pole	Human Error	Thir
39.76485	-121.63075	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100325368	PACIFIC BELL	0 – 750	Transformer	Overhead	Yes	10/13/17	22:19	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
37.39437	-122.09155	Building	Urban	Structure Only	Fire Agency	Unknown	100513237	PACIFIC BELL	12,000	Transformer	Overhead	Yes	10/14/17	8:37	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
40.11215	-122.17368	Vegetation	Rural	< 0.25 Acres	Self Extinguished	N.A.	101539953	None	12,000	Fuse	Overhead	Yes	10/14/17	14:43	Equipment/ Facility Failure	Pole	N.A.	N.A.	Unknown	
37.38553	-121.81327	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	SA JOSE FD	100563705	Unknown	12,000	Conductor	Overhead	Yes	10/15/17	13:15	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
36.58307	-121.93676	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101781248	PACIFIC BELL	12,000	Conductor	Overhead	Yes	10/16/17	12:10	Contact From Object	N.A.	Vehicle	Communication Facility	Human Error	[redacted]
37.71998	-122.06870	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100900970	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/16/17	12:20	Contact From Object	N.A.	Vehicle	Communication Facility	Human Error	[redacted]
36.66410	-121.09947	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Nick Shawkey E4462 209-402-1645 Cover Engine from Tuolumne Calaveras Unit	101689865	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/16/17	12:26	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
35.42566	-119.02972	Vegetation	Urban	< 3 Meters	Self Extinguished	N.A.	100144662	PACIFIC BELL	12,000	Capacitor Bank	Overhead	Yes	10/17/17	18:22	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown	
37.63605	-122.07925	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100952408	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	10/18/17	13:58	Contact From Object	N.A.	Vehicle	N.A.	Human Error	
36.74749	-119.76295	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	100859697	Unknown	12,000	Conductor	Overhead	Yes	10/20/17	5:59	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown	
39.29221	-121.01573	Vegetation	Rural	< 3 Meters	Fire Agency	PHILLIP NUNNINK INCIDENT # 27272	100087647	PACIFIC BELL	12,000	Conductor	Overhead	Yes	10/20/17	6:18	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.03599	-120.05797	Vegetation	Rural	300 - 999 Acres	Fire Agency	Unknown	Pole 009/009	Unknown	70,000	Conductor	Overhead	Yes	10/20/17	9:06	Contact From Object	N.A.	Other	Electric Facility	Other	bird
35.35300	-119.98730	Vegetation	Rural	10 - 99 Acres	Fire Agency	Kevin McLean Office(805)593-3421, Cell(805)903-3421	100136483	Unknown	12,000	Conductor	Overhead	Yes	10/20/17	13:43	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
34.55317	-120.53029	Vegetation	Rural	100 - 299 Acres	Fire Agency	Unknown	101921492	Unknown	12,000	Conductor	Overhead	Yes	10/20/17	13:45	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown	
36.92155	-119.72828	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100727124	Unknown	21,000	Fuse	Overhead	Yes	10/20/17	14:00	Equipment/ Facility Failure	Other	N.A.	N.A.	Unknown	
39.06400	-122.77645	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	102155186	PACIFIC BELL	12,000	Conductor	Overhead	Yes	10/21/17	15:08	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
37.59108	-122.00995	Vegetation	Urban	.26 - 9.99 Acres	Fire Agency	Unknown	103516949	Unknown	0 – 750	Conductor	Overhead	Yes	10/21/17	16:05	Contact From Object	N.A.	Balloons	Electric Facility	Human Error	Thir
36.07720	-121.01900	Vegetation	Rural	< 0.25 Acres	Customer	N.A.	101763398	Unknown	12,000	Conductor	Overhead	Yes	10/23/17	19:34	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
37.37133	-122.34799	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	100270421	Unknown	12,000	Conductor	Overhead	Yes	10/23/17	21:24	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.85988	-121.79474	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	101789001	PACIFIC BELL	21,000	Conductor	Overhead	Yes	10/24/17	15:23	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
36.40356	-121.91219	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101777002	Unknown	12,000	Conductor	Overhead	Yes	10/26/17	10:53	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown	
39.45162	-123.38381	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	102209084	Unknown	12,000	Conductor	Overhead	Yes	10/28/17	15:26	Contact From Object	N.A.	Vehicle	Communication Facility	Human Error	[redacted]
35.02222	-118.76915	Vegetation	Rural	< 0.25 Acres	Unknown	N.A.	100223850	Unknown	12,000	Fuse	Overhead	Yes	10/28/17	20:08	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown	
39.00345	-121.69065	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	Pole 010/208	Unknown	60,000	Conductor	Overhead	Yes	10/31/17	18:56	Contact From Object	N.A.	Vehicle	Electric Facility	Human Error	Thir
39.11189	-122.91633	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	Structure 020/003	Unknown	60,000	Conductor	Overhead	Yes	10/31/17	21:02	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown	
37.14600	-121.66753	Vegetation	Rural	< 0.25 Acres	Fire Agency	INCIDENT # 1717CASCU008183	103570543	YES	21,000	Conductor	Overhead	Yes	11/6/17	9:59	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
38.29980	-122.50300	Vegetation	Urban	< 0.25 Acres	Fire Agency	Unknown	101982913	PACIFIC BELL	12,000	Conductor	Overhead	Yes	11/6/17	15:06	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
37.73669	-120.34587	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	101191714	PACIFIC BELL	12,000	Conductor	Overhead	Yes	11/8/17	07:11	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
37.79198	-122.22211	Building	Urban	Structure Only	Fire Agency	Unknown	101352529	Unknown	4,000	Conductor	Overhead	Yes	11/8/17	14:53	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
35.11908	-120.39364	Vegetation	Rural	< 0.25 Acres	Fire Agency	Jordan Dayley ph#929-3911,engine#3467	101931190	PACIFIC BELL	12,000	Conductor	Overhead	Yes	11/11/17	11:57	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown	
36.73779	-119.77691	Building	Urban	< 0.25 Acres	Fire Agency	capt will johnson	100871063	Unknown	12,000	Capacitor Bank	Overhead	Yes	11/12/17	19:44	Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown	
37.32400	-120.81456	Vegetation	Rural	< 3 Meters	Fire Agency	cammu #023223	103853299	Unknown	12,000	Transformer	Overhead	Yes	11/14/17	07:43	Equipment/ Facility Failure	Transformer	N.A.	N.A.	Unknown	
37.08016	-120.01945	Other	Rural	< 3 Meters	Utility: PG&E	N.A.	101029626	Unknown	12,000	Fuse	Overhead	Yes	11/17/17	09:53	Equipment/ Facility Failure	Fuse	N.A.	N.A.	Unknown	
38.75835	-120.84385	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Unknown	101389405	PACIFIC BELL	12,000	Conductor	Overhead	Yes	11/20/17	08:32	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
35.49951	-118.90994	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	661-324-6551	103782809	None	0 – 750	Conductor	Overhead	Yes	11/20/17	20:05	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
37.61013	-121.33324	Vegetation	Rural	< 0.25 Acres	Fire Agency	tracy fire dept	102053617	PACIFIC BELL	12,000	Conductor	Overhead	Yes	11/21/17	11:55	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.75202	-121.66363	Vegetation	Rural	< 0.25 Acres	Fire Agency	Cal Fire	103154362	Unknown	12,000	Conductor	Overhead	Yes	11/22/17	13:44	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown	
35.77554	-120.69413	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101860971	Unknown	12,000	Conductor	Overhead	Yes	11/23/17	16:29	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
36.62133	-120.06165	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	KERMAN FIRE DEP.	100700090	Unknown	12,000	Conductor	Overhead	Yes	11/24/17	10:33	Contact From Object	N.A.	Animal	Electric Facility	Unknown	
36.01436	-119.95559	Vegetation	Rural	< 3 Meters	Utility: PG&E	N.A.	100693913	Unknown	12,000	Conductor	Overhead	Yes	11/25/17	6:29	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.70981	-119.56321	Vegetation	Urban	< 3 Meters	Fire Agency	Unknown	100815464	VERIZON CALIFO	0 – 750	Conductor	Overhead	Yes	11/26/17	10:10	Contact From Object	N.A.	Vegetation	Electric Facility	Human Error	Thir
36.69419	-121.65832	Vegetation	Urban	< 3 Meters	Fire Agency	831-758-7261	101723997	Unknown	12,000	Conductor	Overhead	Yes	11/27/17	06:23	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown	
37.12962	-122.31244	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100268264	Unknown	12,000	Conductor	Overhead	Yes	11/27/17	11:11	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
36.49743	-119.79086	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	100806272	Unknown	12,000	Other	Overhead	Yes	11/28/17	15:49	Equipment/ Facility Failure	Voltage Regulator	N.A.	N.A.	Unknown	
38.68410	-120.65461	Vegetation	Rural	< 3 Meters	Fire Agency	Cal Fire	101419450	PACIFIC BELL	21,000	Conductor	Overhead	Yes	11/29/17	17:34	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown	
34.71151	-120.17715	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	Pole 015/220	Unknown	115,000	Unknown	Overhead	No			Unknown	N.A.	N.A.	N.A.	Unknown	

D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Location				Fire			Utility Facility					Outage			Field Observations				
Latitude	Longitude	Material at Origin	Land Use at Origin	Size	Suppressed by	Suppressing Agency	Facility Identification	Other Companies	Voltage (Volts)	Equipment Involved With Ignition	Type	Was There an Outage	Date	Time	Suspected Initiating Event	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor
39.77107	-121.59727	Building	Urban	Structure Only	Fire Agency	paradise fire city department	100324902	PACIFIC BELL	12,000	Fuse	Overhead	Yes	12/12/17	4:40	Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown
35.59220	-120.64741	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103390807	Unknown	21,000	Other	Overhead	Yes	12/13/17	12:13	Equipment/ Facility Failure	Recloser	N.A.	N.A.	Unknown
37.19789	-121.83746	Building	Rural	Structure Only	Fire Agency	Unknown	100622323	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	12/14/17	1:33	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
34.58783	-120.35663	Vegetation	Rural	10 - 99 Acres	Fire Agency	Unknown	101911004	VERIZON CALIFO	12,000	Conductor	Overhead	Yes	12/14/17	17:16	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
39.74474	-122.19612	Building	Urban	Structure Only	Fire Agency	ORLAND CITY FIRE DEPT	100428554	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	12/16/17	7:01	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
38.81706	-122.70412	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Shawn Ohare	102167231	PACIFIC BELL	12,000	Conductor	Overhead	Yes	12/16/17	11:51	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
37.97022	-121.64092	Vegetation	Rural	< 0.25 Acres	Fire Agency	FIRE CAPTAIN ON DUTY	100473121	PACIFIC BELL	0 – 750	Conductor	Overhead	Yes	12/16/17	13:39	Equipment/ Facility Failure	Splice/Clamp/Connector	N.A.	N.A.	Unknown
35.65929	-120.49459	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	103131190	Unknown	21,000	Conductor	Overhead	Yes	12/16/17	16:03	Other	N.A.	N.A.	N.A.	Unknown
36.27152	-120.39270	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	100745841	Unknown	12,000	Fuse	Overhead	Yes	12/19/17	7:05	Contact From Object	N.A.	Animal	Electric Facility	Unknown
35.23093	-119.59840	Vegetation	Rural	< 0.25 Acres	Fire Agency	KC FIRE DEPT	100165540	Unknown	21,000	Conductor	Overhead	Yes	12/19/17	16:55	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
40.72710	-122.32629	Vegetation	Rural	< 0.25 Acres	Fire Agency	Unknown	101457738	Unknown	0 – 750	Conductor	Overhead	Yes	12/19/17	19:45	Equipment/ Facility Failure	Conductor	N.A.	N.A.	Unknown
37.40115	-122.36062	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	100318864	PACIFIC BELL	12,000	Conductor	Overhead	Yes	12/20/17	07:54	Contact From Object	N.A.	Vegetation	Electric Facility	Unknown
35.66460	-121.24400	Vegetation	Rural	.26 - 9.99 Acres	Fire Agency	Cal Fire	103857828	Unknown	12,000	Fuse	Overhead	No			Equipment/ Facility Failure	Insulator	N.A.	N.A.	Unknown
34.61055	-120.32180	Vegetation	Rural	< 3 Meters	Fire Agency	Unknown	101906902	VERIZON CALIFO	12,000	Fuse	Overhead	Yes	12/20/17	16:04	Equipment/ Facility Failure	Crossarm	N.A.	N.A.	Unknown
35.33754	-119.06370	Building	Urban	Structure Only	Fire Agency	Unknown	5895SW	Unknown	21,000	Switch	Subsurface	Yes	12/22/17	14:38	Equipment/ Facility Failure	Switch	N.A.	N.A.	Unknown
37.44444	-122.18976	Building	Urban	Structure Only	Fire Agency	Menlo Park FD	103511827	Unknown	4,000	Conductor	Overhead	Yes	12/24/17	6:41	Contact From Object	N.A.	Animal	Electric Facility	Unknown
40.46185	-122.32768	Vegetation	Rural	< 3 Meters	Self Extinguished	N.A.	101496394	Unknown	12,000	Conductor	Overhead	Yes	12/24/17	03:53	Contact From Object	N.A.	Vehicle	Electric Facility	Human Error
37.85168	-122.15863	Vegetation	Rural	< 3 Meters	Fire Agency	925-933-1313	100488954	PACIFIC BELL	12,000	Capacitor Bank	Overhead	No			Equipment/ Facility Failure	Capacitor Bank	N.A.	N.A.	Unknown

Suspected Ignition Cause	Equipment /Facility Failure	Contact From Object	Facility Contacted	Contributing Factor	Notes (Optional):
t Between Third Party Facility on Pole and Supply Lines				Weather	[redacted]
t From Object		Animal	Communication Facility	Human Error	[redacted]
t From Object		Balloons	Electric Facility	Unknown	
t From Object		Other	Pole	Outside Force	
t From Object		Vegetation	Pole	Other	
t From Object		Vehicle	Pole		
nination					
nent/Facility Failure	Capacitor Bank				
nent/Facility Failure	Conductor				
nent/Facility Failure	Fuse				
nent/Facility Failure	Insulator				
nent/Facility Failure	Lightning Arrestor				
nent/Facility Failure	Pole				
nent/Facility Failure	Guy/Span Wire				
nent/Facility Failure	Other				
nent/Facility Failure	Protective Relay				
nent/Facility Failure	Crossarm				
nent/Facility Failure	Recloser				
nent/Facility Failure	Sectionalizer				
nent/Facility Failure	Splice/Clamp/Connector				
nent/Facility Failure	Switch				
nent/Facility Failure	Transformer				
nent/Facility Failure	Voltage Regulator				
Operation					
wn					
ism/Theft					
ire Contact					

CPUC Drop Downs

	Building	Rural	Customer	Capacitor Bank	Padmounted	Contact Between Third Party Facility on Pole and Supply Lines	Animal	Human Error	Yes	Less Than .25 Acres	Communication Facility	Capacitor Bank
s	Other	Urban	Fire Agency	Conductor	Overhead	Contact From Object	Balloons	None	No	.26 - 9.99 Acres	Electric Facility	Conductor
	Vegetation		Self Extinguished	Fuse	Subsurface	Contamination	Other	Other		10 - 99 Acres	Pole	Fuse
			Unknown	Lightning Arrestor		Equipment/Facility Failure	Vegetation	Outside Force		100 - 299 Acres		Insulator
			Utility	Other		Normal Operation	Vehicle	Unknown		300 - 999 Acres		Lightning Arrest
				Switch		Other		Weather		1000 - 4999 Acres		Pole
				Transformer		Unknown				Greater than 5000 Acres		Guy/Span Wire
						Vandalism/Theft				Less than three (3) meters of linear travel		Other
						Wire-Wire Contact				Structure Only		Protective Relay
												Crossarm
												Recloser
												Sectionalizer
												Splice/Clamp/C
												Switch
												Transformer
												Voltage Regulat

EXHIBIT E

From: webmaster@cpuc.ca.gov <webmaster@cpuc.ca.gov>
Sent: Thursday, November 8, 2018 4:09:50 PM
To: usrb@cpuc.ca.gov
Cc: Allen, Meredith
Subject: Electric Safety Incident Reported- Pacific Gas & Electric Incident No: 181108-9002

The Following information regarding this incident has been reported:

Reporting Date: 11/8/2018 6:06:53 PM
Incident Date: 11/8/2018 @ 6:15 a.m.
Reported By: Meredith Allen, Sr. Director - Regulatory Relations
Utility Name: Pacific Gas & Electric
Phone Number: (415)828-5765
Email Address: MEAE@pge.com

Incident Location: Pulga Rd. Pulga,, Butte County

Reasons For Reporting:
- Fatalities? No (Utility: , Others:)
- Names of Fatalities:
- Injuries? (Utility: , Others:)
- Names of Injured:
- Damage? No (Utility: , Others:)
- Interruption? (Total Customers: , Total Hours:)
- Operator Judgement? Yes
- Media Coverage? No

Cause of Incident: Unknown (Other Cause:)

Agencies on Scene: Fire,

Facilities Affected:
- Utilities Facilities: Caribou-Palermo
- Voltage (KV): 115kV
- Customer's Facilities:

DigIn Information:
- Excavator Name:
- Contact:
- Phone: (___)___-____

Incident Recovery:
- On Scene Date & Time: @ 00:00 a.m.
- Service Restored: @ 00:00 a.m.

Summary: On November 8, 2018, at approximately 0615 hours, PG&E experienced an outage on the Caribou-Palermo 115 kV Transmission line in Butte County. In the afternoon of November 8, PG&E observed by aerial patrol damage to a transmission tower on the Caribou-Palermo 115 kV Transmission line, approximately one mile north-east of the town of Pulga, in the area of the Camp Fire. This information is preliminary.

EXHIBIT F

From: webmaster@cpuc.ca.gov <webmaster@cpuc.ca.gov>
Sent: Friday, November 16, 2018 4:03 PM
To: usrb@cpuc.ca.gov
Cc: Allen, Meredith <MEAe@pge.com>
Subject: Electric Safety Incident Reported- Pacific Gas & Electric Incident No: 181116-9015

The Following information regarding this incident has been reported:

Reporting Date: 11/16/2018 4:00:05 PM
Incident Date: 11/8/2018 @ 6:45 a.m.
Reported By: Meredith Allen, Sr. Director - Regulatory Relations
Utility Name: Pacific Gas & Electric
Phone Number: (415)828-5765
Email Address: MEAE@pge.com

Incident Location: Concow Concow, Butte

Reasons For Reporting:
- Fatalities? No (Utility: , Others:)
- Names of Fatalities:
- Injuries? (Utility: , Others:)
- Names of Injured:
- Damage? No (Utility: , Others:)
- Interruption? (Total Customers: , Total Hours:)
- Operator Judgement? Yes
- Media Coverage? No

Cause of Incident: Unknown (Other Cause:)

Agencies on Scene: Fire,

Facilities Affected:
- Utilities Facilities: Big Bend 1101
- Voltage (KV): 12kV
- Customer's Facilities:

DigIn Information:
- Excavator Name:
- Contact:
- Phone: (___)___-____

Incident Recovery:
- On Scene Date & Time: @ 00:00 a.m.
- Service Restored: @ 00:00 a.m.

Summary: On November 8, 2018, at approximately 0645 hours, PG&E experienced an outage on the Big Bend 1101 12kV Circuit in Butte County. CAL FIRE has collected PG&E equipment on that circuit. CAL FIRE has secured a location near PG&E facilities on that circuit. This information is preliminary. PG&E is cooperating with CAL FIRE.

EXHIBIT G

To:
Cc:
Bcc:
Subject: Fw: 2 more EIRs

From: webmaster@cpuc.ca.gov [mailto:webmaster@cpuc.ca.gov]
Sent: Friday, August 10, 2018 9:15 AM
To: usrb@cpuc.ca.gov
Cc: Cruz, Sheryll <SFQ2@pge.com>
Subject: Electric Safety Incident Reported- PG&E Incident No: 180810-8909

*******CAUTION: This email was sent from an EXTERNAL source. Think before clicking links or opening attachments.*******

The Following information regarding this incident has been reported:
Reporting Date: 8/10/2018 9:09:44 AM
Incident Date: 3/3/2018 @ 8:20 a.m.
Reported By: Sheryll Cruz, Sr Compliance Specialist
Utility Name: PG&E
Phone Number: (415)740-8929
Email Address: sfq2@pge.com
Incident Location: 6915 Tustin Road Salinas, Monterey
Reasons For Reporting:
- Fatalities? No (Utility: , Others:)
- Names of Fatalities:
- Injuries? (Utility: , Others:)
- Names of Injured:
- Damage? Yes (Utility: , Others:)
- Interruption? (Total Customers: 4, Total Hours: 2.5)
- Operator Judgement? No
- Media Coverage? No

Cause of Incident: Other (Other Cause: Blown/Failed Transformer)
Agencies on Scene:
Facilities Affected:
- Utilities Facilities: Prundale 1110
- Voltage (KV):
- Customer's Facilities:

DigIn Information:
- Excavator Name:
- Contact:
- Phone: (___)___-____

Incident Recovery:
- On Scene Date & Time: 3/3/2018 @ 8:20 a.m.
- Service Restored: 3/3/2018@ 10:50 a.m.

Summary: CPUC Reportable: Property Damage: On March 3, 2018, at approximately 8:17 AM, there was an outage affecting 4 customers on PG&E's Prundale 1110 circuit due to a blown/failed transformer at 6915 Tustin Rd, Salinas. On August 10, 2018, PG&E received a property damage claim from a customer alleging $107,500 of damage to residence due to the incident. This information is preliminary.

EXHIBIT H

PACIFIC GAS AND ELECTRIC COMPANY

ELECTRIC INCIDENT REPORT FORM

TO: CALIFORNIA PUBLIC UTILITIES COMMISSION

PG&E Reference Number: EI100124A

Voice Mail	1/24/2010 8:40:00 PM
CPUC recipient	**Date & Time called in to CPUC**
1-800-235-1076	Curtis Todd Ryan
Telephone Number	**Reported by**
	415-973-2782
	Telephone Number

Report Type: **Final**

☐ ***INJURY/FATALITY:*** An incident which results in a fatality or personal injury to an employee or 3rd party rising to the level of in-patient hospitalization and is attributable or allegedly attributable to utility owned electric facilities. Incidents involving motor vehicles are not reportable unless they result in death or injury attributable or allegedly attributable to electrical contact with the utility owned electric facilities.

☒ ***MEDIA:*** An incident that is non-storm related, is attributable or allegedly attributable to Pacific Gas and Electric owned electric facilities, and is subject to significant public attention and/or media coverage by three or more qualifying media companies in the Immediate Bay Area.

☐ ***PROPERTY DAMAGE:*** A single electric incident that is non-storm related where property damage of the utility or a single 3rd party is estimated to exceed $50,000 and is attributable or allegedly attributable to utility owned electric facilities. (Report required within 60 Days)

Initial Report Sent to CPUC – Date: 1/25/2010	**Final Report Sent to CPUC – Date:** 2/18/2010

This report is solely for the confidential use of the commission and its staff, and is not open to public inspection (See Commission General Order 66-C and Public Utilities Code Section 583).

PACIFIC GAS AND ELECTRIC COMPANY

ELECTRIC INCIDENT REPORT FORM

PG&E Reference Number: EI100124A

Final

Date and Time of Incident:		1/24/2010 6:06:00 PM			
Date and Time Incident Determined Reportable:		1/24/2010 8:25:00 PM			
Location of Incident:		Highway Substation			
City:	American Canyon	**Area:**	7	**County:**	Napa
Circuit/Facility:		**Voltage:**			
Service interrupted (time and date):	1/24/2010 6:08:00 PM	**Total Customers affected:**	15617		
Service restored (time and date):	1/24/2010 9:33:00 PM	**Major Customers affected:**	TBD		

Description of Incident:

On Sunday January 24, 2010 at 18:07 hours, an outage affecting 15,617 customers occurred at Highway Substation in American Canyon.

The root cause was a switching error that took place at PG&E's Ignacio Substation where 115kV Switch #163 had been left open but had been reported as closed. This set conditions so that when Highway Substation Switch #135 was later opened (normal operating condition), load was dropped, causing a flashover that ultimately de-energized Highway Substation.

PG&E implemented switching procedures and restored electric service to all 15,617 customers at 21:33 hours.

This incident is being reported under the Media criteria: KTVU, KGO, KCBS.

Facility Type: Substation

Injured Party Infomation: No injuries reported.

Property Damage Description: No property damage reported.

This report is solely for the confidential use of the commission and its staff, and is not open to public inspection (See Commission General Order 66-C and Public Utilities Code Section 583).

EXHIBIT I

PACIFIC GAS AND ELECTRIC COMPANY

ELECTRIC INCIDENT REPORT FORM

TO: CALIFORNIA PUBLIC UTILITIES COMMISSION

PG&E Reference Number: EI170525A

CPUC Website	10/20/2017 4:09:00 PM
CPUC recipient	**Date & Time CPUC notified**
1-800-235-1076	PG&E
Telephone Number	**Reported by**
	415-973-2782
	Telephone Number

Report Type: **20 Day Report**

☐ ***INJURY/FATALITY:*** An incident which results in a fatality or personal injury to an employee or 3rd party rising to the level of in-patient hospitalization and is attributable or allegedly attributable to utility owned electric facilities. Incidents involving motor vehicles are not reportable unless they result in death or injury attributable or allegedly attributable to electrical contact with the utility owned electric facilities.

☐ ***MEDIA:*** An incident that is attributable or allegedly attributable to Pacific Gas and Electric owned electric facilities, and is subject to significant public attention and/or media coverage.

☒ ***PROPERTY DAMAGE:*** A single electric incident where property damage of the utility or a single 3rd party is estimated to exceed $50,000 and is attributable or allegedly attributable to utility owned electric facilities.

☐ ***OPERATOR JUDGEMENT:*** Any incident that is significant in the judgement of the operator, even though it may not meet the incident reporting criteria.

☐ ***AIRCRAFT STRIKE:*** Any incident involving aircraft striking PGE facilities, even though it may not meet the incident reporting criteria.

Initial Report Sent to CPUC – Date: 10/20/2017	**20 Day Report Sent to CPUC – Date:** 11/17/2017

PACIFIC GAS AND ELECTRIC COMPANY

ELECTRIC INCIDENT REPORT FORM

PG&E Reference Number: EI170525A

20 Day Report

Date and Time of Incident:		5/25/2017 11:09:00 AM			
Date and Time Incident Determined Reportable:		10/20/2017 3:15:00 PM			
Location of Incident:		1100 Zamora Court			
City:	Milpitas	**Region:**	Central Coast	**County:**	Santa Clara
Circuit/Facility:	MILPITAS 1105	**Voltage:**	12 kV		
Service interrupted (time and date):	5/25/2017 11:09:00 AM	**Total Customers affected:**	3429		
Service restored (time and date):	5/26/2017 2:11:00 AM	**Major Customers affected:**	TBD		

Description of Incident:

On Thursday, May 25, 2017 at approximately 1109 hours a pothead riser failed resulting in a fire located at 1100 Zamora Court in Milpitas, Santa Clara County.

The incident also caused a sustained outage to 3,429 customers on the Milpitas-1105 kV circuit. PG&E implemented switching procedures to restore service to customers as follows:

- 05/25/17 @ 1118 hours restored 19 customers
- 05/25/17 @ 1125 hours restored 1,301 customers
- 05/25/17 @ 1132 hours restored 887 customers
- 05/25/17 @ 1208 hours restored 1,109 customers

PG&E completed repair work per EC notification 112903254 (Attachment 5) and power was restored to remaining 113 customers on May 26, 2017 at approximately 0211 hours.

Attached with this report are the following:

- 2015 and 2017 patrol records (Attachments 1 and 2)
- 2013 and 2016 inspection records (Attachments 3 and 4)
- EC Notification 112903254 (Attachment 5)

PG&E received an online claim on October 20, 2017 for this incident. PG&E's Claims investigator reviewed this claim and determined property damage to exceed $50,000. PG&E reported this incident on October 20, 2017 to the CPUC under the Property Damage criterion. There were no injuries reported due to this incident.

Facility Type: OH Primary

Injured Party Infomation: No injuries reported.

Property Damage Description: Exceeds $50,000.00

EXHIBIT J

Pacific Gas and Electric Company

Meredith E. Allen
Pacific Gas and Electric Company
77 Beale Street, Mail Code B23A
San Francisco, CA 94105

December 11, 2018

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

Re: EIR No. EI181108A and No. EI181108B

Dear Ms. Malashenko:

This letter supplements the notices Pacific Gas and Electric Company ("PG&E") provided to the California Public Utilities Commission ("Commission") via the web-based reporting system on Thursday, November 8, 2018 at 6:06 p.m. and on Friday, November 16, 2018 at 4:00 p.m., regarding the above-referenced incidents. PG&E submits this information pursuant to Commission instructions and resolutions and the Public Utilities Code, and submits this report under Public Utilities Code Section 315.

On November 8, 2018, a wildland fire identified as the Camp Fire was reported at Pulga Road at Camp Creek Road near Jarbo Gap in Butte County, according to the website of the California Department of Forestry and Fire Protection ("CAL FIRE"). CAL FIRE is the lead investigative agency and has identified the start time of the fire as 6:33 a.m. On CAL FIRE's website, CAL FIRE has identified coordinates for the Camp Fire near Tower :27/222 on PG&E's Caribou-Palermo 115 kV Transmission Line. CAL FIRE's website also reports that approximately 153,336 acres have been burned, 18,793 structures have been destroyed, and that there were 85 civilian fatalities and 3 firefighter injuries. The Camp Fire has been fully contained.

On November 8, 2018, at approximately 6:15 a.m., the PG&E Caribou-Palermo 115kV Transmission Line relayed and deenergized. One customer was impacted by the transmission outage. At approximately 6:30 a.m. a PG&E employee observed fire in the vicinity of Tower :27/222, and this observation was reported to 911 by PG&E employees. In the afternoon of November 8, PG&E observed damage on the line at Tower :27/222, located near Camp Creek and Pulga Roads, near the Town of Pulga. Specifically, an aerial patrol identified that on Tower :27/222, a suspension insulator supporting a transposition jumper had separated from an arm on the tower. The suspension insulator and the transposition jumper remained suspended above the ground.

CAL FIRE initially restricted access to Tower :27/222 and adjacent Tower :27/221 on the Caribou-Palermo Transmission Line, but eventually permitted PG&E access for the limited purpose of cooperating with its investigation. On November 14, 2018, as part of its investigation of the Camp Fire, CAL FIRE requested assistance collecting assets from the two towers. PG&E assisted CAL FIRE with the requested collection, and Commission staff was on site to observe the collection. At the time of the collection at Tower :27/222, PG&E observed a broken C-hook attached to the separated suspension insulator that had connected the

suspension insulator to a tower arm, along with wear at the connection point. In addition, PG&E observed a flash mark on Tower :27/222 near where the transposition jumper was suspended and damage to the transposition jumper and suspension insulator. At Tower :27/221, there was an insulator hold down anchor that had become disconnected. The insulator hold down anchor is not an energized piece of equipment. After the evidence collection, CAL FIRE released the site. PG&E has not yet made repairs at either tower or restored service.

In addition to the events on the Caribou-Palermo 115kV Transmission Line, on November 8, 2018, at approximately 6:45 a.m., the PG&E Big Bend 1101 12 kV Circuit experienced an outage. Four customers on Flea Mountain were affected by the distribution outage. On November 9, 2018, a PG&E employee on patrol arrived at the location of the pole with Line Recloser ("LR") 1704 on the Big Bend 1101 Circuit and observed that the pole and other equipment was on the ground with bullets and bullet holes at the break point of the pole and on the equipment. On November 12, 2018, a PG&E employee was patrolling Concow Road north of LR 1704, when he observed wires down and damaged and downed poles at the intersection of Concow Road and Rim Road. This location is within the Camp Fire footprint. At this location, the employee observed several snapped trees, with some on top of the downed wires.

Beginning on November 13, 2018, PG&E assisted CAL FIRE in collecting evidence related to the Big Bend outage. CAL FIRE provided PG&E with receipts for evidence collected prior to PG&E's arrival at the site at the intersection of Concow Road and Rim Road. CAL FIRE has released the site. PG&E has not yet made repairs at this location or restored service to the four customers on Flea Mountain.

These incidents remain under investigation, and this information is preliminary. The cause of these incidents has not been determined and may not be fully understood until additional information becomes available, including information that can only be obtained through examination and testing of the equipment retained by CAL FIRE. PG&E is cooperating with CAL FIRE.

Sincerely,

Meredith E. Allen
Senior Director, Regulatory Relations

EXHIBIT K

U.S. Department of Energy Electricity Delivery and Energy Reliability Form OE-417	*ELECTRIC EMERGENCY INCIDENT AND DISTURBANCE REPORT*	OMB No. 1901-0288 Approval Expires: 05/31/2021 Burden Per Response: 1.8 hours

NOTICE: This report is **mandatory** under Public Law 93-275. Failure to comply may result in criminal fines, civil penalties and other sanctions as provided by law. For the sanctions and the provisions concerning the confidentiality of information submitted on this form, see General Information portion of the instructions. **Title 18 USC 1001 makes it a criminal offense for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction**.

RESPONSE DUE:
Within 1 hour of the incident, submit Schedule 1 and lines M - Q in Schedule 2 as an Emergency Alert report if criteria 1-8 are met.
Within 6 hours of the incident, submit Schedule 1 and lines M - Q in Schedule 2 as a Normal Report if only criteria 9-12 are met.
By the later of 24 hours after the recognition of the incident OR by the end of the next business day submit Schedule 1 & lines M - Q in Schedule 2 as a System Report if criteria 13-24 are met. *Note: 4:00pm local time will be considered the end of the business day*

Submit updates as needed and/or a final report (all of Schedules 1 and 2) within 72 hours of the incident.
For NERC reporting entities registered in the United States; NERC has approved that the form OE-417 meets the submittal requirements for NERC. There may be other applicable regional, state and local reporting requirements.

METHODS OF FILING RESPONSE
(Retain a completed copy of this form for your files.)

Online: Submit form via online submission at: https://www.oe.netl.doe.gov/OE417/
FAX: FAX Form OE-417 to the following facsimile number: (202) 586-8485.
Alternate: If you are unable to submit online or by fax, forms may be e-mailed to doehqeoc@hq.doe.gov, or call and report the information to the following telephone number: (202) 586-8100.

SCHEDULE 1 -- ALERT CRITERIA

(Page 1 of 4)

Criteria for Filing (Check all that apply)
See Instructions For More Information

EMERGENCY ALERT **File within 1-Hour** If any box 1-8 on the right is checked, this form must be filed within 1 hour of the incident; check Emergency Alert (for the Alert Status) on **Line A** below.	1. [ ] Physical attack that causes major interruptions or impacts to critical infrastructure facilities or to operations 2. [ ] Cyber event that causes interruptions of electrical system operations 3. [ ] Complete operational failure or shut-down of the transmission and/or distribution electrical system 4. [X] Electrical System Separation (Islanding) where part or parts of a power grid remain(s) operational in an otherwise blacked out area or within the partial failure of an integrated electrical system 5. [ ] Uncontrolled loss of 300 Megawatts or more of firm system loads for 15 minutes or more from a single incident 6. [ ] Firm load shedding of 100 Megawatts or more implemented under emergency operational policy 7. [ ] System-wide voltage reductions of 3 percent or more 8. [ ] Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the Bulk Electric System
NORMAL REPORT **File within 6-Hours** If any box 9-12 on the right is checked AND none of the boxes 1-8 are checked, this form must be filed within 6 hours of the incident; check Normal Report (for the Alert Status) on **Line A** below.	9. [ ] Physical attack that could potentially impact electric power system adequacy or reliability; or vandalism which targets components of any security systems 10. [ ] Cyber event that could potentially impact electric power system adequacy or reliability 11. [ ] Loss of electric service to more than 50,000 customers for 1 hour or more 12. [ ] Fuel supply emergencies that could impact electric power system adequacy or reliability

SCHEDULE 1 -- ALERT CRITERIA -- CONTINUED

SYSTEM REPORT
File within 1-Business Day

If any box 13-24 on the right is checked AND none of the boxes 1-12 are checked, this form must be filed by the later of 24 hours after the recognition of the incident OR by the end of the next business day. *Note:* 4:00pm local time will be considered the end of the business day. Check System Report (for the Alert Status) on **Line A** below.

13. [ ] Damage or destruction of a Facility within its Reliability Coordinator Area, Balancing Authority Area or Transmission Operator Area that results in action(s) to avoid a Bulk Electric System Emergency.

14. [ ] Damage or destruction of its Facility that results from actual or suspected intentional human action.

15. [ ] Physical threat to its Facility excluding weather or natural disaster related threats, which has the potential to degrade the normal operation of the Facility. Or suspicious device or activity at its Facility.

16. [ ] Physical threat to its Bulk Electric System control center, excluding weather or natural disaster related threats, which has the potential to degrade the normal operation of the control center. Or suspicious device or activity at its Bulk Electric System control center.

17. [ ] Bulk Electric System Emergency resulting in voltage deviation on a Facility; A voltage deviation equal to or greater than 10% of nominal voltage sustained for greater than or equal to 15 continuous minutes.

18. [ ] Uncontrolled loss of 200 Megawatts or more of firm system loads for 15 minutes or more from a single incident for entities with previous year's peak demand less than or equal to 3,000 Megawatts

19. [ ] Total generation loss, within one minute of: greater than or equal to 2,000 Megawatts in the Eastern or Western Interconnection or greater than or equal to 1,400 Megawatts in the ERCOT Interconnection.

20. [ ] Complete loss of off-site power (LOOP) affecting a nuclear generating station per the Nuclear Plant Interface Requirements.

21. [ ] Unexpected Transmission loss within its area, contrary to design, of three or more Bulk Electric System Facilities caused by a common disturbance (excluding successful automatic reclosing).

22. [ ] Unplanned evacuation from its Bulk Electric System control center facility for 30 continuous minutes or more.

23. [ ] Complete loss of Interpersonal Communication and Alternative Interpersonal Communication capability affecting its staffed Bulk Electric System control center for 30 continuous minutes or more.

24. [ ] Complete loss of monitoring or control capability at its staffed Bulk Electric System control center for 30 continuous minutes or more.

If significant changes have occurred after filing the initial report, re-file the form with the changes and check Update (for the Alert Status) on **Line A** below.

The form must be re-filed within 72 hours of the incident with the latest information and Final (Alert Status) checked on **Line A** below, unless updated

LINE NO.						
A.	Alert Status (check one)	Emergency Alert [ ] 1 Hour	Normal Report [ ] 6 Hours	System Report [ ] 1 Business Day	Update [ ] As required	Final [X] 72 Hours
B.	Organization Name	Pacific Gas and Electric				
C.	Address of Principal Business Office	77 Beale St. San Francisco, CA. 94105				

U.S. Department of Energy Electricity Delivery and Energy Reliability Form OE-417	*ELECTRIC EMERGENCY INCIDENT AND DISTURBANCE REPORT*	OMB No. 1901-0288 Approval Expires: 05/31/2021 Burden Per Response: 1.8 hours

SCHEDULE 1 -- ALERT NOTICE

(Page 3 of 4)

INCIDENT AND DISTURBANCE DATA

D.	Geographic Area(s) Affected (County, State)	Butte County, California		
E.	Date/Time Incident Began (mm-dd-yy/hh:mm) using 24-hour clock	11__ - _08__ - _18__ / __07_ : _16__ mo dd yy hh mm	[ ] Eastern [ ] Central [ ] Mountain [X] Pacific [ ] Alaska [ ] Hawaii	
F.	Date/Time Incident Ended (mm-dd-yy/ hh:mm) using 24-hour clock	11___ - 28__ - _18__ / __16_ : _32__ mo dd yy hh mm	[ ] Eastern [ ] Central [ ] Mountain [X] Pacific [ ] Alaska [ ] Hawaii	
G.	Did the incident/disturbance originate in your system/area? (check one)	Yes [X]	No [ ]	Unknown [ ]
H.	Estimate of Amount of Demand Involved (Peak Megawatts)	32MW	Zero [ ]	Unknown [ ]
I.	Estimate of Number of Customers Affected	11,844	Zero [ ]	Unknown [ ]

SCHEDULE 1 – TYPE OF EMERGENCY

Check all that apply

J. Cause	K. Impact	L. Action Taken
☐ Unknown ☐ Physical attack ☐ Threat of physical attack ☐ Vandalism ☐ Theft ☐ Suspicious activity ☐ Cyber event (information technology) ☐ Cyber event (operational technology) ☐ Fuel supply emergencies, interruption, or deficiency ☐ Generator loss or failure not due to fuel supply interruption or deficiency or transmission failure ☐ Transmission equipment failure (not including substation or switchyard) ☐ Failure at high voltage substation or switchyard ☐ Weather or natural disaster ☐ Operator action(s) X Other ☐ Additional Information/Comments: Camp Fire in area	☐ None ☐ Control center loss, failure, or evacuation ☐ Loss or degradation of control center monitoring or communication systems ☐ Damage or destruction of a facility X Electrical system separation (islanding) ☐ Complete operational failure or shutdown of the transmission and/or distribution system ☐ Major transmission system interruption (three or more BES elements) ☐ Major distribution system interruption ☐ Uncontrolled loss of 200 MW or more of firm system loads for 15 minutes or more ☐ Loss of electric service to more than 50,000 customers for 1 hour or more ☐ System-wide voltage reductions or 3 percent or more ☐ Voltage deviation on an individual facility of ≥10% for 15 minutes or more ☐ Inadequate electric resources to serve load ☐ Generating capacity loss of 1,400 MW or more ☐ Generating capacity loss of 2,000 MW or more ☐ Complete loss of off-site power to a nuclear generating station ☐ Other ☐ Additional Information/Comments:	☐ None ☐ Shed Firm Load: Load shedding of 100 MW or more implemented under emergency operational policy (manually or automatically via UFLS or remedial action scheme) ☐ Public appeal to reduce the use of electricity for the purpose of maintaining the continuity of the electric power system ☐ Implemented a warning, alert, or contingency plan ☐ Voltage reduction ☐ Shed Interruptible Load ☐ Repaired or restored ☐ Mitigation implemented ☐ Other X Additional Information/Comments See Section R - Narrative

U.S. Department of Energy Electricity Delivery and Energy Reliability Form OE-417	*ELECTRIC EMERGENCY INCIDENT AND DISTURBANCE REPORT*	OMB No. 1901-0288 Approval Expires: 05/31/2021 Burden Per Response: 1.8 hours

SCHEDULE 2 -- NARRATIVE DESCRIPTION

(Page 4 of 4)

Information on Schedule 2 will not be disclosed to the public to the extent that it satisfies the criteria for exemption under the Freedom of Information Act, e.g., exemptions for confidential commercial information and trade secrets, certain information that could endanger the physical safety of an individual, or information designated as Critical Energy Infrastructure Information.

NAME OF OFFICIAL THAT SHOULD BE CONTACTED FOR FOLLOW-UP OR ANY ADDITIONAL INFORMATION		
M.	Name	Sandra R. Ellis
N.	Title	Senior Manager, Transmission Operations Engineering
O.	Telephone Number	(415)-(973)-(1665)
P.	FAX Number	(415)-(973)-(8804)
Q.	E-mail Address	SRE2@pge.com

Provide a description of the incident and actions taken to resolve it. Include as appropriate, the cause of the incident/disturbance, change in frequency, mitigation actions taken, equipment damaged, critical infrastructures interrupted, effects on other systems, and preliminary results from any investigations. Be sure to identify: the estimate restoration date, the name of any lost high voltage substations or switchyards, whether there was any electrical system separation (and if there were, what the islanding boundaries were), and the name of the generators and voltage lines that were lost (shown by capacity type and voltage size grouping). If necessary, copy and attach additional sheets. Equivalent documents, containing this information can be supplied to meet the requirement; this includes the NERC EOP-004 Disturbance Report. **Along with the filing of Schedule 2, a final (updated) Schedule 1 needs to be filed. Check the Final box on line A for Alert Status on Schedule 1 and submit this and the completed Schedule 2 no later than 72 hours after detection that a criterion was met.**

R. Narrative:

On November 8, 2018, at approximately 0615 hours, PG&E experienced an outage on the Caribou-Palermo 115 kV Transmission line in Butte County. In the afternoon of November 8, PG&E observed by aerial patrol damage to a transmission tower on the Caribou-Palermo 115 kV Transmission line, approximately one mile north-east of the town of Pulga, in the area of the Camp Fire. This information is preliminary. PG&E filed an Electric Safety Incident Report (No. 181108-9002) for this line outage with the California Public Utilities Commission.

At approximately 06:15, the Caribou – Palermo 115 kV line relayed and did not test due to auto-reclosing being disabled following company practices for transmission lines in areas of extreme fire danger. Loss of this transmission line caused sustained interruption to Grizzly PH (offline at the time).

At 07:20, the Caribou – Table Mountain 230 kV line relayed and remained open-ended at Caribou by design with no customer interruption. This resulted in an island with the Butt Valley – Caribou 115 kV line and the Caribou 60kV area referred to as the Caribou Island. Belden PH separated on the trouble. Moments later the Caribou – Table Mountain 230 kV line relayed again and tested no good.

The Caribou Island consisted of the following substations Big Meadows, Chester, Crescent Mills, East Quincy, Gansner, Grays Flat, Hamilton Branch, Spanish Creek and LMUD. Additionally, the following generators were part of the Caribou Island: Caribou #1 PH Units #1, #2, #3, Caribou #2 PH Units #4 and 5, Honey Lake (LMUD), Amedle (LMUD), Wineagle (LMUD), Hamilton Branch, Collins Pine, Butt Valley PH and Sierra Pacific (Quincy).

At 08:00 the Grid Control Center requested that the Caribou Island be terminated due to inability to manage frequency, Caribou #2 PH Units #4 and #5 were separated at 08:03. The Butt Valley – Caribou 115 kV, Caribou #2 60 kV, Caribou – Plumas Jct 60 kV lines were de-energized. Caribou PH #11-230/115 kV transformer and 115 kV main bus de-energized. This caused a sustained interruption to Gansner, Grays Flat, East Quincy, Sierra Pacific (Quincy) and Spanish Creek. Additionally, the Caribou – Westwood 60 kV line was open-ended at Caribou leaving a smaller island with Honey Lake Power (LMUD) serving Hamilton Branch, Collins Pine and Chester, referred to as the LMUD Island.

At 09:08, the Caribou-Westwood 60 kV line was de-energized due to lack of protection for the end of line, causing sustained interruption to Big Meadows and momentary interruption to Hamilton Branch and Chester. After further review of protection, Big Meadows was restored from LMUD at 14:44.

To support restoring customers in the affected area, Caribou #2 PH was black-started and energized the Caribou 230, 115 and 60 kV busses at 15:41. Over the next hours steps were taken to restore customers within the associated 60 kV substations. At 17:45 the PG&E served portion of the LMUD island was interrupted causing sustained interruption to Big Meadows, Hamilton Branch, Collins Pine and Chester to prepare for planned drop and pickup restoration from the newly re-created Caribou Island.

At 19:51, the Caribou – Westwood 60 kV line was energized. The Hamilton Branch – Chester 60 kV line was energized, restoring all customers at Chester, Big Meadows, and Hamilton Branch by 20:20.
At 20:53, the Caribou #2-60 kV line was energized allowing restoration of Grays Flat at 21:10 and Spanish Creek 21:18.
At 21:11, the Caribou Plumas Junction 60 kV line was energized allowing restoration of East Quincy at 22:37 and Gansner at 22:53.

On November 28, at 16:21 Caribou-Table Mountain 230 kV line manually tested OK after crews replaced no-good insulators at tower 33/239. At 16:32, the Caribou Island was synchronized with the primary electrical grid ending the islanding condition and returning the Caribou-Table Mountain 230 kV line to normal.

S. Estimated Restoration Date for all Affected Customers Who Can Receive Power	11 - 08 - 18 mo dd yy

T. Name of Assets Impacted	**Lines** *230 kV* Caribou – Table Mountain *115 kV* Caribou – Palermo Butt Valley – Caribou *60 kV* Caribou #2 Caribou – Plumas Jct Caribou – Westwood Hamilton Branch – Chester **Generators** Caribou #1 PH Unit #1 (offline) Caribou #1 PH Unit #2 (offline) Caribou #1 PH Unit #3 (offline) Caribou #2 PH Unit #4 Caribou #2 PH Unit #5 Honey Lake Power (LMUD) Amedle (LMUD) Wineagle (LMUD) Hamilton Branch Collins Pine Butt Valley PH Sierra Pacific (Quincy) Grizzly PH (offline) Belden PH **Substations** Caribou 230 kV Caribou 115 kV Caribou 60 kV East Quincy 60 kV Spanish Creek 60 kV Big Meadows 60 kV Chester 60kV Hamilton Branch 60kV Gansner 60kV Grays Flat 60kV

U. Notify NERC/E-ISAC	Select if you approve of all of the information provided on the Form being submitted to the North America Electric Reliability Corporation (NERC) and/or the Electricity Information Sharing and Analysis Center (E-ISAC) NERC is an entity that is certified by the Federal Energy Regulatory Commission to establish and enforce reliability standards for the bulk power system but that is not part of the Federal Government. This information would be submitted to help fulfill the respondent's requirements under NERC's reliability standards. If approval is given to alert NERC and/or E-ISAC the Form will be emailed to systemawareness@nerc.net and/or operations@eisac.com when it is submitted to DOE. DOE is not responsible for ensuring the receipt of these emails by NERC and/or E-ISAC. X Notify NERC | X Notify E-ISAC

EXHIBIT L

ADOBE INCIDENT DESCRIPTION & FACTUAL SUMMARY

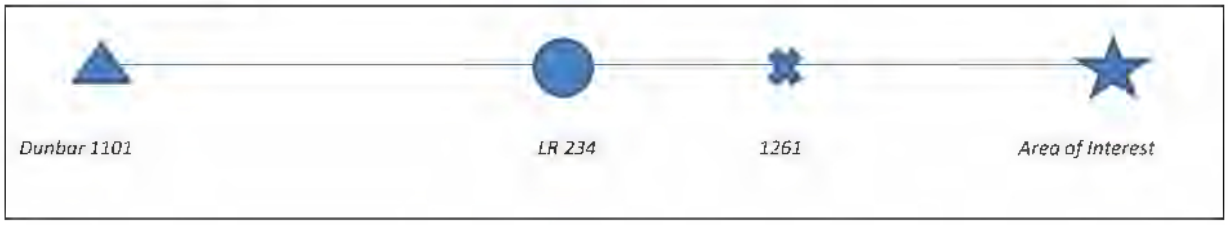
For completeness, this incident description and factual summary should be read in conjunction with the Factual Report Guidance and the contemporaneously submitted response to Question 62.

Background:

On October 10, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171010-8558) concerning an incident that occurred near 8555 Sonoma Highway (Highway 12), Kenwood, Sonoma County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E was granted access to the incident location, PG&E observed a green Eucalyptus tree that had fallen and was laying on three of three conductors of a Dunbar 1101 (12 kV) primary tap line on the ground. The Eucalyptus tree was rooted approximately 60 feet from the distribution conductors.

According to CAL FIRE's website, the Adobe fire is part of the "Nuns fire", which consists of six different fires: Nuns, Adobe, Norrbom, Pressley, Partrick and Oakmont, and the Adobe fire started at 1:00 AM on October 9, 2017.

Incident Overview:



The incident location is served by the Dunbar 1101 Circuit. On the Dunbar 1101 Circuit, Line Recloser 234 is the first recloser upstream of the incident location. Based on PG&E records, there are four meters downstream of the incident location. At 10:36 PM, the smart meter at service point 3680315905 recorded a NIC Power Down event. The smart meter at service point 9637363405, another meter downstream of the incident location, failed to report interval data between 8:22 PM and midnight. The other two meters were not reporting on October 8.

Based on PG&E records, 6 smart meters between the incident location and Fuse 1261—the fuse immediately upstream of the incident location—recorded a series of power off/on events between 11:08 PM and 11:35 PM. At 11:14 PM, Line Recloser 234 operated and reclosed.

Based on PG&E records, a PG&E troubleman was the first responder to the Adobe incident. Per the troubleman, at around 11:30 PM on October 8, he was driving north on Highway 12 to address an outage. Along the way, he saw fire in the Kenwood area. Per the troubleman, he stopped near a pole on Highway 12 that was close to the Chateau St. Jean winery. He saw firefighters and asked if they needed assistance. The firefighters requested de-energization of the lines. The troubleman called the Distribution Operator, who told him that Line Recloser 234 was nearby and could be opened remotely. Based on PG&E records, Line Recloser 234 was

opened remotely via SCADA at 11:35 PM, and there was fire on the load side of Line Recloser 234. Opening Line Recloser 234 cut off the source of power to the incident location.

Per the troubleman, because of the fire he observed, he worked with the Distribution Operator to de-energize more of the line on the source side of Line Recloser 234. Based on PG&E records, the Dunbar 1101 Circuit Breaker was opened remotely via SCADA at 12:01 AM on October 9, de-energizing the Dunbar 1101 Circuit at that time.

Per the troubleman, after working with the Distribution Operator to de-energize the circuit, he returned to the pole by which he had originally stopped. The pole had caught fire, and he extinguished it. From that pole, the troubleman saw a large building on fire approximately 100 yards to the northeast. The troubleman drove into the winery property along the pole line because from where he was, he could see that two of three fuses were blown. Based on PG&E records, the troubleman reported at 1:10 AM that he found two of three fuses at Fuse 1261 blown. He also reported that he opened the remaining fuse and tagged it "Man on Line" and in need of further patrol. Per the troubleman, he was unable to patrol more than one span downstream of Fuse 1261 due to fire. The incident location is ten spans downstream of Fuse 1261. Per the troubleman, from his location, he did not see trees or wires down.

Based on PG&E records, on October 10, 2017 at 8:48 AM, another PG&E troubleman reported that firefighters asked PG&E to cut the line in the clear and open Fuse 7443 downstream of the incident location. At 8:49 AM, PG&E cut the line in the clear upstream of the incident location. At 8:53 AM, PG&E opened Fuse 7443 and tagged it "Caution".

On October 10, PG&E was permitted access to the incident location and observed a Eucalyptus tree that had fallen and three of three primary conductors of the Dunbar 1101 (12 kV) on the ground. The Eucalyptus tree was green, approximately 120 feet tall and rooted approximately 60 feet from the distribution conductors. The Eucalyptus tree was found laying on top of the distribution conductors. The primary tap line conductors were #4AR (aluminum, steel reinforced) tree wire, installed in 1966.

CAL FIRE released the incident location on October 16.

Based on PG&E records, on October 17 at 1:42 PM, the Dunbar 1101 Circuit Breaker was closed, and at 9:23 PM, Line Recloser 234 was closed remotely via SCADA. The incident location remained de-energized because Fuse 1261 was open. On October 21, PG&E completed repair work at the incident location. On October 22 at 5:20 PM, Fuse 1261 was closed, restoring power to the incident location.

Evidence Collection:

CAL FIRE collected a rack secondary bracket, 3 sections of #6 copper wire, an 8 foot cross-arm, 2 insulators, a steel gasket and many sections of primary tree wire. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On October 17, 2017, PG&E collected a smart meter at service point 3680316905, located downstream of the incident location. On October 21, 2017, PG&E collected the base and first one-third from the base of the subject Eucalyptus tree.

Timeline:

Event	Adobe CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 8, 2017, 8:22 PM: Based on PG&E records, the smart meter at service point 9637363405 failed to report interval data between 8:22 PM and midnight.		PGE-CF_00000046
October 8, 2017, 10:36 PM: Based on PG&E records, the smart meter at service point 3680315905 recorded a NIC Power Down event.		PGE-CF_00000047
October 8, 2017, 11:08 PM: Based on PG&E records, 6 smart meters located between the incident location and Fuse 1261 recorded a series of power off/on events between 11:08 PM and 11:35 PM.		PGE-CF_00000047
October 8, 2017, 11:14 PM: Based on PG&E records, Line Recloser 234 operated and reclosed.	PGE-CPUC_00007876	PGE-CF_00000015
October 8, 2017, 11:35 PM: Based on PG&E records, Line Recloser 234 was opened remotely via SCADA, and there was fire on the load side of Line Recloser 234.	PGE-CPUC_00013124, at 124 PGE-CPUC_0007876	PGE-CF_00136070, at 070 PGE-CF_00000015
October 9, 2017, 12:01 AM: Based on PG&E records, the Dunbar 1101 Circuit Breaker was opened remotely via SCADA.	PGE-CPUC_00013124, at 124 PGE-CPUC_0007876	PGE-CF_00136070, at 070 PGE-CF_00000015
October 9, 2017, 1:00 AM: According to CAL FIRE's website, the Adobe fire started.		
October 9, 2017, 1:10 AM: Based on PG&E records, a troubleman reported that at Fuse 1261, he found two of three fuses had blown. He also reported that he opened the third fuse, and that he tagged Fuse 1261	PGE-CPUC_00013091	PGE-CF_00136055

Event	Adobe CPUC Bates Number Reference	CAL FIRE Bates Number Reference
"Man on Line" and in need of patrol.		
October 10, 2017, 8:48 AM: Based on PG&E records, a different troubleman reported that firefighters requested that PG&E cut the line in the clear and open Fuse 7443.	PGE-CPUC_00013039, at 039	PGE-CF_00136021, at 021
October 10, 2017, 8:49 AM: Based on PG&E records, PG&E cut the line in the clear upstream of the incident location.	PGE-CPUC_00013039, at 039	PGE-CF_00136021, at 021
October 10, 2017, 8:53 AM: Based on PG&E records, PG&E opened Fuse 7443 and tagged it "Caution".	PGE-CPUC_00013039, at 039	PGE-CF_00136021, at 021
October 10, 2017: PG&E first accessed the site and observed the fallen tree and wire down at the incident location.		
October 16, 2017: CAL FIRE released the incident location.		
October 17, 2017, 1:42 PM: Based on PG&E records, the Dunbar 1101 Circuit Breaker was closed.	PGE-CPUC_00013124	PGE-CF_00136070
October 17, 2017, 9:23 PM: Based on PG&E records, Line Recloser 234 was closed remotely via SCADA, but power did not flow to the incident location because Fuse 1261 was open.	PGE-CPUC_00013124 PGE-CPUC_00001206	PGE-CF_00136070 PGE-CF_00004982
October 21, 2017: PG&E completed repair work at the incident location.	PGE-CPUC_00015733	
October 22, 2017, 5:20 PM: Based on PG&E records, Fuse 1261 was closed, restoring power to the incident location.	PGE-CPUC_00013091 PGE-CPUC_00001206	PGE-CF_00136055 PGE-CF_00004982

Source List:

Source	Brief Description
PGE-CPUC_00001203 PGE-CF_00004982	Adobe Single Line Diagram
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_00007876 PGE-CF_00000015	SCADA Data
PGE-CPUC_00013039 PGE-CF_00136021	ILIS Report 17-0085901
PGE-CPUC_00013091 PGE-CF_00136055	ILIS Report 17-0085330
PGE-CPUC_00013124 PGE-CF_00136070	ILIS Report 17-0085286
PGE-CPUC_00015733	Electric Overhead Tag Notification 113743733 (completed 10/21/17)
PGE-CPUC_00016059	Photo of Incident Location
PGE-CF_00000046 PGE-CF_00000047	AMI Data from October 8, 2017 for Smart Meters at Service Points Between Fuse 1261 and Incident Location, and for Meters Downstream of Incident Location
Adobe Electric Incident Report (Initial)	October 10, 2017 Initial Electric Incident Report for Adobe
Adobe Electric Incident Report (20 Day)	November 6, 2017 20 Day Electric Incident Report for Adobe
CPUC Letter	December 7, 2017 CPUC Letter to PG&E Regarding Clarification for Commission's November 21, 2017 Data Request
Response to Question 35	December 29, 2017 Response to the CPUC's October 2017 Wildfire Data Request
Response to Question 36	December 29, 2017 Response to the CPUC's October 2017 Wildfire Data Request
Supplemental AMI Data	AMI Data from October 8, 2017 for Smart Meters at Service Points Between Fuse 1261 and Incident Location
Supplemental SCADA Data	SCADA Data from October 17, 2017 for Line Recloser 234
Adobe Fire (Central LNU Complex) Incident Information, CAL FIRE Website	http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1890
Nuns / Adobe / Norrbom/ Pressley / Partrick Fires / Oakmont (Central LNU Complex) Incident Information, CAL FIRE Website	http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1868

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.

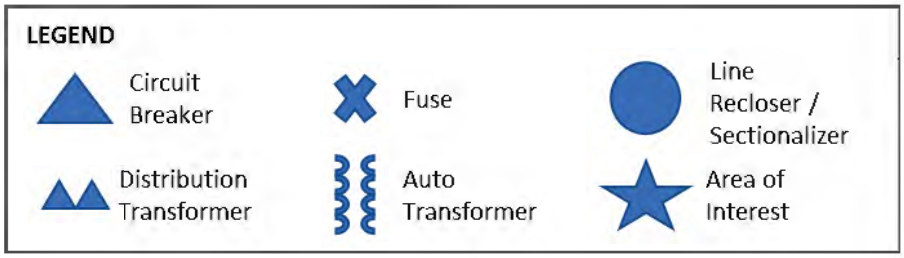
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT M

ATLAS 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:

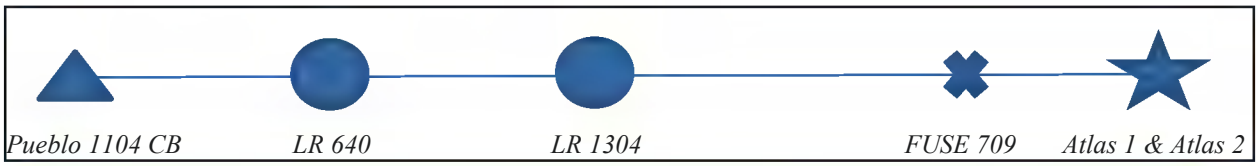
On October 20, 2017, PG&E filed with the CPUC an Electric Safety Incident Report (Incident No. 171020-8589) concerning an incident that occurred near 4011 Atlas Peak Road, City of Napa, Napa County (the "Atlas 1 incident location," as defined by the CPUC's December 7, 2017, letter). On October 23, 2017, PG&E filed with the CPUC an Electric Safety Incident Report (Incident No. 171023-8596) concerning an incident that occurred near 3683 Atlas Peak Road, City of Napa, Napa County (the "Atlas 2 incident location," as defined by the CPUC's December 7, 2017, letter and, together with the Atlas 1 incident location, the "incident locations"). The Atlas 2 incident location is approximately a quarter mile south of the Atlas 1 incident location.

When PG&E was granted access to the Atlas 1 incident location, PG&E observed a broken tree limb and broken field-phase primary insulator on the Pueblo 1104 (12 kV) Circuit. A green, healthy tree limb fell from a California White Oak/Valley Oak that was rooted approximately 15 feet from the distribution conductors.

When PG&E was granted access to the Atlas 2 incident location, PG&E observed a California Black Oak tree that had broken at the base and was lying on the ground. The base of the California Black Oak tree was burnt and rooted approximately 20 feet from the distribution conductors.

According to CAL FIRE's website, the Atlas fire started at 9:52 PM on October 8, 2017. CAL FIRE has collected evidence near the incident locations.

Incident Overview:



Based on PG&E records, on October 8, 2017, between 9:17 PM and 9:32 PM, 16 smart meters located downstream of the incident locations recorded a series of power off/on events. From 9:32 PM to 10:00 PM, 34 smart meters (including the 16 above) located downstream of the incident locations recorded a series of power off/on events.

According to PG&E records, a PG&E troubleman responded to an outage report on the Pueblo 1104 Circuit on the night of October 8. The troubleman cleared a wire down at 1597 Estee Avenue, which is over four and a half miles to the southwest of the incident locations, and reported fire on Atlas Peak Road at 10:42 PM. According to PG&E records, at 10:59 PM, the

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same troubleman manually opened Line Recloser 640, de-energizing the line beyond Line Recloser 640, including the incident locations.

Line Recloser 640 was manually closed on October 12, 2017 at 7:11 PM, restoring power to 55 customers, but the incident locations remained de-energized at this time.

On October 12, according to PG&E records, a compliance inspector and an engineering estimator were the first PG&E personnel to reach the incident locations before CAL FIRE took possession of the sites. They patrolled the area to assess what PG&E equipment needed to be replaced. Near the Atlas 2 incident location, the compliance inspector and estimator observed plates, utensils and a camp stove on the ground.

On October 19, 2017, PG&E observed a broken tree limb and broken field-phase primary insulator on the Pueblo 1104 (12 kV) Circuit near the Atlas 1 incident location. A green, healthy tree limb fell from a California White Oak/Valley Oak that was rooted approximately 15 feet from the distribution conductors and came to rest on the lower of two communications cables. The conductors were 6CU (copper), installed in 1930.

On October 21, 2017, PG&E observed a California Black Oak tree that had broken at the base and was lying on the ground near the Atlas 2 incident location. The base of the California Black Oak tree was burnt and rooted approximately 20 feet from the distribution conductors. The conductors were 6CU (copper), installed in 1930.

On October 22, 2017, PG&E completed repair work at the incident locations. Based on PG&E records, power was restored to the incident locations on October 22, 2017, at 4:27 PM when Switch 861209 was manually closed.

Evidence Collection:

CAL FIRE collected a primary conductor, a primary insulator and a California White Oak/Valley Oak tree branch and communications cable from the Atlas 1 incident location. CAL FIRE collected broken conductor and a portion of the bottom of a California Black Oak tree from the Atlas 2 incident location. PG&E does not know whether CAL FIRE collected additional evidence at the incident locations.

PG&E collected the following items of evidence from the Atlas 1 incident location:

- November 15, 2017: a California White Oak/Valley Oak tree stem piece

PG&E collected the following items of evidence from the Atlas 2 incident location:

- October 21, 2017: conductors, insulator and insulator brackets
- November 15, 2017: Manzanita tree and limb and California Black Oak tree parts, including trunk pieces, limbs and branches
- December 7, 2017: California Black Oak tree stump and melted smart meter

Timeline:

Atlas		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 9:17 to 9:32 PM: 16 smart meters downstream of the incident locations recorded a series of power off/on events.		
October 8, 2017, 9:32 to 10:00 PM: 34 smart meters downstream of the incident locations recorded a series of power off/on events.		
October 8, 2017, 9:52 PM: According to CAL FIRE's website, the Atlas fire started at 9:52 PM on October 8, 2017.		
October 8, 2017, 10:42 PM: Troubleman cleared wire down at 1597 Estee Avenue and reported fire on Atlas Peak Road.	PGE-CPUC_00013215	PGE-CF_00136128
October 8, 2017, 10:59 PM: Troubleman manually opened Line Recloser 640.	PGE-CPUC_00013215	PGE-CF_00136128
October 12, 2017, 7:11 PM: Line Recloser 640 closed manually, restoring service to 55 customers downstream of Line Recloser 640. Incident locations remained de-energized.	PGE-CPUC_00013215, at -216	PGE-CF_00136128, at -129
October 12, 13, 2017: Compliance inspector and engineering estimator patrolled incident locations.		
October 19, 2017: PG&E observed a broken tree limb and broken field-phase primary insulator on the Pueblo 1104 (12 kV) Circuit near the Atlas 1 incident location.		
October 21, 2017: PG&E observed a California Black Oak tree that had broken at the base near the Atlas 2 incident location.		
October 22, 2017: PG&E completed repair work at the incident locations.	PGE-CPUC_00013272	PGE-CF_00136150
October 22, 2017, 4:27 PM: Switch 861209 manually closed, restoring service to the incident locations.	PGE-CPUC_00013272	PGE-CF_00136150

Source List:

Source	Brief Description
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_00013215	ILIS Outage Report 17-0085211
PGE-CPUC_00013272	ILIS Outage Report 17-0089255
Initial Electric Safety Incident Report	Incident No. 171020-8589, submitted October 20, 2017
Initial Electric Safety Incident Report	Incident No. 171023-8596, submitted October 23, 2017
20-Day Report	20-Day Report for Electrical Incident Report EI171008M
20-Day Report	20-Day Report for Electrical Incident Report EI171008P
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	"Atlas Fire (Southern LNU Complex) Incident Description", http://cdfdata.fire.ca.gov/incidents/ incidents_details_info?incident_id=1866 (last updated Feb. 9, 2018).
AMI Smart Meter Data	AMI Smart Meter Data

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.

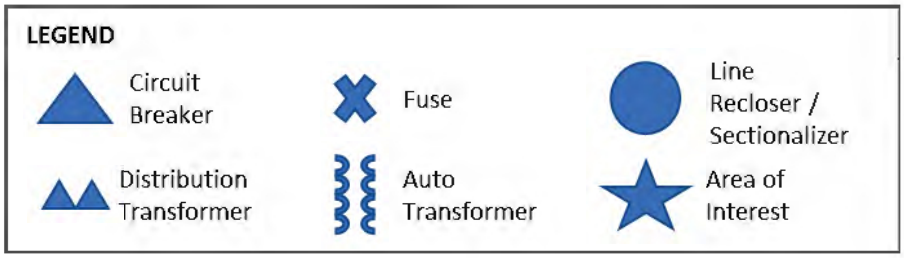
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

Confidentiality

The Reports include confidential information. PG&E seeks to protect this information as confidential. PG&E has provided a corresponding confidentiality declaration with the production.

EXHIBIT N

CASCADE INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

Background:

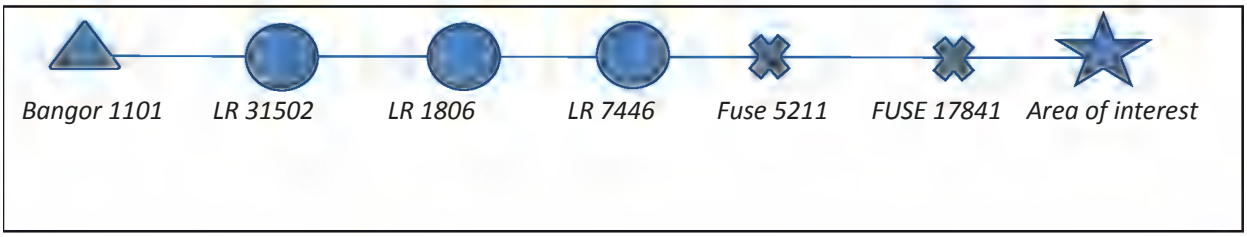
On October 20, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171020-8591) concerning an incident that occurred near 13916 Cascade Way Browns Valley, Yuba County (the "incident location" as defined by the CPUC's December 7, 2017, letter).

PG&E understands that CAL FIRE took possession of an intact span of primary distribution conductors on the Bangor 1101 (12 kV) Circuit and customer-owned electric equipment, including the customer service panel, at the incident location. The primary conductors were in place and appeared to be in working order at the time that CAL FIRE requested to take possession. The secondary service line appeared to be damaged at mid-span, but there was no apparent damage to other PG&E facilities.

According to CAL FIRE's website, the Cascade fire is part of the Wind Complex Incident, which consists of four different fires: Cascade, La Porte, Lobo, and McCourtney.

According to CAL FIRE's website, the Cascade fire started at 11:03 PM on October 8, 2017.

Incident Overview:



The incident location is served by the Bangor 1101 (12kV) Circuit and is downstream of both Fuse 5211 and Fuse 17841. Per PG&E records, on October 8, 2017, at 10:00 PM, a smart meter at service point 1062306405, located downstream of Fuse 5211, recorded a Zero Volt reading. Per PG&E records, at 10:57 PM, a smart meter at service point 1062299105, located downstream of Fuse 17841, reported a Last Gasp event. Also at 10:57 PM, per PG&E records, 9 of the 13 smart meters downstream of Fuse 17841 recorded a NIC Power Down or Last Gasp event, and 21 of 25 smart meters downstream of Fuse 5211 recorded a NIC Power Down event. Per PG&E records, the Colgate-Palermo 60 kV transmission line feeding the Bangor Substation experienced four momentary outages at 11:08 PM, 11:16 PM, 11:18 PM and 11:20 PM. Per PG&E records, at 11:22 PM, due to a fire impacting the transmission line, the Bangor Substation was automatically de-energized. The de-energization of the substation de-energized the incident location.

Per PG&E records, on October 9, 2017, at 7:30 PM, Line Recloser 31502—the third recloser upstream from the incident location—was opened manually on a dead line. At 7:58 PM, per PG&E records, the Bangor Substation was re-energized, but no customers were restored because Line Recloser 31502 remained open.

According to PG&E records, a troubleman, compliance inspector, and compliance supervisor were the first PG&E responders at the incident location. On October 11, 2017, per PG&E records, the troubleman drove past the incident location between 12:18 and 12:28 PM. The compliance inspector drove by at about the same time or shortly before. The compliance supervisor drove by at about the same time or shortly after. The compliance inspector used binoculars to assess the incident location from the road and did not observe any damage to PG&E facilities. The troubleman, the compliance inspector, and the compliance supervisor did not attempt to access the incident location because of CAL FIRE activity there.

On October 12, 2017, at 12:58 PM, per PG&E records and the same troubleman who had driven by the incident location on October 11, this troubleman reported that he had found 2 of 2 fuses blown at Fuse 5211. At 8:27 PM, per PG&E records, Line Recloser 31502 was remotely closed via SCADA, restoring 49 customers but not the incident location as fuses upstream from the incident location remained open.

On October 13, 2017, at 12:49 PM, per PG&E records, Line Recloser 1806—the second recloser upstream from the incident location—was remotely opened via SCADA as part of the efforts to restore electrical service in the area. At 1:14 PM, per PG&E records, Line Recloser 7446—the first recloser upstream from the incident location—was manually closed on a dead line. Line Recloser 7446 is not SCADA-capable, and PG&E has been unable to determine when it opened. At 1:15 PM, per PG&E records, Line Recloser 1806 was remotely closed via SCADA, restoring 93 customers. While electrically in-line with the incident location, none of the recloser operations on October 13 impacted the incident location because fuses upstream from the incident location remained open. At 7:34 PM, per PG&E records, a troubleman reported Fuse 17841—the first fuse upstream of the incident location—open. The troubleman closed Fuse 5211 at 7:44 PM, per PG&E records, restoring 27 customers. At 8:18 PM, per PG&E records, the troubleman opened the jumpers for 13916 Cascade Way, reporting that there was no service to be restored.

On October 14, 2017 at 8:19 AM, per PG&E records, another troubleman closed Fuse 17841, restoring 9 customers. On October 16, 2017 at 6:18 AM, PG&E updated its operational records to close the outage report because there were no downstream customers to restore at that time.

On October 17, 2017, CAL FIRE requested that a PG&E crew assist with CAL FIRE's evidence collection at the incident location. The primary conductors were in place and appeared to be in working order at the time of CAL FIRE's request to take possession. Later that same day, CAL FIRE released the incident location. PG&E then accessed the incident location and was able to conduct measurements. Based on the measurements, the primary conductor span length had been approximately 100 feet. PG&E also observed that that the secondary service line appeared to be damaged at mid-span, but there was no apparent damage to other PG&E facilities.

Evidence Collection:

At the incident location, CAL FIRE collected an intact span of primary distribution conductors on a tap line serving 13916 Cascade Way, as well as, customer-owned electric equipment, including the customer service panel. The conductors collected by CAL FIRE were #4 AR (Aluminum Conductor, Steel Reinforced) installed in 1980. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On October 17, 2017, PG&E collected parallel groove connectors and unblown liquid transformer fuses. On November 10, 2017, PG&E collected a dead-end transformer pole with a cross arm and a transformer.

Timeline:

Cascade		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 10:00 PM: Per PG&E records, a smart meter at service point 1062306405, located downstream of Fuse 5211, recorded a Zero Volt reading.		
October 8, 2017, 10:57 PM: Per PG&E records, a smart meter at service point 1062299105, located downstream of Fuse 17841, reported a Last Gasp event. Per PG&E records, 9 of the 13 smart meters downstream of Fuse 17841 recorded a NIC Power Down or Last Gasp event. Per PG&E records, 21 of 25 smart meters downstream of Fuse 5211 recorded a NIC Power Down event.		
October 8, 2017, 11:03 PM: According to CAL FIRE's website, the Cascade fire started.		
October 8, 2017, 11:08 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569	PGE-CF_00136584
October 8, 2017, 11:16 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569	PGE-CF_00136584
October 8, 2017, 11:18 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569	PGE-CF_00136584

Cascade		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 11:20 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569	PGE-CF_00136584
October 8, 2017, 11:22 PM: Per PG&E records, due to a fire impacting the transmission line, the Bangor Substation was automatically de-energized, de-energizing the Bangor 1101 Circuit and the incident location.	PGE-CPUC_00013769, at 770	PGE-CF_00136611, at 612
October 9, 2017, 7:30 PM: Per PG&E records, Line Recloser 31502 was manually opened on a dead line.	PGE-CPUC_00013769, at 770	PGE-CF_00136611, at 612
October 9, 2017, 7:58 PM: Per PG&E records, Bangor Substation was re-energized.	PGE-CPUC_00013769, at 770	PGE-CF_00136611, at 612
October 11, 2017, 12:18-12:28 PM: Per PG&E records, a troubleman drove past the incident location between. A compliance inspector and compliance supervisor stated that they drove by at about the same time or shortly before. The troubleman, compliance inspector, compliance supervisor stated they did not attempt to access the incident location due to CAL FIRE activity there.		
October 12, 2017, 12:58 PM: Per PG&E records and the same troubleman who had driven past the incident location on October 11, the troubleman reported finding 2 of 2 fuses blown at Fuse 5211.	PGE-CPUC_00013670	PGE-CF_00136645
October 12, 2017, 8:27 PM: Per PG&E records, Line Recloser 31502 was remotely closed via SCADA.	PGE-CPUC_00013769, at 770	PGE-CF_00136611, at 612
October 13, 2017, 12:49 PM: Per PG&E records, Line Recloser 1806 was remotely opened via SCADA.	PGE-CPUC_00013542, at 542	PGE-CF_00136571, at 571
October 13, 2017, 1:14 PM: Per PG&E records, Line Recloser 7446 was manually closed on a dead line.	PGE-CPUC_00013542, at 542	PGE-CF_00136571, at 571
October 13, 2017, 1:15 PM: Per PG&E records, Line Recloser 1806 was remotely closed via SCADA.	PGE-CPUC_00013542 at 542	PGE-CF_00136571, at 571

Cascade		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 13, 2017, 7:34 PM: Per PG&E records, a troubleman reported Fuse 17841 open.	PGE-CPUC_00013552	PGE-CF_00136578
October 13, 2017, 7:44 PM: Per PG&E records, a troubleman closed Fuse 5211.	PGE-CPUC_00013670	PGE-CF_00136645
October 13, 2017, 8:18 PM: Per PG&E records, a troubleman opened the jumpers for 13916 Cascade Way.	PGE-CPUC_00013712	PGE-CF_00136666
October 14, 2017, 8:19 AM: Per PG&E records, a troubleman closed Fuse 17841.	PGE-CPUC_00013552	PGE-CF_00136578
October 16, 2017, 6:18 AM: Per PG&E records, PG&E updated its operational records to close the outage report because there were no downstream customers to restore at that time.	PGE-CPUC_00013712	PGE-CF_00136666
October 17, 2017: CAL FIRE released the incident location, and PG&E first accessed the incident location.		

Source List:

Source	Brief Description
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_00013542	ILIS Outage Report 17-0085751
PGE-CPUC_00013552	ILIS Outage Report 17-0087244
PGE-CPUC_00013569	ILIS Outage Report 17-0085270
PGE-CPUC_00013670	ILIS Outage Report 17-0086754
PGE-CPUC_00013712	ILIS Outage Report 17-0087249
PGE-CPUC_00013769	ILIS Outage Report 17-0085381
PGE-CPUC_00013776	Bangor 1101 Circuit Map produced in response to CPUC Q27.
Cascade Initial Electrical Incident Report	10/20/2017 Initial Electrical Incident Report http://cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171020-8591.pdf
Cascade Electrical Safety Incident Report	11/17/2017 20-Day Electrical Safety Incident Report (171020-8591)
Response to Question 35	12/29/2017 Response to CPUC's October 2017 Wildfire Data Request
Response to Question 36	12/29/2017 Response to CPUC's October 2017 Wildfire Data Request
CAL FIRE Website	"Cascade (Wind Complex) Incident Information" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1871 (last updated Feb. 9, 2018).
AMI Smart Meter data	AMI Smart Meter data

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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.

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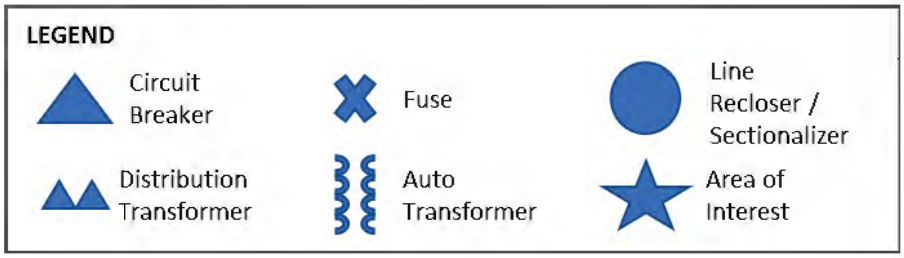

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PG&E has included information related to when repair and/or restoration work was completed. PG&E has not attempted to include all dates on which repair crews were present at or near incident locations, as defined by the CPUC's December 7, 2017, letter,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

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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.

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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).

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<u>Reclosing Device Operations</u>

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 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.

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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.

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EXHIBIT O

CHEROKEE INCIDENT DESCRIPTION & FACTUAL SUMMARY

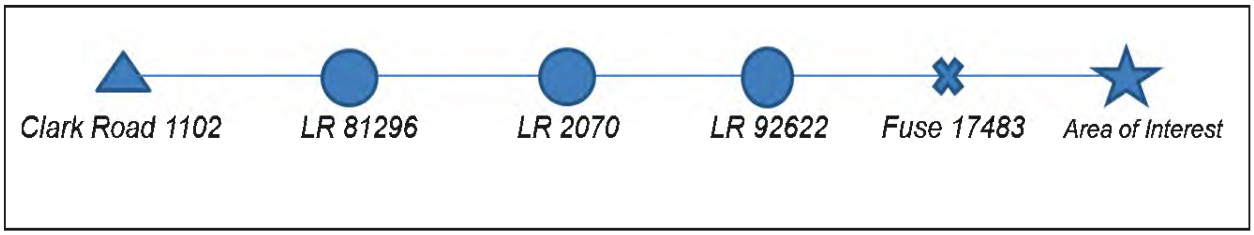
For completeness, this incident description and factual summary should be read in conjunction with the Factual Report Guidance and the contemporaneously submitted response to Question 62.

Background:

On October 10, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171010-8557) concerning an incident that occurred near 3401 Cherokee Road, Oroville, Butte County (the "incident location" as defined by the CPUC's December 7, 2017, letter). PG&E observed that branches from a green, healthy California White Oak/Valley Oak tree had broken. Per the troubleman who responded on the evening of October 8 and photos taken by him of the incident location, one branch was found on the ground lying on top of a downed conductor. Another broken branch was suspended in the air, hanging on another branch and touching a conductor that remained intact. The incident location is on the Clark Road 1102 (12 kV) Circuit. The tree was rooted approximately 15 feet from the distribution conductors.

According to CAL FIRE's website, the Cherokee fire started at 9:45 PM on October 8, 2017.

Incident Overview:



Per PG&E records, on October 8, 2017 at 8:31 PM, Line Recloser 2070 operated and reclosed. Per PG&E records, this operation caused a momentary outage at the incident location. Line Recloser 2070 is the second line recloser upstream of the incident location. Per PG&E records, the smart meter at service point 0702290905, the only smart meter downstream of the incident location, recorded a series of power off/on events between 9:12 and 9:17 PM. Per PG&E records, at 9:53 PM, Line Recloser 2070 operated and reclosed, again causing a momentary outage at the incident location.

On the evening of October 8, 2017, according to PG&E records, a troubleman was the first PG&E employee at the incident location after the fire started. Per the troubleman, when he arrived around 10:30 PM, CAL FIRE was already at the incident location, and the troubleman saw evidence of a fire. Per the troubleman, he found one broken conductor down. The troubleman saw that the load-side of the broken conductor was on the ground under a broken tree limb; the source-side of the conductor was tangled in and hanging over a tree, and was also touching the ground. The troubleman observed another branch in the air (resting on another branch) that was touching an intact conductor. Per the troubleman, CAL FIRE asked the troubleman to de-energize the area. Per PG&E records, the troubleman reported that at 10:55

PM he opened Fuse 17483, the closest protective device to the incident location, de-energizing the incident location, and then opened jumpers 8 poles south of Fuse 17483. Per PG&E records, the troubleman also reported fire in the area. Per the troubleman, after de-energizing the area, the troubleman returned to the incident location and cut the downed conductor both on the load and source sides.

Per PG&E records, on October 9, 2017 at 3:58 PM, the same troubleman who responded to the incident location on October 8 reported that he had been "given the OK" to re-energize the line by CAL FIRE. Per PG&E records, the troubleman closed Fuse 17483 at 4:01 PM. Per PG&E records, the incident location remained de-energized at that time because the jumpers 8 poles south of the fuse remained open.

On October 10, 2017, PG&E accessed the incident location. PG&E found one tree branch on the ground and one tree branch suspended in the air. The branch suspended in the air was supported by the tree and in contact with the conductor in the air. The branch suspended in the air had one burn mark. The tree, which PG&E believes to be a California White Oak/Valley Oak, appeared to be healthy and was rooted approximately 15 feet from the distribution conductors. The conductor was 4AR (aluminum conductor, steel reinforced), installed in 1960.

Per PG&E records, an electric crew foreman reported on site to make repairs on October 10, 2017 at 3:34 PM. Per PG&E records, PG&E completed repairs at the incident location later that day. Per PG&E records, PG&E closed the open jumpers 8 poles south of Fuse 17483 at 5:10 PM, re-energizing the incident location.

Evidence Collection:

CAL FIRE collected a section of the downed conductor. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On October 10, 2017, PG&E collected a section of conductor. On November 9, 2017, PG&E collected a California White Oak/Valley Oak branch that was approximately 25 feet long, as well as a tree branch base section from a California White Oak/Valley Oak.

Timeline:

Cherokee Event	CPUC Bates Number Reference
October 8, 2017, 8:31 PM: Per PG&E records, Line Recloser 2070 operated and reclosed.	PGE-CPUC_00013862
October 8, 2017, 9:12 PM – 9:17 PM: Per PG&E records, the smart meter at service point 0702290905, the only smart meter downstream of the incident location, recorded a series of power off/on events.	
October 8, 2017, 9:45 PM: CAL FIRE reported start time for the Cherokee fire.	
October 8, 2017, 9:53 PM: Per PG&E records, Line Recloser 2070 operated and reclosed.	PGE-CPUC_00013782
October 8, 2017, approximately 10:30 PM: A troubleman arrived at the incident location.	
October 8, 2017, 10:55 PM: Per PG&E records, the same troubleman opened Fuse 17483, de-energizing the incident location, and opened jumpers 8 poles south of Fuse 17483.	PGE-CPUC_00013845
October 9, 2017, 3:58 PM: Per PG&E records, the same troubleman who had responded to the incident location on October 8 reported that he had been "given the OK" to re-energize by CAL FIRE.	PGE-CPUC_00013845
October 9, 2017, 4:01 PM: Per PG&E records, the same troubleman closed Fuse 17483.	PGE-CPUC_00013845
October 10, 2017, 3:34 PM: Per PG&E records, an electric crew foreman reported on site to make repairs. Per PG&E records, PG&E completed repairs at the incident location later that afternoon.	PGE-CPUC_00013845; PGE-CPUC_00012207
October 10, 2017, 5:10 PM: Per PG&E records, PG&E closed the jumpers 8 poles south of Fuse 17483, re-energizing the incident location.	PGE-CPUC_00013845

Source List:

Source	Brief Description
PGE-CPUC_00001205	Cherokee Single Line Diagram
PGE-CPUC_00007963	Amended Log of Evidence that CAL FIRE collected
PGE-CPUC_00012215	Amended Log of Evidence PG&E Collected
PGE-CPUC_00012207	Electric Overhead Tag 113705357
PGE-CPUC_00013862	ILIS Outage Report 17-0085193
PGE-CPUC_00013782	ILIS Outage Report 17-0085220
PGE-CPUC_00013845	ILIS Outage Report 17-0085276
PGE-CPUC_00013913	Clark Road 1102 Circuit Map
Cherokee Electrical Safety Incident Report	10/10/2017 Initial Electrical Safety Incident Report (171010-8557) http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171010-8557.pdf
Cherokee 20-Day Electrical Safety Incident Report	11/6/2017 20-Day Electrical Safety Incident Report
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
Response to Cherokee Question 3	1/31/18 Response to CPUC's October 2017 Wildfire Date Request
Response to Cherokee Question 7	1/31/18 Response to CPUC's October 2017 Wildfire Date Request
CAL FIRE Website	"Cherokee Fire Incident Description", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1865 (last updated Feb. 9, 2018)
Response to Cherokee Question 8	2/28/18 Response to CPUC's October 2017 Wildfire Date Request
AMI Smart Meter Data	AMI SmartMeter Data for SP_ID 0702290905
PGE-CPUC_00016002; PGE-CPUC_00016005; PGE-CPUC_00016006.	Photos taken by a troubleman.

Factual Report Guidance:

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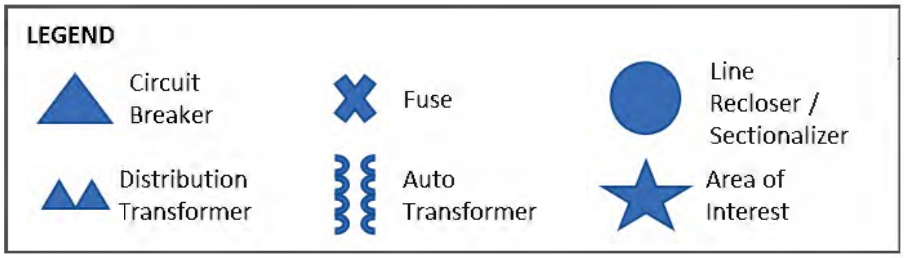

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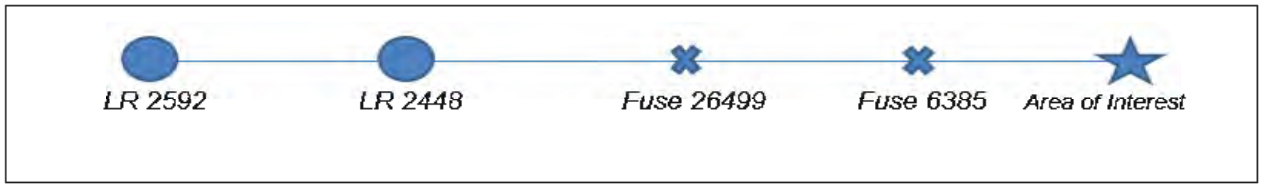
EXHIBIT P

HONEY LOCATION FACT REPORT

On October 10, 2017, CAL FIRE requested information related to the power lines located adjacent to 2484 Honey Run Road, Chico, Butte County (the "area of interest") in connection with the Honey Fire.

Per a CAL FIRE press release dated May 25, 2018, the Honey Fire started in the early morning hours of October 9, 2017. CAL FIRE previously reported on its website that the Honey Fire started at 3:05 PM on October 9, 2017.

Incident Overview



The electrical circuit that served the area of interest at the time of the incident was the Centerville 1101 12 kV Circuit. Fuse 6385 is the protective device upstream from the area of interest on the Centerville 1101 Circuit.

Per PG&E records, at 8:09 PM on October 8, 2017, smart meters on the Centerville 1101 Circuit recorded NIC Power Down events, including 30 of 30 smart meters downstream of Fuse 6385. The smart meters downstream of Fuse 6385 included the smart meters downstream of the area of interest. Per PG&E records, at 8:15 PM on October 8, 2017, a distribution line technician reported finding Line Recloser 2592 open, indicating that the area of interest was de-energized. Per PG&E records, at 9:58 PM, a PG&E troubleman reported a wire down at service point 5000069056, which is downstream of Line Recloser 2592 but upstream of the area of interest and Fuse 6385. Per PG&E records, at 10:51 PM, the same distribution line technician manually opened Line Recloser 2448 on a dead line. Per PG&E records, at 12:26 AM on October 9, 2017, the same PG&E troubleman manually opened Fuse 26499 on a dead line.

Per PG&E records, at 12:31 AM, the same distribution line technician manually closed Line Recloser 2592, restoring 63 customers; however, the area of interest remained de-energized because Line Recloser 2448 was open. Per PG&E records, at 1:32 AM, the same distribution line technician manually closed Line Recloser 2448, restoring 188 customers. The area of interest remained de-energized because Fuse 26499 was open. Per PG&E records, at 1:40 AM, a PG&E crew foreman reported on-site to perform repairs. Per PG&E records, at 2:27 AM, the same PG&E crew foreman reported manually closing Fuse 26499. Throughout the early morning of October 9, many of the smart meters on the Centerville 1101 Circuit reported NIC Power Restore events, although the 30 smart meters downstream of Fuse 6385 were not among them.

Per PG&E records, at 7:56 AM on October 9, 2017, a second PG&E troubleman reported finding two of two fuses blown at Fuse 6385. Per PG&E records,

the second troubleman reported initiating a patrol load side of Fuse 6385 at the same time. Per PG&E records, at 9:39 AM, the second troubleman reported that he had patrolled the entire protective zone load side of Fuse 6385 and found no cause for the outage. Per PG&E records, the second troubleman reported at 9:51 AM that he had manually closed Fuse 6385 and confirmed that power had been restored downstream of Fuse 6385. Per PG&E records, 30 of 30 smart meters downstream of Fuse 6385 recorded NIC Power Restore events at 9:51 AM.

Per PG&E records, the second troubleman was dispatched to the area of interest at 12:37 AM on October 10, 2017, to assist with a vegetation fire, and the second troubleman arrived at 1:33 AM. Per PG&E records, at 2:01 AM, 30 of 30 smart meters downstream of Fuse 6385 recorded a NIC Power Down event, and at 2:02 AM, Fuse 6385 was reported open. Per PG&E records, at 3:01 AM, Fuse 6385 was reported closed, and 30 of 30 smart meters downstream of Fuse 6385 recorded NIC Power Restore events.

On October 16, 2017, PG&E collected two branch sections from a Live Oak rooted near 2484 Honey Run Road.

Timeline

Honey
Event
October 8, 2017, 8:09 PM: Per PG&E records, smart meters on the Centerville 1101 Circuit recorded NIC Power Down events, including 30 of 30 smart meters downstream of Fuse 6385. The smart meters downstream of Fuse 6385 included the smart meters downstream of the area of interest.
October 8, 2017, 8:15 PM: Per PG&E records, a distribution line technician reported finding Line Recloser 2592 open, indicating that the area of interest was de-energized.
October 8, 2017, 9:58 PM: Per PG&E records, a PG&E troubleman reported a wire down at service point 5000069056, which is downstream of Line Recloser 2592 but upstream of the area of interest and Fuse 6385.
October 8, 2017, 10:51 PM: Per PG&E records, the same distribution line technician manually opened Line Recloser 2448 on a dead line.
October 9, 2017, 12:26 AM: Per PG&E records, the same PG&E troubleman manually opened Fuse 26499 on a dead line.
October 9, 2017, 12:31 AM: Per PG&E records, the same distribution line technician manually closed Line Recloser 2592, restoring 63 customers.
October 9, 2017, 1:32 AM: Per PG&E records, the same distribution line technician manually closed Line Recloser 2448, restoring 188 customers.
October 9, 2017, 1:40 AM: Per PG&E records, a PG&E crew foreman reported on-site to perform repairs.
October 9, 2017, 2:27 AM: Per PG&E records, the same PG&E crew foreman reported manually closing Fuse 26499.
October 9, 2017, early morning hours: Per PG&E records, many of the smart meters on the Centerville 1101 Circuit reported NIC Power Restore events, although the 30 smart meters downstream of Fuse 6385 were not among them.

Honey
Event
October 9, 2017, early morning hours: Per a CAL FIRE press release dated May 25, 2018, the Honey Fire started in the early morning hours of October 9.
October 9, 2017, 7:56 AM: Per PG&E records, a second PG&E troubleman reported finding two of two fuses blown at Fuse 6385, and reported initiating a patrol load side of Fuse 6385 at the same time.
October 9, 2017, 9:39 AM: Per PG&E records, the second troubleman reported that he had patrolled the entire protective zone load side of Fuse 6385 and found no cause for the outage.
October 9, 2017, 9:51 AM: Per PG&E records, the second troubleman reported that he had manually closed Fuse 6385 and confirmed that power had been restored downstream of Fuse 6385. Per PG&E records, 30 of 30 smart meters downstream of Fuse 6385 recorded NIC Power Restore events at 9:51 AM.
October 9, 2017, 3:05 PM: CAL FIRE previously reported on its website that the Honey fire started at 3:05 PM on October 9, 2017.
October 10, 2017, 12:37 AM: Per PG&E records, the second troubleman was dispatched to the area of interest.
October 10, 2017, 1:33 AM: Per PG&E records, the second troubleman arrived at the area of interest.
October 10, 2017, 2:01 AM: Per PG&E records, 30 of 30 smart meters downstream of Fuse 6385 recorded NIC Power Down events.
October 10, 2017, 2:02 AM: Per PG&E records, Fuse 6385 was reported open.
October 10, 2017, 3:01 AM: Per PG&E records, Fuse 6385 was reported closed, and 30 of 30 smart meters downstream of Fuse 6385 recorded NIC Power Restore events.

Source List

Source	Brief Description
AMI Smart Meter data	AMI Smart Meter Data
ILIS Outage Report	ILIS Outage Report 17-0085303
ILIS Outage Report	ILIS Outage Report 17-0085445
CAL FIRE News Release	May 25, 2018 CAL FIRE press release titled "CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties"
CAL FIRE Website	"Honey Fire Incident Information", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1880 (last updated Jan. 9, 2018)
OIS Online Query TR9495907	Query showing OIS data relating to troubleman dispatch
ILIS Outage Report	ILIS Outage Report 17-0085836
CAL FIRE Letter	October 10, 2017 letter from CAL FIRE to Jon Dailey
PGE-NBF-0000000403	Log of evidence collected by PG&E

EXHIBIT Q

LA PORTE INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

Background:

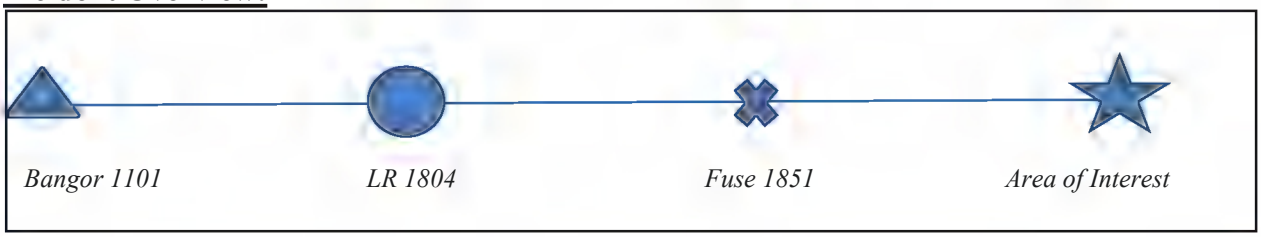
On October 13, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171013-8569) concerning an incident that occurred at 167 Darby Road, Bangor, Butte County (the "incident location" as defined by the CPUC's December 7, 2017, letter).

PG&E understands that CAL FIRE collected a section of conductor and a tree branch prior to releasing the incident location. After CAL FIRE released the incident location on October 13, 2017, PG&E first accessed the site and was able to identify a number of broken oak tree branches and a downed conductor at the incident location.

According to CAL FIRE's website, the La Porte fire occurred at La Porte Road and Oroville-Bangor Highway, and is part of the Wind Complex, which consists of four different fires: Cascade, La Porte, Lobo, and McCourtney.

Per CAL FIRE, the La Porte fire started at 12:57 AM on October 9, 2017.

Incident Overview:



The incident location is served by the Bangor 1101 (12kV) Circuit and is downstream of Fuse 1851. On October 8, 2017 at 10:44 PM, per PG&E records, a smart meter at service point 0791393805, downstream of Fuse 1851, recorded a NIC Power Down event. Per PG&E records, between 10:44 PM and 11:20 PM, 25 smart meters downstream of Fuse 1851, including the two smart meters downstream of the incident location, recorded a series of power off/on events and/or Zero Volt readings. Per PG&E records, the Colgate-Palermo 60 kV transmission line feeding the Bangor Substation, which serves the incident location, experienced four momentary outages at 11:08 PM, 11:16 PM, 11:18 PM and 11:20 PM. Per PG&E records, at 11:22 PM, due to a fire impacting the transmission line, the Bangor Substation was automatically de-energized. The de-energization of the substation de-energized the incident location.

On October 9, 2017, at 9:05 AM, per PG&E records, the Bangor 1101 Circuit Breaker was remotely opened via SCADA on a dead line. At 7:58 PM, per PG&E records, the Bangor

Substation was re-energized, but no customers were restored as the Bangor 1101 Circuit Breaker remained open.

On October 10, 2017, at 12:20 PM, per PG&E records, Line Recloser 1804 was manually opened on a dead line. Per PG&E records, at 8:20 PM, the Bangor 1101 Circuit Breaker was remotely closed via SCADA, but the incident location remained de-energized because Line Recloser 1804 was open.

On October 11, 2017, at 6:50 PM, per PG&E records, Fuse 1851 was reported open. At 8:24 PM, per PG&E records, Line Recloser 1804 was remotely closed via SCADA, restoring 349 customers but not the incident location as Fuse 1851 remained open.

Per an electric crew foreman, he attempted to access the incident location on October 11, 2017, but CAL FIRE denied him access. The electric crew foreman observed fires burning and several burnt poles in the area.

On October 12, 2017 at 2:50 PM, per PG&E records, the same electric crew foreman manually opened the jumpers for the span serving the incident location. At 6:56 PM, per PG&E records, the electric crew foreman replaced one of two fuses and then closed Fuse 1851, restoring 26 customers, but not the incident location as the jumpers for that span remained opened.

On October 13, 2017, CAL FIRE released the incident location. PG&E first accessed the incident location later that day. PG&E observed that a green, healthy California White Oak/Valley Oak tree had a number of broken branches that were on the ground in the vicinity of the incident location. The California White Oak/Valley Oak was rooted approximately 15 feet from the distribution conductors.

On October 17, 2017, at 7:16 AM, per PG&E records, the same electric crew foreman was authorized to complete repair work at the incident location. Repair work was completed later that day. At 6:56 PM, per PG&E records, the jumpers at the incident location were closed, restoring 2 customers and re-energizing the incident location.

Evidence Collection:

CAL FIRE collected a section of the primary conductor and a tree branch. The conductors collected by CAL FIRE were #4 AR (Aluminum Conductor, Steel Reinforced) installed in 1947. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On October 14, 2017, PG&E collected a section of a burnt and broken cross arm a broken insulator and a whole insulator, and some conductor. On October 17 and 24, 2017, PG&E collected the top few feet of a burnt pole. On February 7, 2018, PG&E collected a section of a broken and partially burnt cross arm.

Timeline:

La Porte	
Event	**CPUC Bates Number Reference**
October 8, 2017, 10:44 PM: Per PG&E records, a smart meter at service point 0791393805, downstream of Fuse 1851, recorded a NIC Power Down event.	
October 8, 2017, 10:44 - 11:20 PM: Per PG&E records, 25 smart meters downstream of Fuse 1851, including the two smart meters downstream of the incident location, recorded a series of power off/on events and/or Zero Volt readings.	
October 8, 2017, 11:08 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569
October 8, 2017, 11:16 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569
October 8, 2017, 11:18 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569
October 8, 2017, 11:20 PM: Per PG&E records, Colgate-Palermo 60 kV transmission line feeding Bangor Substation experienced a momentary outage.	PGE-CPUC_00013569
October 8, 2017, 11:22 PM: Per PG&E records, due to a fire impacting the transmission line, the Bangor Substation was automatically de-energized, de-energizing the Bangor 1101 Circuit and the incident location.	PGE-CPUC_00013769 at 770
October 9, 2017, 12:57 AM: According to CAL FIRE's website, the La Porte fire started.	
October 9, 2017 at 9:05 AM: Per PG&E records, the Bangor 1101 Circuit Breaker was remotely opened via SCADA on a dead line.	PGE-CPUC_00013769 at 770
October 9, 2017, 7:58 PM: Per PG&E records, Bangor Substation was re-energized.	PGE-CPUC_00013769 at 770
October 10, 2017, 12:20 PM: Per PG&E records, Line Recloser 1804 was manually opened.	PGE-CPUC_00013769 at 770
October 10, 2017, at 8:20 PM: Per PG&E records, the Bangor 1101 Circuit Breaker was remotely closed via SCADA.	PGE-CPUC_00013769 at 770
October 11, 2017, 6:50 PM: Per PG&E records, Fuse 1851 was reported open.	PGE-CPUC_00013532

La Porte	
Event	**CPUC Bates Number Reference**
October 11, 2017, 8:24 PM: Per PG&E records, Line Recloser 1804 was remotely closed via SCADA.	PGE-CPUC_00013769 at 770
October 11, 2017: Per an electric crew foreman, he attempted to access the incident location, but CAL FIRE denied him access.	
October 12, 2017, 2:50 PM: Per PG&E records, the same electric crew foreman opened the jumpers for the span serving the incident location.	PGE-CPUC_00013532
October 12, 2017, 6:56 PM: Per PG&E records and the same electric crew foreman, the electric crew foreman replaced one of two fuses and then closed Fuse 1851.	PGE-CPUC_00013532
October 13, 2017: CAL FIRE released the incident location, and PG&E first accessed the incident location.	
October 17, 2017, 7:16 AM: Per PG&E records, the same electric crew foreman received permission to complete repair work at the incident location. Repair work then was completed.	PGE-CPUC_00013532; PGE-CPUC_00015750
October 17, 2017, 6:56 PM: Per PG&E records, jumpers closed to the incident location, restoring power to the incident location.	PGE-CPUC_00013532

Source List:

Source	Brief Description
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_00013532	ILIS Report 17-0086467
PGE-CPUC_00013569	ILIS Report 17-0085270
PGE-CPUC_00013769	ILIS Report 17-0085381
PGE-CPUC_00013776	Bangor 1101 Circuit Map
PGE-CPUC_00015750	Electric Overhead Tag 114342054
La Porte Electric Incident Report	10/13/17 Electric Incident Report
La Porte 20-Day Electric Incident Report	11/13/17 20-Day Electric Incident Report
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	"La Porte (Wind Complex) Incident Information" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1870 (Last updated Feb. 9, 2018; listed as "Final")
AMI Smart Meter data	AMI Smart Meter data

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.

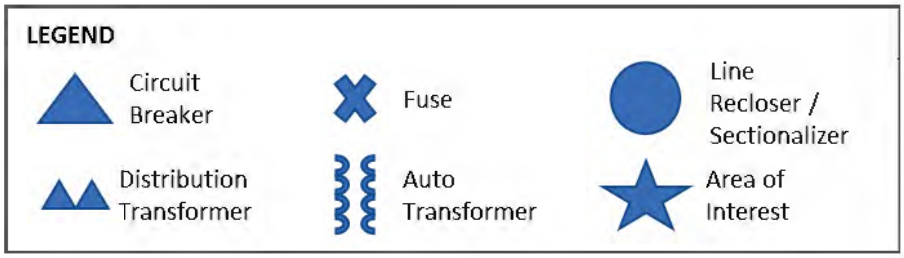
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT R

LOBO INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

Background:

On October 12, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171012-8565) concerning an incident that occurred near 11218 Lone Lobo Trail near Nevada City, Nevada County (the "incident location" as defined by the CPUC's December 7, 2017, letter). CAL FIRE removed both a Ponderosa Pine tree and distribution conductors on the Narrows 2102 (21 kV) Circuit at the incident location before releasing the incident location. Prior to CAL FIRE removing the tree, PG&E employees who assisted with CAL FIRE's evidence collection reported briefly observing the pine tree resting on the conductors. PG&E does not know how the tree came to rest on the conductors because CAL FIRE removed the tree prior to PG&E having a chance to inspect the tree.[1]

According to CAL FIRE's website, the Lobo fire is part of the Wind Complex, which consists of four different fires: Cascade, La Porte, Lobo, and McCourtney, and the location of the Lobo fire is near Lone Lobo Trail.

According to CAL FIRE's website, the Lobo fire started at 12:01 AM on October 9, 2017.

Incident Overview:

The incident location is served by the Narrows 2102 Circuit and is located to the load-side of Fuse 6475.

On October 8, 2017, at 11:25 PM, per PG&E records, the smart meter at service point 6526846632, one of three smart meters downstream of the incident location, recorded a NIC Power Down event. PG&E has not received messages nor been able to retrieve data from the other two smart meters downstream of the incident location. PG&E believes these two additional smart meters were destroyed in the fire. At 11:27 PM, per PG&E records, Line

[1] In its initial EIR, PG&E reported that a ponderosa pine tree "fell on the Narrows 2102 (21 kV) Circuit near 11218 Lone Lobo Trail." PG&E never had any information that the tree, in fact, fell on the conductors; PG&E only briefly observed the tree resting on the conductors during CAL FIRE's evidence collection.

Recloser 48484—the first recloser upstream from the incident location on the Narrows 2102 Circuit—operated and reclosed. Then at 11:28 PM, per PG&E records, Line Recloser 2220—the second recloser upstream from the incident location—operated and locked out. [2]

On October 10, according to PG&E records, a crew foreman, along with a lineman, were the first PG&E responders to the incident location. Per the foreman and lineman, when they arrived near the incident location, an unidentified man denied the crew access to the incident location because of an "investigation." The foreman and lineman stated that they then left and returned to the incident location later the same day. Per PG&E records, at 5:17 PM, the foreman reported opening Fuse 6475, which was mounted on the pole on the source-side of the incident location. The foreman and lineman stated that they left the scene with the single fuse for Fuse 6475 hanging near the bottom of the pole and put up a "man on line" tag onto the pole with Fuse 6475. The foreman stated that he saw evidence of limited vegetation burn near Fuse 6475. The lineman stated that the area around Fuse 6475 was burnt and ashy.

At 6:56 PM on October 10, per PG&E records, a troubleman manually closed Line Recloser 2220, restoring 861 customers. The incident location remained de-energized because Fuse 6475 remained open.

On either October 10 or 11, 2017, per a PG&E senior field engineering technician and a lineman, CAL FIRE brought a PG&E crew to the incident location to assist in collecting evidence but the crew declined because it was near dusk. On October 12, 2017, at 09:41 AM, per PG&E records, an electric crew foreman opened Fuse 7445, the next fuse upstream from Fuse 6475, at CAL FIRE's request. CAL FIRE removed a Ponderosa Pine tree before PG&E had a chance to observe where it was rooted or why it was leaning on the conductors. Based on pink paint on one tree stump, which is reflected in a photo of the incident location, PG&E believes that the Ponderosa Pine tree removed by CAL FIRE was rooted approximately 50 feet downhill from the distribution conductors. CAL FIRE has not allowed PG&E to inspect the tree taken into evidence so PG&E cannot verify which tree was observed leaning on the conductors. Per an electric construction supervisor and an electric crew foreman, a PG&E crew removed the distribution conductors at CAL FIRE's request. Shortly afterward, CAL FIRE released the incident location. Per PG&E records, the electric crew foreman then reported that he completed the repair work. At 12:10 PM, per PG&E records, the electric crew foreman closed Fuse 6475. At 12:50 PM, per PG&E records, the electric crew foreman closed Fuse 7445, restoring 19 customers and power to the incident location.

[2] The operation of Line Recloser 2220 is reflected in a Sequence Of Events (SOE) download The ILIS Outage Report 17-0085383 reports Line Recloser 2220 was reported "open" at October 10 at 11:14 AM. *See* PGE-CPUC_00014019.

Evidence Collection:

CAL FIRE collected conductors and a Ponderosa Pine tree at the incident location. The conductors collected by CAL FIRE were 4AR (Aluminum Conductor, Steel Reinforced) installed in 1973. PG&E also believes that CAL FIRE collected the "man on line" tag and the single fuse from Fuse 6475. PG&E does not know whether CAL FIRE collected additional evidence at the incident location. CAL FIRE released the incident location on October 12, 2017.

Timeline:

Event	Lobo CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 8, 2017, 11:25 PM: Per PG&E records, the smart meter at service point 6526846632, one of three smart meters downstream of the incident location, recorded a NIC Power Down event.		
October 8, 2017, 11:27 PM: Per PG&E records, Line Recloser 48484 operated and reclosed.	PGE_CPUC_00007887	
October 8, 2017, 11:28 PM: Per PG&E records, Line Recloser 2220 operated and locked out.		
October 9, 2017 12:01 AM: Per CAL FIRE's website, the start time of the Lobo fire.		
October 10, 2017: Per a crew foreman and lineman, an unidentified man denied a PG&E crew access to the incident location.		
October 10, 2017, 5:17 PM: Per PG&E records, a foreman reported opening Fuse 6475.	PGE-CPUC_00013943	PGE-CF_00136690
October 10, 2017, 6:56 PM: Per PG&E records, a troubleman manually closed Line Recloser 2220.	PGE-CPUC_00014019, at 020	PGE-CF_00136698, at 699
October 10 or 11, 2017: Per a PG&E senior field engineering technician and a lineman, CAL FIRE brought a PG&E crew to the incident location to assist in collecting evidence but the crew declined because it was near dusk.		
October 12, 2017, 09:41 AM: Per PG&E records, an electric crew foreman opened Fuse 7445 at CAL FIRE's request.	PGE-CPUC_00013914	

Event	Lobo CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 12, 2017: Per an electric construction supervisor and an electric crew foreman, a PG&E crew removed the distribution conductors at CAL FIRE's request. CAL FIRE released the Lobo incident location. Per PG&E records, PG&E completed repair work.	PGE-CPUC_00015756	
October 12, 2017, 12:10 PM: Per PG&E records, an electric crew foreman closed Fuse 6475.	PGE-CPUC_00013943	PGE-CF_00136690
October 12, 2017, 12:50 PM: Per PG&E records, an electric crew foreman closed Fuse 7445, restoring power to the incident location.	PGE-CPUC_00013914	

Source List:

Source	Brief Description
PGE-CPUC_00012216	Log of Evidence Collected by CAL FIRE (amended response)
PGE_CPUC_00007887-7888	SCADA data produced to CPUC.
PGE-CPUC_00013914	ILIS Outage Report 17-0086677
PGE-CPUC_00013943	ILIS Outage Report 17-0086138
PGE-CPUC_00014019	ILIS Outage Report 17-0085383
PGE-CPUC_00014063	Narrows 2102 Circuit Map produced to CPUC.
PGE-CPUC_00015756	Electric Overhead Tag No. 113766009
Lobo Electrical Safety Incident Report	10/12/2017 Initial Electric Incident Report to the CPUC
Lobo Electrical Safety Incident Report	11/8/2017 20-Day Electric Incident Report to the CPUC
Response to Question 35	12/29/2017 Response to CPUC's October 2017 Wildfire Data Request
Response to Question 36	12/29/2017 Response to CPUC's October 2017 Wildfire Data Request
CAL FIRE Website	"Lobo Fire (Wind Complex) Incident Description", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1877 (last updated Feb. 9, 2018).
PGE-CPUC_00016576	Photo of tree stump with pink paint
AMI Smart Meter Data	AMI Smart Meter Data

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.

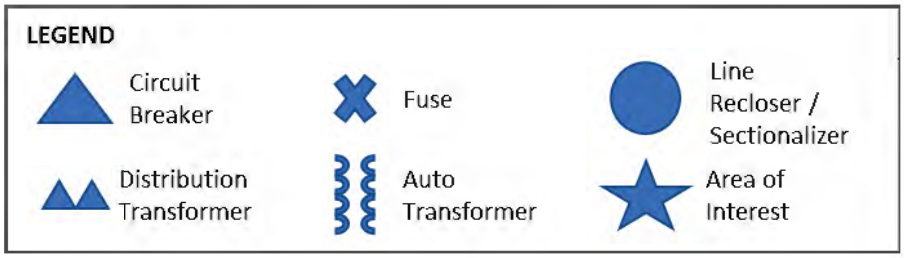
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT S

CLICK OR TAP HERE TO ENTER TEXT.

MAACAMA INCIDENT DESCRIPTION & FACTUAL SUMMARY

For completeness, this incident description and factual summary should be read in conjunction with the Factual Report Guidance and the contemporaneously submitted response to Question 29.

Background:

On October 20, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171020-8587) concerning an incident that occurred near 955 Maacama Lane, Healdsburg, Sonoma County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E visited the incident location to conduct an inspection, PG&E observed that a California White Oak/Valley Oak tree had broken near its mid-section and was laying on the ground near fallen conductors for the Fulton 1102 (12 kV) Circuit.

According to the CPUC's Data Request, dated November 16, 2017, the Maacama incident started at 9:50 PM on October 8, 2017.

Incident Overview:

The incident location is served by the Fulton 1102 (12 kV) Circuit. On October 8, 2017, at 9:39 PM, a smart meter (service point 7095533205) located approximately a quarter mile upstream from the incident location (but downstream of Fuse 751), recorded a NIC power down event. At that same time, four meters downstream of the incident location also recorded NIC power down events. From 9:39 PM to 9:45 PM, smart meter (service point 7095533205) and 7 other smart meters upstream of the incident location but downstream of Fuse 751 recorded a series of power off/on events. At 9:45 PM, 26 smart meters downstream of Fuse 751 (including the 7 that had recorded off/on events from 9:39 PM to 9:45 PM) recorded NIC Power Down events, making for a total of 31 smart meters recording NIC Power Down events. PG&E has not received messages from the other 4 smart meters downstream of Fuse 751.

Based on PG&E records, on October 8, 2017, at 10:17 PM, Fulton 1102 Circuit Breaker opened and remained open, de-energizing the circuit.

According to PG&E records, a troubleman was the first PG&E employee to access the incident location. Per the troubleman, on the night of October 8, 2017, he arrived on scene to patrol the incident location in response to a wire down. At 10:58 PM, the troubleman reported that three of three fuses at Fuse 751 were blown. Per the troubleman, he replaced the blown fuses but left them open and tagged them "Man on Line" and continued to patrol beyond Fuse 751. Per the troubleman, he continued to patrol and found three phases of conductor down approximately 12

spans downstream from Fuse 751, at the incident location. Per the troubleman, he cleared the wires and left them on site. Per the troubleman, he observed that fire was active in the area and that four or five fire engines were on site working to contain the fire.

Based on PG&E records, at 11:20 PM, Fulton 1102 Circuit Breaker was closed via SCADA by operators after the source of the outage (a wire down on Highway 101) was cleared. The incident location remained de-energized because based on PG&E records, Fuse 751 was open.

On October 10, 2017, a PG&E lineman arrived at the incident location to replace the downed conductor. Based on PG&E records, at 1:11 PM, Fuse 751 was closed, restoring power to the incident location.

On October 18, 2017, PG&E visited the incident location to conduct an inspection. PG&E observed that a California White Oak/Valley Oak tree had broken near its mid-section and was laying on the ground near fallen conductors for the Fulton 1102 (12 kV) Circuit. The conductors were #6 Copper Wire installed in 1941. The California White Oak/Valley Oak tree had a diameter at breast height of approximately 30 inches and was rooted uphill approximately 20 feet from the distribution conductors. The California White Oak/Valley Oak tree is estimated to be approximately 50 feet tall. PG&E believes the California White Oak/Valley Oak tree broke at a height of approximately 19 feet above ground. PG&E also observed damage to a dwelling, structures and vehicles.

Evidence Collection:

On December 19, 2017, PG&E collected six pieces of the California White Oak/Valley Oak tree. PG&E does not know whether any fire agency has collected evidence associated with the Maacama incident location.

Timeline:

Event	Maacama CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 8, 2017, 9:39 PM: A smart meter (service point 7095533205) located upstream of the incident location and four smart meters located downstream of the incident location recorded a NIC power down event.		PGE-CF_00000056
October 8, 2017, 9:39 PM – 9:45 PM: A smart meter (service point 7095533205) and seven others upstream of the incident location recorded a series of power off/on events.		PGE-CF_00000056
October 8, 2017, 9:45 PM: 26 smart meters downstream of Fuse 751		

Event	Maacama CPUC Bates Number Reference	CAL FIRE Bates Number Reference
(including the 7 that had recorded intermittent power from 9:39 PM to 9:45 PM) recorded NIC Power Down events. PG&E has not received messages from the other 4 smart meters downstream of Fuse 751.		
October 8, 2017, 9:50 PM: According to the CPUC's data request, the Maacama incident started.		
October 8, 2017, 10:17 PM: Based on PG&E records, Fulton 1102 Circuit Breaker opened and remained open, de-energizing the circuit.	PGE-CPUC_00015697	PGE-CF_00136182; PGE-CF_00004995
October 8, 2017, 10:58 PM: A troubleman was on site and reported that three of three fuses at Fuse 751 were blown. Per the troubleman, he found three phases of conductor down at the incident location.	PGE-CPUC_00015643	PGE-CF_00136179
October 8, 2017, 11:20 PM: Fulton 1102 Circuit Breaker was closed remotely via SCADA.	PGE-CPUC_00015697	PGE-CF_00136182
October 10, 2017: Based on PG&E records, a lineman replaced downed conductors at the incident location.	PGE-CPUC_00012217	
October 10, 2017, 1:11 PM: Based on PG&E records, Fuse 751 was closed, restoring power to the incident location.	PGE-CPUC_00015643	PGE-CF_00136179; PGE-CF_00004995
October 18, 2017: PG&E visited the incident location to conduct an inspection.		

Source List:

Source	Brief Description
PGE-CPUC_00007964	SCADA Data produced to CPUC
PGE-CPUC_00007965	SCADA Data produced to CPUC
PGE-CPUC_00012215	PG&E Evidence Log Produced to CPUC
PGE-CPUC_00015643	ILIS Outage Report 17-0085970
PGE-CPUC_00015697	ILIS Outage Report 17-0085251
Maacama Initial Electric Incident Report to the CPUC	10/20/2017 Electric Incident Report submitted to the CPUC
Response to Maacama Question 5	Response to CPUC E20171020-01 Data Request #1 (11/16/2017)
Response to Maacama Question 7	Response to CPUC E20171020-01 Data Request #1 (11/16/2017)
Response to Maacama Question 8	Response to CPUC E20171020-01 Data Request #1 (11/16/2017)
Response to Maacama Question 9	Response to CPUC E20171020-01 Data Request #1 (11/16/2017)
Response to Maacama Question 27	Response to CPUC E20171020-01 Data Request #1 (11/16/2017)
Response to Maacama Question 28	Response to CPUC E20171020-01 Data Request #1 (11/16/2017)
PGE-CPUC_00012217	Electric Overhead Tag, Notification No. 113702897
AMI Smart Meter Data	AMI Smart Meter Data produced to CAL FIRE on 12/8/17 (PGE-CF_00000056)
CPUC Letter	December 7, 2017 Letter from CPUC to PG&E Regarding Clarification for Commission's November 21, 2017 Data Request
CPUC Data Request for Maacama Incident	November 16, 2017 Data Request Regarding E20171020-01
Single Line Diagram	Single Line Diagram for Maacama Incident Location (PGE-CF_00004995)
Maacama ED PI Device Alarms Log	Maacama ED PI Device Alarms Log

Factual Report Guidance:

PG&E is providing the Incident Description and Factual Summary (the "Report") for the incident location, as defined by the CPUC's December 7, 2017, letter. In addition to Question 29, the Report provides a complete response to Questions 3 and 4.

PG&E's review and collection of records are ongoing, and the Report is 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 the Report, 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 may be in the possession of any other entity. The cause of the incident is still under investigation and it is premature to draw conclusions about whether the "fire location" or "incident location" addressed by the Report is a point of origin.

Moreover, PG&E has relied on some information provided by third parties, such as the CPUC. For example, PG&E has relied on the start time provided by the CPUC in generating this Report. PG&E is not presently able to validate this information.

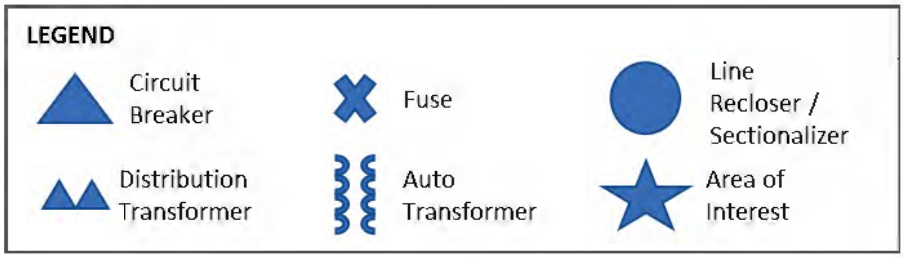
For these reasons, among others, the facts described in the Report may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Report that are relevant to questions of causation or origin of any incidents.

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

Single Line Diagrams

For ease of reference, PG&E has included a single line diagram in the Report. The reference to "area of interest" in the single line diagram refers to the incident location, as defined by the CPUC's December 7, 2017, letter. The single line diagram shows 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 are not shown on the single line diagram, although they may be referenced in the Report.

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



First Responder

As indicated above, in response to Question 4, PG&E has included in its Report an account of the first PG&E employee who responded to the incident location.

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 the incident location, 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 3, PG&E has included a timeline of certain equipment operations and actions of PG&E employees at or near the incident location, including during the period 12 hours prior to the CPUC's designated start time, until the date when PG&E was granted access to the incident location. 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 the Report. 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 the Report, 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 18, submitted to the CPUC on February 28, 2018, in the Bates range PGE-CPUC_00007964 to PGE-CPUC_00007965.

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 16, 2017, Data Request and has not been produced in response to that Data Request.

<u>Reclosing Device Operations</u>

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.

<u>Outage Records</u>

PG&E has relied on certain information from its Integrated Logging Information System Operations Database ("ILIS") in preparing the Report. As explained in response to Question 20,

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, the Report uses 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 the Report, PG&E has included a list of records on which it relied in drafting the 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 the first PG&E employee who responded to the incident location.

EXHIBIT T

ORION WAY & MCCOURTNEY ROAD
INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

Background:

On October 11, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171011-8563) concerning an incident that occurred near 11253 Orion Way, Grass Valley, Nevada County (the "Orion Way incident"). When PG&E arrived at the Orion Way incident location,[1] PG&E observed a Ponderosa Pine tree that was lying next to some downed conductors and a charred pole.

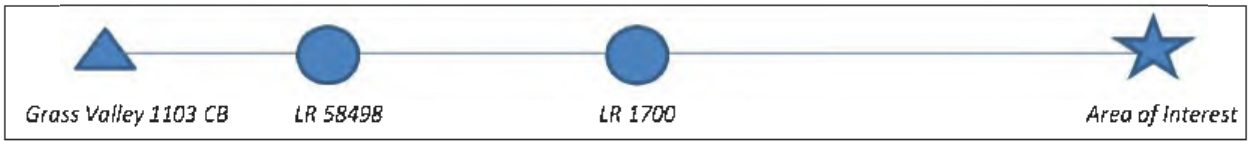
CAL FIRE's website has no information related to any fire that occurred at the Orion Way incident location in October 2017.

On January 12, 2018, PG&E filed a separate Electric Safety Incident Report (Incident No. 180112-8698) concerning an incident that occurred near 11228 McCourtney Road at approximately the same time as the Orion Way incident. In that report, PG&E stated that an overhead primary conductor separated at the source side of Line Recloser 1700, resulting in a wire down. PG&E also reported that a nearby fairground's parking lot allegedly caught fire, including structures located beyond the lot. The incident at 11228 McCourtney Road will be referred to as the "McCourtney Road incident."

According to CAL FIRE's website, the McCourtney fire started at McCourtney Road and Highway 20, Grass Valley at 12:00 AM on October 9, 2017. This is approximately 0.5 miles from the McCourtney Road incident and 0.85 miles from the Orion Way incident. According to CAL FIRE's website, the McCourtney fire is part of the Wind Complex, which consists of four different fires: Cascade, La Porte, Lobo, and McCourtney. According to CAL FIRE's website, the Orion Way incident location is outside the final boundary of the McCourtney fire.

Incident Overview:

Orion Way Single Line Diagram



[1] The "Orion Way incident location" refers to the "McCourtney incident location" as defined by the CPUC's December 7, 2017 letter.

The Orion Way incident location is served by the Grass Valley 1103 Circuit and is located downstream of Line Recloser 1700.

McCourtney Road Single Line Diagram

The McCourtney Road incident location[2] is also served by the Grass Valley 1103 Circuit but is upstream of Line Recloser 1700. The McCourtney Road incident location is upstream from the Orion Way incident location.

On October 8, 2017, at 11:44 PM, per PG&E records, smart meters downstream of Line Recloser 1700 and the McCourtney Road incident location recorded NIC Power Down events.

On October 9, 2017, at 1:23 to 1:24 AM, per PG&E records, the Grass Valley 1103 Circuit Breaker operated and locked out, which de-energized the McCourtney Road incident location. Shortly before 3:00 AM, according to PG&E records and a troubleman, the troubleman arrived at the site of the McCourtney Road incident. The troubleman stated that when he arrived, he saw a conductor had broken at the clamp connector at the source-side of Line Recloser 1700. The troubleman recalled that the conductor's broken end was lying on the ground. The troubleman also recalled that wood chips in a parking lot adjacent to the downed conductor were on fire. After confirming that the conductors at the McCourtney Road incident location had been de-energized, the troubleman cut the downed conductor in two places and left the conductor sections on the ground. At this time or during a later visit to the site on October 9, 2017, the troubleman also observed that Line Recloser 1700 was open.

On October 9, 2017, at 8:01 AM, per PG&E records, Line Recloser 58498, which is upstream of Line Recloser 1700, was remotely opened via SCADA on a dead line. At 9:42 AM, per PG&E records, the Grass Valley 1103 Circuit Breaker was remotely closed via SCADA, restoring 9 customers but neither the Orion Way incident location nor the McCourtney Road incident location was re-energized because Line Recloser 58498 remained open. At 12:35 PM, per PG&E records, PG&E manually opened Switch 1862, which is downstream of Line Recloser 58498 and upstream of Line Recloser 1700.

On October 9, 2017, at 12:45 PM, per PG&E records, a PG&E troubleman was the first PG&E employee at the Orion Way incident location. The troubleman observed a downed tree, downed conductor wires, and a charred pole that was still standing. The troubleman also observed a burnt structure. At 1:08 PM, per PG&E records, Line Recloser 58498 was remotely closed via

[2] The "McCourtney Road incident location" refers to the "the location and/or area of where the 'Electric Safety Incident Reported - Pacific Gas & Electric Incident No.'" 180112-8698, in accordance with the CPUC's December 7, 2017 letter, which defined "Incident Location."

SCADA, restoring 214 customers. Both incident locations remained de-energized because Switch 1862 remained open, per PG&E records.

On October 11, 2017, CAL FIRE released both the Orion Way incident location and PG&E believes that CAL FIRE released the McCourtney Road incident location as well.

At the Orion Way incident location, PG&E observed a Ponderosa Pine tree, rooted approximately 10 feet from the distribution conductors, lying on the ground. PG&E was unable to verify the height of the tree because CAL FIRE took sections of the tree before PG&E could measure the tree. PG&E also found all three phases of the primary distribution conductors on the ground. The distribution conductors were 6CU (Copper). PG&E's best estimate of the installation year for the distribution conductors is 1985, based on the installation year of other assets near the conductors.

At the McCourtney Road incident location, PG&E observed that one of three phases of the primary distribution conductor separated at the source side of Line Recloser 1700. Along with other PG&E equipment, CAL FIRE took possession of Line Recloser 1700 prior to PG&E having access to the recloser.

Per PG&E records, a PG&E crew performed repair work at the Orion Way incident location on October 11, 2017. As previously reported, during repair work, the PG&E crew recycled damaged sections of the conductor and the top portion of a damaged pole.[3]

Per an electric crew foreman, PG&E performed repair work at the McCourtney Road incident location in the afternoon of October 11, 2017.

At 8:35 PM on October 11, 2017, per PG&E records, Switch 1862 was manually closed, restoring 295 customers, including both the Orion Way and McCourtney Road incident locations.

On October 12, 2017, per PG&E records, PG&E installed a new line recloser and associated equipment to replace Line Recloser 1700, which had been taken by CAL FIRE.

Evidence Collection:

CAL FIRE collected sections of a Ponderosa Pine tree at the Orion Way incident location. PG&E does not know whether CAL FIRE collected any other evidence at the Orion Way incident location.

At the McCourtney Road incident location, CAL FIRE collected sections of conductor, Line Recloser 1700, a controller associated with the line recloser, a cable connecting the line recloser and controller, and a wire lead and connector. Per the electric crew foreman who oversaw repairs at the McCourtney Road incident location on October 11, CAL FIRE also collected

[3] 2018.02.16 Letter to E. Malashenko.

fulgurites found at the McCourtney Road incident location. PG&E does not know whether CAL FIRE collected any other evidence at the McCourtney Road incident location.

On October 13, 2017, PG&E collected a section of the Ponderosa Pine tree from the Orion Way incident location.

Timeline:

ORION WAY & MCCOURTNEY ROAD		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, at 11:44 PM: Per PG&E records, smart meters downstream of Line Recloser 1700 and the McCourtney Road incident location recorded NIC Power Down events.		
October 9, 2017, 12:00 AM: Per CAL FIRE's website, start time of the McCourtney fire.		
October 9, 2017, 1:23 – 1:24 AM: Per PG&E records, the Grass Valley 1103 Circuit Breaker operated and locked out.	PGE-CPUC_00014132	PGE-CF_00137637
October 9, 2017, shortly before 3:00 AM: Per PG&E records and a troubleman, the troubleman arrived at the site of the McCourtney Road incident.		
October 9, 2017, 8:01 AM: Per PG&E records, Line Recloser 58498 remotely opened via SCADA.	PGE-CPUC_00014132	PGE-CF_00136706
October 9, 2017, 9:42 AM: Per PG&E records, Grass Valley 1103 Circuit Breaker remotely closed via SCADA.	PGE-CPUC_00014132	PGE-CF_00136706
October 9, 2017, 12:35 PM: Per PG&E records, Switch 1862 was manually opened.	PGE-CPUC_00014132	PGE-CF_00136706
October 9, 2017, 12:45 PM: Per a troubleman and PG&E records, a troubleman arrived at the Orion Way incident location.		
October 9, 2017, 1:08 PM: Per PG&E records, Line Recloser 58498 remotely closed via SCADA.	PGE-CPUC_00014132	PGE-CF_00136706
October 11, 2017: CAL FIRE released the both the Orion Way and McCourtney Road incident locations. PG&E crews completed repair work at both incident locations.	PGE-CPUC_00015804	

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ORION WAY & MCCOURTNEY ROAD		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 11, 2017, 8:35 PM: Per PG&E records, Switch 1862 manually closed, restoring power to the Orion Way and McCourtney Road incident locations.	PGE-CPUC_00014132	PGE-CF_00136706
October 12, 2017: Per PG&E records, PG&E installed a new line recloser and associated equipment to replace Line Recloser 1700, which had been taken by CAL FIRE.		

Source List:

Source	Brief Description
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_00014132	ILIS Outage Report 17-0085336
PGE-CPUC_00001208	Single Line Diagram for Orion Way Incident
PGE-CF_00137642	Single Line Diagram for McCourtney Road Incident (a/k/a "McCourtney 2")
PGE-CPUC_00015804	Electric Overhead Tag, Notification No. 113768705
McCourtney (Orion Way) Initial Electrical Incident Report	10/11/2017 Initial Electric Incident Report submitted to the CPUC
McCourtney (Orion Way) 20-Day Electrical Incident Report	11/8/2017 20-Day Electric Incident Report submitted to the CPUC
McCourtney (McCourtney Road) Initial Electrical Incident Report	1/12/2018 Initial Electric Incident Report submitted to the CPUC
Response to CPUC Question 35	Response to CPUC's October 2017 Wildfire Data Request (12/29/17)
Response to CPUC Question 36	Response to CPUC's October 2017 Wildfire Data Request (12/29/17)
McCourtney Fire (Wind Complex) Incident Information	http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1872 (last updated 2/9/2018; listed as "Final")
CAL FIRE 2017 Statewide Fire Map	https://www.google.com/maps/d/viewer?ll=39.192773500000015%2C-121.08715309999991&hl=en&z=15&source=embed&ie=UTF8&mid=1TOEFA857tOVxtewW1DH6neG1Sm0
Letter sent by PG&E to CPUC Director	2/16/2018 Letter to E. Malashenko re Evidence Collection
PGE-CF_00137637	SCADA data produced to CAL FIRE on 3/30/2018
PG&E NDCC Switching Logs	PG&E NDCC Switching Log (Grass Valley 1103 TRBL, prepared 10/9/2017 – 10/11/2017)
AMI Smart Meter Data	AMI Smart Meter Data
Electric Overhead Tag	Electric Overhead Tag, Notification No. 113769397

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.

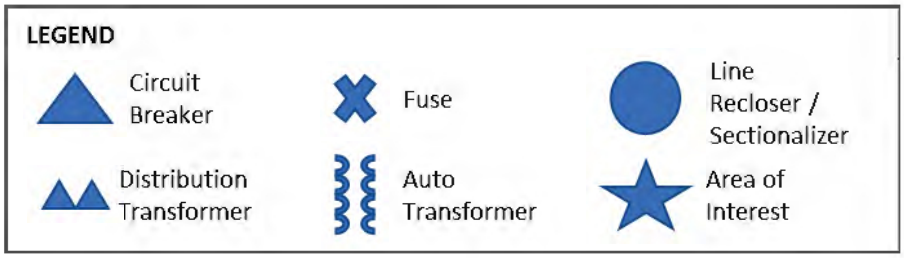
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT U

NORRBOM INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

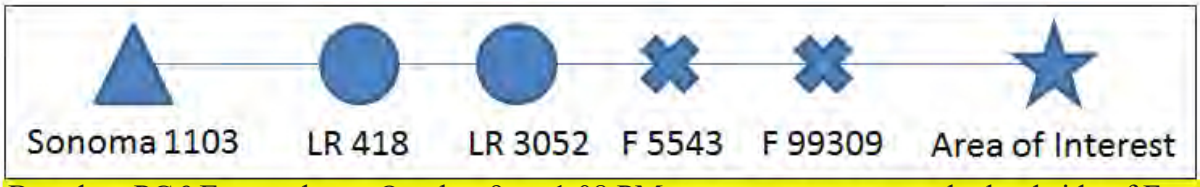
Background:

On October 20, 2017, PG&E filed an Electric Safety Incident Report (No. 171020-8590) concerning an incident that occurred near 16200 Norrbom Road, City of Sonoma, Sonoma County (the "incident location" as defined by the CPUC's December 7, 2017, letter). CAL FIRE took possession of the conductors on the incident span on October 18, 2017. The conductors were in place and appeared to be in working order.

According to CAL FIRE's website, the Norrbom fire is part of the "Nuns fire", which consists of six different incidents: Nuns, Adobe, Norrbom, Pressley, Partrick and Oakmont.

According to CAL FIRE's website, the Nuns fire started at 10:00 PM on October 8, 2017.

Incident Overview:



Based on PG&E records, on October 9, at 1:08 PM, ten smart meters on the load side of Fuse 99309 recorded NIC Power Down events. Six of these smart meters were downstream of the incident location. At 1:19 PM, a smart meter at service point 3918116205 and upstream of the incident location recorded a series of power off/on events until 1:53 PM.

Based on PG&E records, on October 10, at 12:17 PM, a PG&E troubleman reported two of three fuses blown on Fuse 99309, and he opened the remaining fuse. At 1:05 PM, the troubleman reported a wire down due to a tree six spans on the load side of Fuse 99309. This wire-down was located three spans to the source side of the incident location.

Based on PG&E records, on October 11, at 3:39 PM, a contract crew repaired the line at the wire-down location.

Based on PG&E records, on October 14, at 3:52 AM, CAL FIRE requested that PG&E de-energize the Sonoma 1103 Circuit east of the intersection of E Napa Street and 2nd Street. In response to CAL FIRE's request, at 4:13 AM, a PG&E troubleman opened Switch 2910, de-energizing the portion of the Sonoma 1103 Circuit that CAL FIRE had requested. The section of the circuit beyond Fuse 99309, including the incident location, remained de-energized.

On October 18, CAL FIRE visited the incident span with PG&E and collected two primary conductors. The conductors were 4CU (Copper), installed in 1947. The conductors were in

place and in working order at the time they were collected. Based on PG&E's records, this was PG&E's first visit to the incident location.

Based on PG&E records, on October 22, at 9:03 PM, Fuse 99309 was closed, restoring power to the incident location.

Evidence Collection:

CAL FIRE collected conductors that were in place and appeared to be in working order. PG&E is unaware of whether CAL FIRE collected additional evidence at the incident location.

PG&E collected a downed tree three spans to the source side of the incident location on March 29, 2018.

Timeline:

Event	Norrbom CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 9, 2017, 1:08 PM: Based on PG&E records, ten smart meters on the load side of Fuse 99309 recorded NIC Power Down events. Six of these smart meters were downstream of the incident location.		
October 9, 2017, 1:19 PM: Based on PG&E records, a smart meter at service point 3918116205 and upstream of the incident location recorded a series of power off/on events until 1:53 PM.		
October 10, 2017, 12:17 PM: Based on PG&E records, a PG&E troubleman discovered two of three fuses on Fuse 99309 were blown. The troubleman opened the remaining fuse.	PGE-CPUC_00014244, at 244	
October 10, 2017, 1:05 PM: Based on PG&E records, the troubleman reported a wire-down due to a tree six spans on the load side of Fuse 99309. This wire-down location is located three spans to the source side of the incident location.	PGE-CPUC_00014244, at 244	

Event	Norrbom CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 11, 2017, 3:39 PM: Based on PG&E records, a contract crew repaired the line at the wire-down location.	PGE-CPUC_00014244, at 244	
October 14, 2017, 3:52 AM: Based on PG&E records, CAL FIRE requested that the Sonoma 1103 Circuit be de-energized east of the intersection of E Napa Street and 2nd Street.	PGE-CPUC_00014224, at 224	
October 14, 2017, 4:13 AM: Based on PG&E records, PG&E troubleman opened Switch 2910, de-energizing the Sonoma 1103 Circuit east of the intersection of E Napa Street and 2nd Street, as per CAL FIRE's request. The section of the circuit beyond Fuse 99309, including the incident location, remained de-energized.	PGE-CPUC_00014224, at 224	
October 18, 2017: CAL FIRE visited the incident span with PG&E and collected two primary conductors. Based on PG&E records, this was PG&E's first visit to the incident span.	PGE-CPUC_00005394	
October 22, 2017, 9:03 PM: Based on PG&E records, Fuse 99309 was closed, restoring power to the incident location.	PGE-CPUC_00014236	

Source List:

Source	Brief Description
PGE-CPUC_00012216	Log of Evidence Collected by CAL FIRE (amended response)
PGE-CPUC_00007891	SCADA data for Sonoma 1103
PGE-CPUC_00014224	ILIS Outage Report 17-0087291
PGE-CPUC_00014236	ILIS Outage Report 17-0089503
PGE-CPUC_00014244	ILIS Outage Report 17-0086005.
Norrbom Initial Electric Incident Report	10/20/2017 Initial Electric Incident Report http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171020-8590.pdf
Response to Question 35	12/18/17 Response to CPUC's October 2017 Wildfire Data Request
Response to Question 36	12/18/17 Response to CPUC's October 2017 Wildfire Data Request
CAL FIRE Website	CAL FIRE Large Fires 2017 (publicly available at one point, but no longer online)
CAL FIRE Website	"Nuns / Adobe / Norrbom/ Pressley / Partrick Fires / Oakmont (Central LNU Complex) Incident Information" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1898
AMI Data	AMI Data for Smart Meters downstream of Fuse 99309.

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.

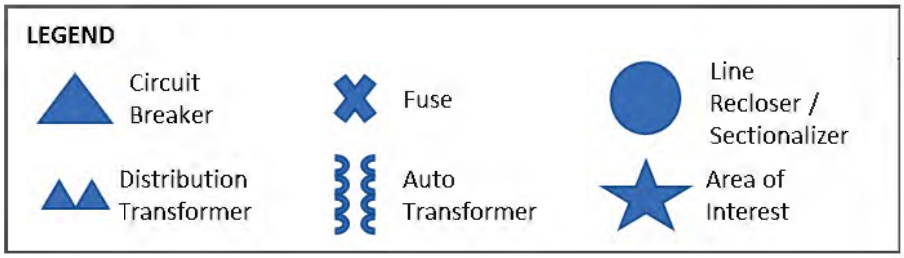
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT V

NUNS 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:

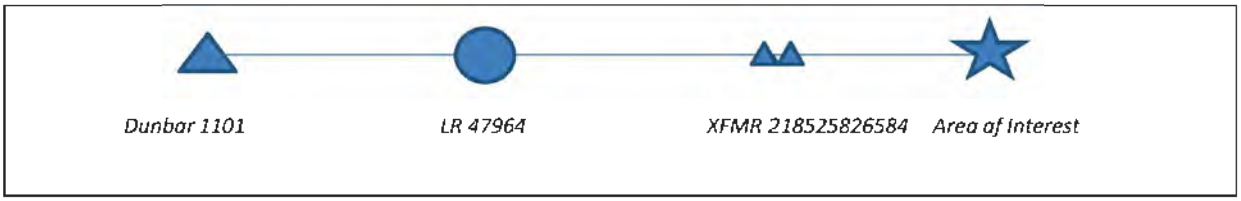
On October 16, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171016-8576) concerning an incident that occurred near 1210 Nuns Canyon Road, Glen Ellen, Sonoma County ("the Nuns 1 incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E was granted access to the Nuns 1 incident location, PG&E observed that the top section of a green, healthy Alder tree had broken and was laying on the ground near one of three conductors of a downed open wire secondary service of the Dunbar 1101 (12 kV) Circuit, which serves the residence of 1210 Nuns Canyon Road, Glen Ellen, CA 95442. The Alder tree was rooted approximately 30 feet from the overhead secondary service conductors.

On the same day that PG&E filed its report concerning the Nuns 1 incident location, PG&E identified downed primary conductors on the Dunbar 1101 (12 kV) Circuit near Fuse 15877 on Nuns Canyon Road, Glen Ellen, Sonoma County ("the Nuns 2 incident location" as defined by the CPUC's December 7, 2017, letter). The Nuns 2 incident location is approximately 0.4 miles away and downstream from the Nuns 1 incident location. PG&E notified CAL FIRE regarding the Nuns 2 incident location on October 16, 2017. CAL FIRE released the Nuns 2 incident location on October 18, 2017, and did not request any electric facilities from the Nuns 2 incident location. PG&E filed an Electric Safety Incident Report (Incident No. 171031-8606) for the Nuns 2 incident location on October 31, 2017.

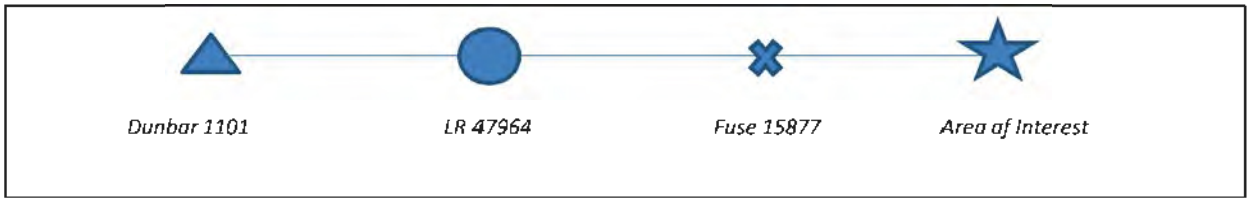
According to CAL FIRE's website, the "Nuns fire" consists of six different fires: Nuns, Adobe, Norrbom, Pressley, Partrick and Oakmont, and the Nuns fire started at 10:00 PM on October 8, 2017.

Incident Overview:

The Nuns 1 incident location:



The Nuns 2 incident location:



At 10:18 PM on October 8, two smart meters at service points 3907724505 and 3907723505, located downstream of the Nuns 1 incident location, both reported a Last Gasp event. At 10:51 PM, Line Recloser 47964 operated and reclosed, resulting in an approximately 10-second outage at the Nuns 1 and Nuns 2 incident locations. At approximately 12:01 AM on October 9, the Dunbar 1101 Circuit Breaker was remotely opened via SCADA, de-energizing the incident location. This was done at the request of CAL FIRE to de-energize the area due to fire activity.

According to PG&E records, on October 11, a Troubleman was the first responder to the incident locations after the fire started. When the Troubleman attempted to access the incident locations, he patrolled Nuns Canyon Road just past where the road intersects with Highway 12. However, per the Troubleman, Nuns Canyon Road was impassable due to both (1) a downed tree laying across the road (which was not near any PG&E lines), and (2) a private citizen who parked his car on the road and prevented traffic from passing through.

CAL FIRE released the Nuns 1 incident location on October 16 and PG&E accessed the Nuns 1 incident location on the same day. PG&E identified a green, healthy Alder tree whose top section had broken and was laying on the ground near one of three conductors of a downed open wire secondary service of the Dunbar 1101 Circuit. The Alder tree was rooted approximately 30 feet from the overhead secondary service conductors. The conductors were 1/0 Al (Aluminum, Bare) installed in 1953.

On October 16, PG&E notified CAL FIRE that it had identified downed primary conductors near Fuse 15877 at the Nuns 2 incident location. CAL FIRE did not request any electric facilities.

On October 17, the Dunbar 1101 Circuit Breaker was closed, but the Nuns 1 and Nuns 2 incident locations remained de-energized because Line Recloser 47964 was open.

Upon CAL FIRE's release of the Nuns 2 incident location on October 18, PG&E found a green, healthy Douglas Fir tree broken at its base and laying on primary distribution conductors, and steel messenger cables supporting the telephone and CATV conductors. PG&E observed a broken pole and electric and communication wires down. The conductors were 6CU (Copper) installed in 1961.

At 5:39 PM on October 21, PG&E closed Line Recloser 47964, restoring power to the Nuns 2 incident location. However, power was not restored to the Nuns 1 incident location at this time

because the transformer serving the Nuns 1 incident location remained disconnected. On October 23, PG&E completed repair work and restored power to the Nuns 1 incident location.

Evidence Collection:

At the Nuns 1 incident location, PG&E believes CAL FIRE took possession of: (1) an insulator; (2) an Alder tree limb; (3) aluminum secondary conductors; and (4) wood pins. PG&E took possession of: (1) parts of a Red Alder tree (including its base, trunk, pole break, lower branch, and top pieces); (2) parts of a willow tree; and (3) conductors near the incident span. PG&E is unaware of whether CAL FIRE collected additional evidence at the Nuns 1 incident location.

The Nuns 2 incident location was released by CAL FIRE on October 18. On October 20, PG&E collected a section of downed conductors and an insulator. PG&E also took possession of other evidence on the dates indicated: a conductor located north of pole 102036548 (November 1), another conductor located north of pole 102036548 and an insulator from pole 102036548 (November 7), AT&T cables (November 17), and copper wire conductors (November 21). To PG&E's knowledge, CAL FIRE has not collected any electric facilities from the Nuns 2 incident location.

Timeline:

Nuns		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 10:00 PM: According to CAL FIRE's website, the Nuns fire started at 10:00 PM on October 8, 2017.		
October 8, 2017, 10:18 PM: Two smart meters at service points 3907724505 and 3907723505 both reported a Last Gasp event.		PGE-CF_00000027
October 8, 2017, 10:51 PM: Line Recloser 47964 operated and reclosed, resulting in an approximately 10- second outage at the Nuns 1 and Nuns 2 incident locations.	PGE-CPUC_00007893 PGE-CPUC_00007896	PGE-CF_00000002 PGE-CF_00000027
October 9, 2017, 12:01 AM: The Dunbar 1101 Circuit Breaker was remotely opened via SCADA, de-energizing the incident location. This was done at the request of CAL FIRE to de-energize the area due to fire activity.	PGE-CPUC_00013124, at 124	PGE-CF_00136070, at 070
October 11, 2017: PG&E first responder attempted to access the incident locations by patrolling Nuns Canyon Road just past where the road intersects with Highway 12. However, per the PG&E first responder, Nuns Canyon Road was impassable due to both (1)		

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Nuns		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
a downed tree laying across the road (which was not near any PG&E lines), and (2) a private citizen who parked his car on the road and prevented traffic from passing through.		
October 16, 2017: Nuns 1 incident location released by CAL FIRE and PG&E accesses the incident location. PG&E identified downed primary conductors at the Nuns 2 incident location and notified CAL FIRE.		
October 17, 2017, 1:42 PM: Dunbar 1101 Circuit Breaker was closed, but power did not flow to the Nuns 1 and Nuns 2 incident locations because Line Recloser 47964 was open.	PGE-CPUC_00013124, at 124 to 125	PGE-CF_00136070, at 070 to 071
October 18, 2017: CAL FIRE released the Nuns 2 incident location and PG&E was granted access.		
October 21, 2017, 5:39 PM: Line Recloser 47964 closed, restoring power to the Nuns 2 incident location, but power was not restored to the Nuns 1 incident location because the transformer serving Nuns 1 incident location remained disconnected.	PGE-CPUC_00013124, at 125	PGE-CF_00136070, at 071
October 23, 2017: PG&E completed repair work at the Nuns 1 incident location.	PGE-CPUC_00015765	
October 23, 2017, 2:04 PM: Power restored to the Nuns 1 incident location.		

Source List:

Source	Brief Description
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_00013124	ILIS Outage Report 17-0085286
PGE-CPUC_00015765	Electric Overhead Tag #113744581
PGE-CPUC_00007893	SCADA data produced in response to CPUC Q25 for Nuns 1
PGE-CPUC_00007896	SCADA data produced in response to CPUC Q25 for Nuns 2
PGE-CPUC 00001211	Single line diagram for Nuns 1
PGE-CPUC 00001212	Single line diagram for Nuns 2
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
Nuns 1 Initial Electric Incident Report	10/16/2017 Nuns 1 Initial Electric Incident Report to the CPUC, http://www.cpuc.ca.gov/uploadedFiles/ CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171016-8576.pdf.
Nuns 2 Initial Electric Incident Report	10/31/2017 Nuns 2 Initial Electric Incident Report to the CPUC, http://www.cpuc.ca.gov/uploadedFiles/ CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171031-8606(1).pdf.
Nuns 1 Electrical Safety Incident Report	11/13/2017 20-Day Electric Incident Report to the CPUC (171016-8576)
Nuns 2 Electrical Safety Incident Report	11/30/2017 20-Day Electric Incident Report to the CPUC (171031-8606)
CAL FIRE Website	"Nuns / Adobe / Norrbom / Pressley / Partrick / Oakmont (Central LNU Complex) Incident Description", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1868 (last updated Feb. 9, 2018).
AMI Smart Meter Data	AMI data from 10/8 for smart meter 1009064206 (produced to CAL FIRE at PGE-CF_00000027), AMI data from 10/8 and 10/21 for smart meters 1007801533 and 1010037531, and AMI data from 10/23 for smart meter 1009064206.

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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.

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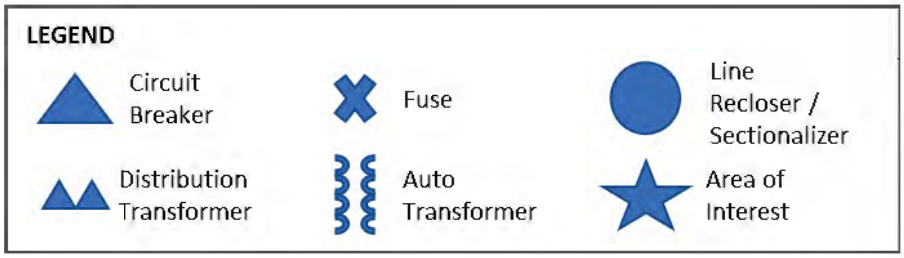

First Responders

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.

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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

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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.

<u>Reclosing Device Operations</u>

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.

Outage Records

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EXHIBIT W

OAKMONT INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

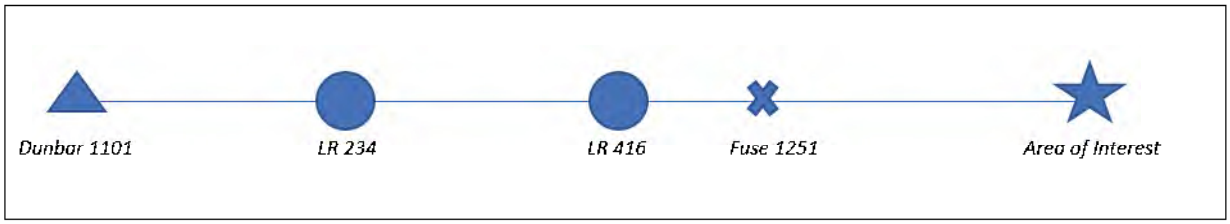
Background:

On October 20, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171020-8585) concerning an incident that occurred near 8000 Pythian Road, City of Santa Rosa, Sonoma County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E was granted access to the incident location on October 18, PG&E observed that a green, healthy Douglas Fir tree had uprooted and fallen onto other trees. Two of two phases of the Rincon 1101 (12 kV) Circuit were down. The Douglas Fir was approximately 100 feet tall and rooted approximately 30 feet from the distribution conductors.

According to CAL FIRE's website, the Oakmont fire is part of the "Nuns fire", which consists of six different fires: Nuns, Adobe, Norrbom, Pressley, Partrick and Oakmont.

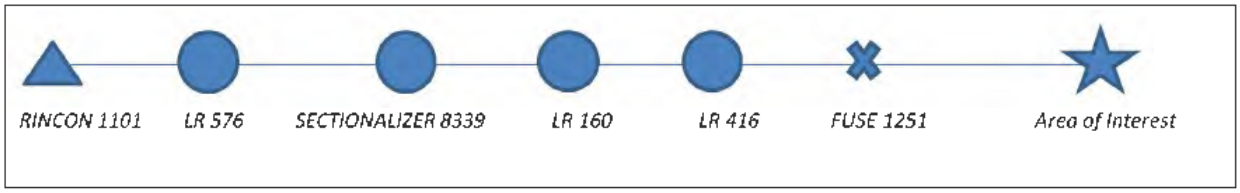
According to CAL FIRE's website, the Oakmont fire started at 8:35 PM on October 14, 2017. However, according to PG&E records, a PG&E troubleman was at the Oakmont incident location to assist CAL FIRE on the evening of October 13, 2017, and he reported that there was already a quarter-acre grass fire with CAL FIRE on site working to contain the fire.

Incident Overview:



The incident location is ordinarily served by the Dunbar 1101 Circuit.[1] Line Recloser 234 is two line reclosers upstream of the incident location when the incident location is served by the Dunbar 1101 Circuit. Based on PG&E records, Line Recloser 234 was opened remotely via SCADA on October 8 at 11:35 PM, de-energizing the incident location until October 13.

[1] The Dunbar 1101 Circuit single line diagram included in this incident description and factual summary was not produced previously to the CPUC.



Based on PG&E records, on October 13, 2017 by 12:12 PM, PG&E switched the source of power to the incident location from the Dunbar 1101 Circuit to the Rincon 1101 Circuit by opening Switch 1263 and closing Switch 6173. As a result, PG&E energized the circuit from the Rincon 1101 substation up to Line Recloser 160, which is two line reclosers upstream of the incident location when the area is served by the Rincon 1101 Circuit. Based on PG&E records, Line Recloser 160 had operated and locked out at 10:34 PM on October 8, 2017, when it was fed by the Dunbar 1101 Circuit, and it remained open at the time of switching. Therefore, the incident location, which is beyond Line Recloser 160, continued to be de-energized after the switching events.

Based on PG&E records, on October 13, 2017, PG&E patrolled the load side of Fuse 1251, the fuse immediately upstream of the incident location, to restore power. On the load side of Fuse 1251, the line forks to the east on one side and to the northwest on the other side. Based on PG&E records, at 1:22 PM, a troubleman reported wire down at the first tap to the east and that the jumpers were opened. The incident location is on the tap line to the northwest. Based on PG&E records, at 2:13 PM, after a patrol of the area, PG&E re-energized the incident location by closing Switch 14261, and subsequently closing Line Recloser 160 remotely via SCADA. Both devices are upstream of the incident location when the incident location is served by the Rincon 1101 Circuit.

Based on PG&E records, between 2:56 PM and 3:00 PM on October 13, 2017, 14 of 17 smart meters downstream of Fuse 1251 recorded a NIC Power Down and Restore event and/or a zero volt reading. Based on PG&E records, at 3:54 PM, all 14 of those meters recorded a NIC Power Down event.

Based on PG&E records, the troubleman who had previously patrolled the load side of Fuse 1251 later returned to the area on the same day. Based on PG&E records, at 5:08 PM, he reported one of two fuses at Fuse 1251 blown. At that time, he also reported that he opened the second fuse and tagged Fuse 1251 for a follow-up patrol, de-energizing the incident location, downstream of Fuse 1251.

On the evening of October 13, 2017, according to PG&E records, a different troubleman was the first PG&E employee at the incident location after the fire started. Per the troubleman, he met CAL FIRE at the intersection of Highway 12 and Pythian Road. Per the troubleman, CAL FIRE led him to the incident location so that he could make the lines at the incident location safe. The troubleman followed a CAL FIRE pickup truck and two bulldozers up a hill, and he arrived at the incident location approximately 30 to 45 minutes later. At the incident location, the troubleman saw two of two phases of the incident span down, which he reported at 8:23 PM on October 13, 2017, according to PG&E records.

Per the troubleman, the conductors on the load side of the incident span were not on the ground, but rather were laying across a tree. The tree was still standing and was not on fire. The troubleman confirmed the lines were de-energized, and he cut the line at the downstream corner pole to make the area safe. Per the troubleman, he then went to the source side of the incident span. In this area, he saw the source side of the conductors laying on a metal fence. The troubleman used an insulated stick to move the conductors off the fence. Based on PG&E records and per the troubleman, he observed a small grass fire in the forest near the metal fence, which he reported at 8:23 PM.

According to the troubleman, he did not see any trees down, and he could not observe the middle of the incident span due to fire in the area. He left the incident location around 8:30 or 9:00 PM, after he had ensured that all power was off in the area. The fire was not contained when the troubleman left the area of the incident location, but CAL FIRE was on site at the time.

Based on PG&E records, on October 14 at 11:48 AM, Line Recloser 416, which is upstream of the incident location, was opened remotely via SCADA on a dead line due to fire encroaching on the line at Fuse 1251. PG&E is not aware of other electrical activity at the incident location on October 14, the date on which the incident began according to CAL FIRE's website.

On October 18, 2017, CAL FIRE released the incident location, and PG&E first accessed it on that day. PG&E observed that a green, healthy Douglas Fir tree had uprooted and fallen onto other trees. The Douglas Fir was approximately 100 feet tall and rooted approximately 30 feet from the distribution conductors. Both phases of the Rincon 1101 (12 kV) Circuit were down. The conductors were #4AR (aluminum conductor, steel reinforced), installed in 1965.

Based on PG&E records, on October 21, 2017, the incident span was repaired. On October 22, 2017 at 10:39 AM, Fuse 1251 was closed, restoring power to the incident location.

Evidence Collection:

CAL FIRE collected downed conductors. PG&E is unaware of whether CAL FIRE collected additional evidence at the incident location. PG&E was granted access to the incident location on October 18, 2017. On November 29, 2017, PG&E collected a Douglas Fir bole, trunk parts, root ball and roots, and a Valley Oak root.

Timeline:

Oakmont		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 10:34 PM: Based on PG&E records, Line Recloser 160 off the Dunbar 1101 Circuit operated and locked out.	PGE-CPUC_00013043	PGE-CF_00136025; PGE-CF_00000021
October 8, 2017, 11:35 PM: Based on PG&E records, Line Recloser 234 off the	PGE-CPUC_00013124, at 124	PGE-CF_00136070, at 070

Oakmont		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
Dunbar 1101 Circuit was opened remotely via SCADA, de-energizing the incident location until October 13.	PGE-CPUC_0007876	PGE-CF_00000015
October 13, 2017, 12:12 PM: Based on PG&E records, PG&E switched the source of power to the incident location from the Dunbar 1101 Circuit to the Rincon 1101 Circuit by opening Switch 1263 and closing Switch 6173.	PGE-CPUC_00013043 PGE-CPUC_00013124, at 124 PGE-CPUC_00014333, at 333	PGE-CF_00136025 PGE-CF_00136070, at 070
October 13, 2017, 1:22 PM: Based on PG&E records, a troubleman reported wire down on the load side of Fuse 1251 at the first tap to the east and that jumpers were opened on that tap line.	PGE-CPUC_00012928, at 928	PGE-CF_00135985, at 985
October 13, 2017, 2:13 PM: Based on PG&E records, PG&E re-energized the incident location by closing Switch 14261, and subsequently closing Line Recloser 160 remotely via SCADA.	PGE-CPUC_00013124, at 124	PGE-CF_00136070, at 070 PGE-CF_00000021
October 13, 2017, 2:56 PM: Based on PG&E records, between 2:56 PM and 3:00 PM on October 13, 2017, 14 of 17 smart meters downstream of Fuse 1251 recorded a NIC Power Down and Restore event and/or a zero volt reading.		PGE-CF_00000052 PGE-CF_00000053
October 13, 2017, 3:54 PM: Based on PG&E records, all 14 of those meters recorded a NIC Power Down event.		
October 13, 2017, 5:08 PM: Based on PG&E records, a troubleman reported 1 of 2 fuses at Fuse 1251 blown. Based on PG&E records, he also reported that he opened the second fuse and tagged Fuse 1251 for a follow-up patrol, de-energizing the incident location downstream of Fuse 1251.	PGE-CPUC_00014316, at 316 PGE-CPUC_00001213	PGE-CF_00136206, at 206 PGE-CF_00005005
October 13, 2017, 8:23 PM: Based on PG&E records, another troubleman reported that he saw two conductors down and observed a small fire near the incident location.	PGE-CPUC_00014316, at 316	PGE-CF_00136206, at 206
October 14, 2017, 11:48 AM: Based on PG&E records, Line Recloser 416 was opened remotely via SCADA on a dead line	PGE-CPUC_00014333, at 333 PGE-CPUC_00007897	

Oakmont		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
due to fire encroaching on the line at Fuse 1251. PG&E is not aware of other electrical activity at the incident location on October 14.		
October 14, 2017, 8:35 PM: According to CAL FIRE's website, the Oakmont fire started.		
October 18, 2017: CAL FIRE released the incident location, and PG&E first accessed the incident location.		
October 21, 2017: Based on PG&E records, the incident span was repaired.	PGE-CPUC_00015771	
October 22, 2017, 10:39 AM: Based on PG&E records, Fuse 1251 was closed, restoring power to the incident location.	PGE-CPUC_00014316, at 317 PGE-CPUC_00001213	PGE-CF_00136206, at 207 PGE-CF_00005005

Source List:

Source	Brief Description
PGE-CPUC_00001213 PGE-CF_00005005	Oakmont Single Line Diagram
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_00012928 PGE-CF_00135985	ILIS Outage Report 17-0087147
PGE-CPUC_00013043 PGE-CF_00136025	ILIS Outage Report 17-0085262
PGE-CPUC_00013124 PGE-CF_00136070	ILIS Outage Report 17-0085286
PGE-CPUC_00014316 PGE-CF_00136206	ILIS Outage Report 17-0087215
PGE-CPUC_00014333	ILIS Outage Report 17-0087360
PGE-CPUC_00007876 PGE-CPUC_00007897 PGE-CF_00000015 PGE-CF_00000021	SCADA Data
PGE-CPUC_00013171	Dunbar 1101 Circuit Map
PGE-CPUC_00014403	Rincon 1101 Circuit Map
PGE-CPUC_00015771	EC Notification 113748114 Dated 10/19/17
PGE-CF_00000052 PGE-CF_00000053	AMI Smart Meter Data
CPUC Letter	12/7/17 Letter Regarding Clarification for Commission's November 21, 2017 Data Request
Response to Question 27	3/30/18 Response to CPUC's October 2017 Wildfire Data Request
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
Oakmont Initial Electric Incident Report	10/20/17 Initial Electric Incident Report
Oakmont 20-Day Electric Incident Report	11/17/17 20-Day Electric Incident Report
CAL FIRE Website	"Nuns / Adobe / Norrbom/ Pressley / Partrick Fires / Oakmont (Central LNU Complex) Incident Information" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1868
CAL FIRE Website	"Oakmont Fire (Central LNU Complex) Incident Information" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1898
AMI Smart Meter Data	Supplemental AMI Smart Meter Data for Service Points 1118309834, 3888610605, 3888662805, 3888620006, 3888611605,

	3888618905, 3888661705, 2727546648, 3888655505, 3888663805, 3888660705, 3888612705, 3888616905, 3888609605 and 3888613705

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.

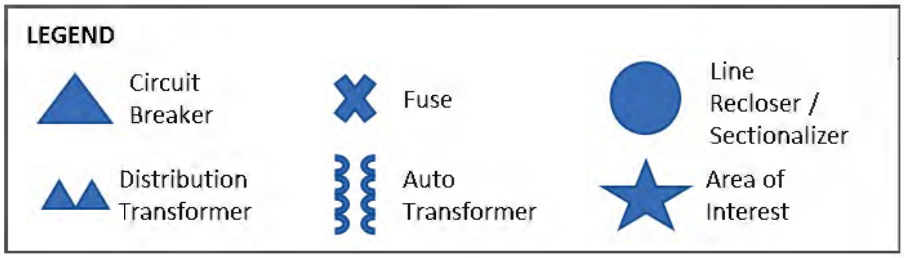
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT X

PARTRICK INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

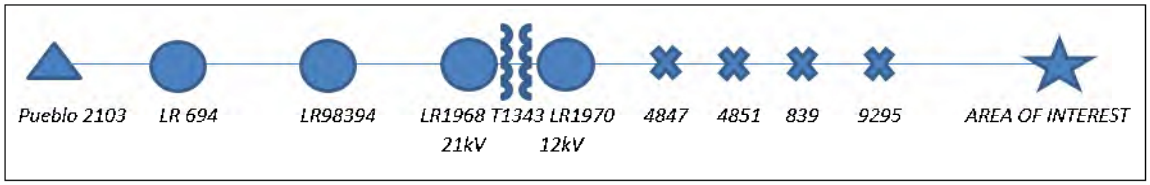
Background:

On October 20, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171020-8586) concerning an incident that occurred near 1721 Partrick Road, Napa, Napa County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E was granted access to the incident location on October 18, PG&E observed that a 20-inch diameter Coast Live Oak tree, approximately 50 feet tall and rooted approximately 40 feet uphill from the distribution conductors had broken above its base. One of the two phases on a 12kV tap line on the Pueblo 2103 Circuit was on the ground.

According to CAL FIRE's website, the Partrick fire is part of the "Nuns fire", which consists of six different fires: Nuns, Adobe, Norrbom, Pressley, Partrick and Oakmont.

According to CAL FIRE's website, the Partrick fire started at 11:48 PM on October 8, 2017.

Incident Overview:



The incident location is served by the Pueblo 2103 Circuit. According to PG&E records, at 11:20 PM on October 8, 2017, the smart meter at service point 3725037405, downstream from the incident location, reported a NIC Power Down event. Four minutes later, 27 smart meters on the load side of Fuse 9295 recorded a series of power off/on events.

Based on PG&E records, at 1:54 AM on October 9, 2017 the Pueblo Substation, which feeds power to the incident location, was de-energized as a result of an outage on the 115kV transmission line feeding the substation. At 12:10 PM on October 10, 2017 the Pueblo Substation was re-energized but the incident location remained de-energized because the Pueblo 2103 Circuit Breaker remained open. Based on PG&E records, at 5:19 PM on October 10, the Pueblo 2103 Circuit Breaker was closed remotely via SCADA and the circuit was re-energized.

At 1:42 PM on October 11, 2017, a Troubleman reported that the nearest source side protection device from the incident location, Fuse 9295, had 2 of 2 fuses open.

On October 14, 2017 at 9:05 AM, PG&E records indicate that a Troubleman and an Estimator (together the "First Responders") were the first PG&E employees near the incident location after

the fire started. Per the First Responders, they were both patrolling the area to check on the status of PG&E facilities. While patrolling the line at the incident location they were stopped by CAL FIRE approximately 50 yards from the incident span and prevented from patrolling any further down the line. Per the First Responders, from their vantage point, they could see 1 of 2 phases of the incident span down. At the request of CAL FIRE, they immediately left the area and returned to Partrick Road. On October 16, 2017 at 6:42 PM, Fuse 9295 was closed and tested.

On October 18, 2017, PG&E was granted access to the incident location and observed that a 20-inch diameter Coast Live Oak tree, approximately 50 feet tall and rooted approximately 40 feet uphill from the distribution conductors had broken near the base. One of the two phases of conductors was on the ground. The conductors were #4AR (aluminum conductor, steel reinforced), installed in 1981. On October 21, 2017, both of the conductors on the incident span were replaced. Based on PG&E records, a new smart meter was installed on February 1, 2018, and service was restored to the customer served by the incident location.

Evidence Collection:

CAL FIRE collected the primary conductors at the incident location. In addition, CAL FIRE collected a section of the Coast Live Oak tree. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On November 8, 2017, PG&E collected multiple sections of the Coast Live Oak tree. On the same day, PG&E also collected pieces of melted aluminum scraps.

Timeline:

Partrick		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 11:20 PM: Smart meter at service point 3725037405, on the load side of the incident location, reported a NIC Power Down event.		PGE-CF_00000038
October 8, 2017, 11:24 PM: 27 smart meters on the load side of Fuse 9295 recorded a series of power off/on events.		PGE-CF_00000038
October 8, 2017, 11:48 PM: According to CAL FIRE's website, the Partrick fire started.		
October 9, 2017, 1:54 AM: Pueblo Substation de-energized.	PGE-CPUC_00007900	PGE-CF_00000012

Partrick		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 10, 2017, 12:10 PM: Pueblo Substation re-energized.	PGE-CPUC_00014739, at 740	PGE-CF_00136251
October 10, 2017, 5:19 PM: Pueblo 2103 Circuit Breaker closed remotely via SCADA and the circuit re-energized.	PGE-CPUC_00014739, at 740	PGE-CF_00136251
October 11, 2017, 1:42 PM: Troubleman reported 2 of 2 fuses open at Fuse 9295.	PGE-CPUC_00014718	
October 14, 2017, 9:05 AM: First Responders near the incident span to patrol the line.	PGE-CPUC_00015774	
October 16, 2017, 6:42 PM: Fuse 9295 closed and tested.	PGE-CPUC_00014718	
October 18, 2017: CAL FIRE released the incident location and PG&E was granted access to the incident location.		
October 21, 2017: Both conductors on incident span were replaced.	PGE-CPUC_00015774, at 775	
February 1, 2018: New smart meter was installed and service was restored to customer served by the incident location.		

Source List:

Source	Brief Description
PGE-CPUC_00001203	Single Line Diagram
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_00014718	ILIS Outage Report 17-0086365
PGE-CPUC_00014739	ILIS Outage Report 17-0085372
PGE-CPUC_00015774	Electric Overhead Tag #113734397
Partrick Electrical Safety Incident Report	10/20/2017 Initial Electrical Safety Incident Report (171020-8586)
Partrick Electrical Safety Incident Report	11/17/2017 20-Day Electrical Safety Incident Report (171020-8586)
PGE-CPUC_DR-112117_Common_Q35	12/29/17 Response to CPUC's October 2017 Wildfire Data Request, Response to Question 35
PGE-CPUC_DR-112117_Common_Q36	12/29/17 Response to CPUC's October 2017 Wildfire Data Request, Response to Question 36
CAL FIRE Website	"Nuns / Adobe / Norrbom/ Pressley / Partrick Fires / Oakmont (Central LNU Complex) Incident Description" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1868 (last updated Feb. 9, 2018)
CAL FIRE Website	"Partrick Fire (Central LNU Complex) Incident Description" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1869 (last updated Jan. 9, 2018)
PGE-CF_00000038_Confidential	AMI Smart Meter Data for Smart Meters downstream from Fuse Cutouts 9295
FAS Field Order	FAS Field Order ID 3720445565 for replacement of Smart Meter downstream of incident location

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.

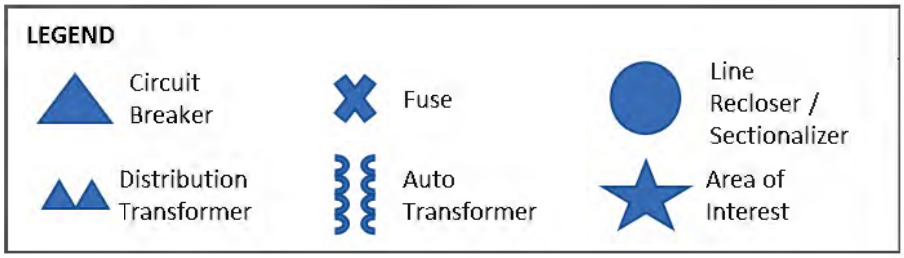
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT Y

POCKET INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

Background:

On October 21, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171021-8592) concerning an incident that occurred near Ridge Ranch Road and Ridge Oaks Road, Geyserville, Sonoma County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E accessed the incident location on October 17, 2017, PG&E observed that a top section of a California White Oak/Valley Oak tree had broken. At least one conductor of Cloverdale 1102 (12 kV) Circuit was on the ground. The California White Oak/Valley Oak was rooted approximately 15 feet from the distribution conductors.

According to CAL FIRE's website, the Pocket incident started at 3:30 AM on October 9, 2017.

Incident Overview:

The incident location is served by the Cloverdale 1102 Circuit. Line Recloser 570 and Line Recloser 262 are located upstream of the incident location. According to PG&E records, on October 8, 2017 at 11:24 PM, both Line Recloser 570 and Line Recloser 262 automatically opened due to a line-to-ground fault on the circuit. Line Recloser 262 automatically closed after a momentary outage, but Line Recloser 570 did not close. At this point, the Cloverdale 1102 Circuit downstream of Line Recloser 570 was de-energized, including the incident location. The fuses downstream of Line Recloser 570 did not open.

On October 9, 2017, at 2:29 AM, after PG&E linemen patrolled the Cloverdale 1102 Circuit, Line Recloser 570 was closed remotely via SCADA. However, based on PG&E records, because Line Recloser 570 indicated (via SCADA) that ground fault current was present when it was closed, Line Recloser 570 was re-opened by the line operator via SCADA at 2:30 AM, leaving the incident location de-energized.

Based on PG&E records, at 11:30 AM, PG&E linemen manually opened Fuse 1403, located three fuses upstream of the incident location. According to one of the linemen, the linemen patrolled the circuit and, after that patrol, Line Recloser 570 was closed remotely via SCADA at 11:47 AM. When Line Recloser 570 was closed, the line was re-energized up to Fuse 1403, restoring service to 221 customers. Fuse 1403 is located upstream of the incident location, so the incident location was not re-energized at this time.

On October 9, 2017, according to PG&E records, a PG&E lineman was the first PG&E employee who attempted to access the incident location after the fire started. Per that lineman, he and another PG&E lineman attempted to patrol beyond Fuse 1403, but reported being turned away by CAL FIRE at 12:50 PM. According to the lineman, he and the other lineman patrolled the area up to a section of the circuit that CAL FIRE had blocked off. The lineman observed that fire was burning on the load side of Fuse 1403.

Based on PG&E records, on October 12, 2017, a PG&E lineman patrolled the circuit up to Fuse 12905 (located two fuses upstream from the incident location) and reported manually opening that fuse at 2:30 PM. According to PG&E records, the lineman returned to Fuse 1403 and manually closed it at 2:55 PM, re-energizing the line up to Fuse 12905.

On October 17, 2017, after CAL FIRE released the site, PG&E was permitted to access the incident location. At that time, PG&E observed that a top section of a California White Oak/Valley Oak tree had broken and was laying on at least one conductor serving the Cloverdale 1102 (12 kV) Circuit, near the intersection of Ridge Ranch Road and Ridge Oaks Road. The California White Oak/Valley Oak was rooted approximately 15 feet from the distribution conductors. At least one conductor was on the ground. The conductors were #6 Copper Wire installed in 1946.

According to PG&E records, on October 22, 2017, repair work was completed downstream of Fuse 12905 and, at 6:10 PM, a PG&E troubleman manually closed Fuse 12905 after patrolling the circuit, restoring service to the incident location.

Evidence Collection:

CAL FIRE collected a section of the California White Oak/Valley Oak tree and sections of both phases of conductor. PG&E is unaware of whether CAL FIRE collected additional evidence at the incident location. On November 2, 2017, PG&E collected the remaining sections of the California White Oak/Valley Oak.

Timeline:

Event	Pocket CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 8, 2017, 11:24 PM: Based on PG&E records, Line Recloser 570 on the Cloverdale 1102 Circuit automatically opened due to a line to ground fault and remained open. Fuses downstream of Line Recloser 570 did not open. According to PG&E records, Line Recloser 262 automatically opened due to a line to ground fault, then closed, restoring power and creating a momentary outage for	PGE-CPUC_00007902; PGE-CPUC_00014816, at 816; PGE-CPUC_00014813.	PGE-CF_00000003; PGE-CF_00000029; PGE-CF_00136288, at 288; PGE-CF_00136285.

Pocket		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
customers between Line Recloser 262 and Line Recloser 570.		
October 9, 2017, 2:29 AM: Line Recloser 570 was closed remotely via SCADA, after PG&E linemen patrolled the circuit.	PGE-CPUC_00007902; PGE-CPUC_00014816, at 816.	PGE-CF_00000003; PGE-CF_00136288, at 288.
October 9, 2017, 2:30 AM: Line Recloser 570 was opened remotely via SCADA.	PGE-CPUC_00007902; PGE-CPUC_00014816, at 816.	PGE-CF_00000003; PGE-CF_00136288, at 288.
October 9, 2017, 3:30 AM: According to CAL FIRE's website, the Pocket fire started at 3:30 AM on October 9, 2017.		
October 9, 2017, 11:30 AM: Based on PG&E records, Fuse 1403 was opened manually in the field.	PGE-CPUC_00014816, at 816.	PGE-CF_00136288, at 288.
October 9, 2017, 11:47 AM: Line Recloser 570 was closed remotely via SCADA, re-energizing the line up to Fuse 1403 and restoring electricity to 221 customers.	PGE-CPUC_00007902; PGE-CPUC_00014816, at 816.	PGE-CF_00000003; PGE-CF_00136288, at 288.
October 9, 2017, 12:50 PM: Per a PG&E lineman, he and another PG&E lineman attempted to patrol to the suspected incident location but were denied access by CAL FIRE. The lineman reported fire activity on the load side of Fuse 1403, beyond the point at which CAL FIRE had turned the linemen away.	PGE-CPUC_00014816, at 816.	PGE-CF_00136288, at 288.
October 12, 2017, 2:30 PM: Based on PG&E records, a PG&E lineman patrolled up to Fuse 12905 and manually opened Fuse 12905 on a de-energized line.	PGE-CPUC_00014816, at 816.	PGE-CF_00136288, at 288.
October 12, 2017, 2:55 PM: According to PG&E records, a PG&E lineman manually closed Fuse 1403, restoring electricity to nine customers.	PGE-CPUC_00014816, at 816.	PGE-CF_00136288, at 288.
October 17, 2017: After CAL FIRE released the site and PG&E was granted access to the		

Event	Pocket CPUC Bates Number Reference	CAL FIRE Bates Number Reference
incident location, PG&E observed that the top section of a California White Oak/Valley Oak had broken and at least one phase of the Cloverdale 1102 Circuit was on the ground.		
October 22, 2017: Repair work was completed downstream of Fuse 12905.	PGE-CPUC_00015809; PGE-CPUC_00015777.	
October 22, 2017, 6:10 PM: According to PG&E records, a PG&E troubleman manually closed Fuse 12905 after patrolling the circuit, restoring electricity to 12 customers and energizing the incident location.	PGE-CPUC_00014816, at 817.	PGE-CF_00136288, at 289.

Source List:

Source	Brief Description
PGE-CF_00000029; PGE-CF_00000030	AMI Smart Meter Data for Pocket Ranch Road
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_00007901; PGE-CPUC_00007902; PGE-CF_00000003; PGE-CF_00000004	SCADA Data
PGE-CPUC_00014813; PGE-CF_00136285	ILIS Outage Report 17-0086608
PGE-CPUC_00014816; PGE-CF_00136288	ILIS Outage Report 17-0085349
PGE-CPUC_00014896	Cloverdale 1102 Circuit Map, to be produced in response to CPUC Q27
PGE-CPUC_00015777	Electric Overhead Tag No. 113734174
PGE-CPUC_00015809	Electric Corrective Notifications responsive to Question 5 of CPUC's October 2017 Wildfire Data Request
Pocket Initial Electrical Safety Incident Report	10/21/2017 Pocket Initial Electric Incident Report (171021-8592) http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171021-8592.pdf
Pocket Electrical Safety Incident Report	11/13/2017 20-Day Electric Incident Report (171021-8592)
Response to Question 35	12/29/17 Response to CPUC's October 2017 Wildfire Data Request
CAL FIRE Website	"Pocket Fire (Central LNU Complex) Incident Information" (last updated Feb. 9, 2018) http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1883

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.

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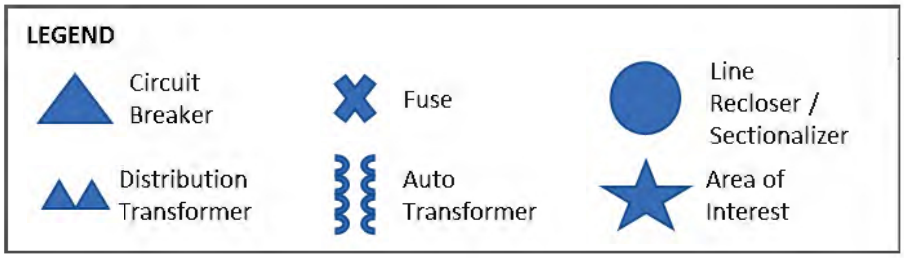

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As indicated above, in response to Question 1, PG&E has included a timeline of certain equipment operations and actions of PG&E employees at or near the incident locations, including during the period 12 hours prior to CAL FIRE's designated start time, 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.

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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.

<u>Reclosing Device Operations</u>

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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Smart Meter Service Point ID Numbers

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EXHIBIT Z

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POINT INCIDENT DESCRIPTION & FACTUAL SUMMARY

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

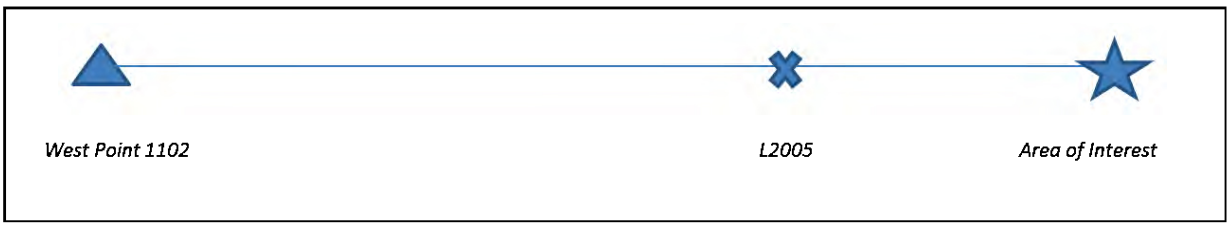
Background:

On October 9, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171009-8554) concerning an incident that occurred near 22894 Highway 26, West Point, Calaveras County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E arrived at the incident location, PG&E observed that a branch from a green, healthy California White Oak/Valley Oak tree had failed and one primary conductor on the West Point 1102 (12kV) Circuit also had failed. Per one troubleman who responded on the morning of October 9 and a photo taken by him of the incident location, the branch was lying on top of a section of unbroken conductor on the ground. Per another troubleman who also responded on the morning of October 9 and photos taken by him of the incident location, a bump sleeve was on the ground with the conductor pulled out. The tree was rooted approximately 50 feet from the distribution conductors.

According to CAL FIRE's website, the location of the Point fire is Highway 26 and Higdon Road, West Point. The location on the CAL FIRE website for the Point fire is approximately 1.5 miles from the incident location.

According to CAL FIRE's website, the Point fire started at 1:10 AM on October 9, 2017.

Incident Overview:



The incident location is served by the West Point 1102 Circuit. Fuse L2005 is the source-side protective device for the incident location.

October 9, 2017, per PG&E records, the three smart meters (service points 9288350905, 9288351905, and 9288365505) downstream of Fuse L2005, including the one smart meter downstream of the incident location, recorded a series of power off/on events and/or Zero Volt readings between 1:00 AM and 6:18 AM.

Per a troubleman and PG&E records, a troubleman manually opened Switch 98191 at 6:18 AM on October 9, 2017, at the request of CAL FIRE. Switch 98191 is one span upstream of Fuse

L2005. Per PG&E records, opening Switch 98191 de-energized 2,345 customers and the incident location.

According to PG&E records, another troubleman was the first PG&E employee at the incident location after the Point fire started. According to the troubleman, he patrolled tap lines load-side of Switch 98191 to check for outage causes in order to restore power on the morning of October 9, 2017. At 7:10 AM, the troubleman stated that he found one of two fuses open at Fuse L2005; the troubleman stated that he subsequently opened the other fuse at 7:16 AM. After the troubleman manually opened Fuse L2005, he recalled that he began to patrol the tap line load-side of Fuse L2005. The troubleman stated that he found one conductor down and a broken cross-arm five poles east of Fuse L2005. According to the troubleman, when he arrived, CAL FIRE was already on the scene. The troubleman recalled that fire had already moved through the area when he arrived. The troubleman also observed that several branches from a nearby oak tree had broken off, and he stated that the leaves on fallen branches were still green and had not burned. Per the troubleman and a photo taken by him of the incident location, he observed a bump sleeve on the ground with the conductor pulled out. Per PG&E records, the troubleman reported the broken cross-arm at 9:13 AM. Per the troubleman, he cut the downed conductor at both ends and left it onsite.

Per the troubleman who opened Switch 98191 and PG&E records, another troubleman arrived at the incident location shortly after the first troubleman and manually closed Switch 98191 at 8:21 AM, re-energizing 2,337 customers. Per the same troubleman and a photo taken by him of the incident location, one oak branch was laying on top of a section of unbroken conductor on the ground. The nearby oak tree, which PG&E believes to be a California White Oak/Valley Oak, was rooted approximately 50 feet from the distribution conductors. The conductor was 2CU (copper), installed in 1948. The incident location remained de-energized because Fuse L2005 was still open.

Per PG&E records, a PG&E crew completed repair work later on October 9, 2017. During restoration work, the crew discarded a broken cross arm and damaged conductor. Per PG&E records, a contract vegetation management crew also performed emergency tree trimming work related to the Point fire around the incident location on October 9, 2017. Per PG&E records, PG&E manually closed Fuse L2005 at 3:26 PM, re-energizing the incident location.

Evidence Collection:

PG&E is aware of CAL FIRE collecting a bump sleeve at the incident location. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On February 23, 2018, PG&E collected a California White Oak/Valley Oak tree branch and 11 smaller branches. As previously reported to the CPUC, PG&E discarded the broken cross-arm and damaged section of conductor, which may also have included a bump sleeve, during restoration work on October 9, 2017. [1]

[1] 02.16.18 Ltr to E. Malashenko; 03.13.18 Ltr. to. E. Malashenko.

Timeline:

Point **Event**	**CPUC Bates Number Reference**
October 9, 2017: 1:00-6:18 AM: Per PG&E records, the three smart meters downstream of Fuse L2005 recorded a series power off/on messages.	
October 9, 2017, 1:10 AM: According to CAL FIRE's website, the Point fire started.	
October 9, 2017, 6:18 AM: Per PG&E records, one troubleman manually opened Switch 98191.	PGE-CPUC_00015008, at 008
October 9, 2017, 7:10 AM: Per a second troubleman, one of two fuses at Fuse L2005 found open.	
October 9, 2017, 7:16 AM: Per the second troubleman and PG&E records, the troubleman reported manually opening the remaining fuse at Fuse L2005.	PGE-CPUC_00015008, at 008
October 9, 2017, 8:21 AM: Per PG&E records, the first troubleman manually closed Switch 98191.	PGE-CPUC_00015008, at 009
October 9, 2017, 9:13 AM: Both troublemen reported that several tree branches and a cross-arm had broken at the incident location.	PGE-CPUC_00015008, at 009
October 9, 2017: Per PG&E records, a PG&E crew completed repair work at the incident location. Per PG&E records, a contract vegetation management crew performed emergency tree trimming work related to the Point fire around the incident location.	PGE-CPUC_00015780
October 9, 2017, 3:26 PM: Per PG&E records, Fuse L2005 was manually closed, restoring power to the incident location.	PGE-CPUC_00015008, at 009

Source List:

Source	Brief Description
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_00015008	ILIS Outage Report 17-0085394
PGE-CPUC_00015124	West Point 1102 Circuit Map
PGE-CPUC_00015780	Electric Overhead Tag Notification # 113703340
PGE-CPUC_DR-112117_Common_Q35	Response to CPUC Question 35
PGE-CPUC_DR-112117_Common_Q36	Response to CPUC Question 36
PGE-CPUC_DR-112117_Common_Q46	Response to CPUC Question 46
Point Initial Electrical Safety Incident Report	10/9/2017 Initial Electrical Safety Incident Report (171009-8554)
Point Electrical Safety Incident Report	11/6/2017 20-Day Electrical Safety Incident Report
CAL FIRE Website	1/6/2018 "Point Fire Incident Description", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1875 (last updated Jan. 9, 2018).
PG&E Letter	2/16/2018 Letter to E. Malashenko regarding collection of evidence.
PG&E Letter	3/16/2018 Letter to E. Malashenko regarding collection of evidence.
AMI SmartMeter Data	AMI SmartMeter data
Invoice	Trees LLC Invoice S101417A
PGE-CPUC_00016775; PGE-CPUC_00016035;	Photos taken by troublemen.

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.

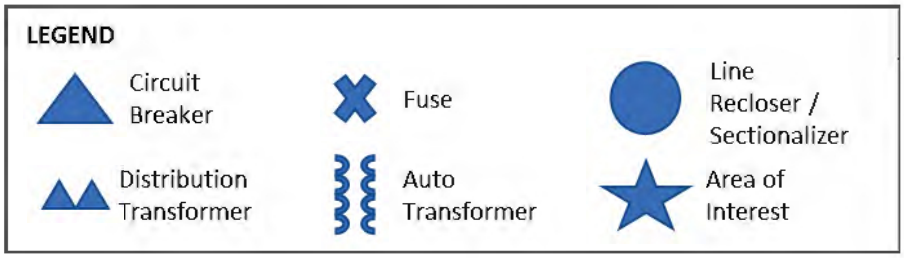
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT AA

POTTER VALLEY BUSCH RD. 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.

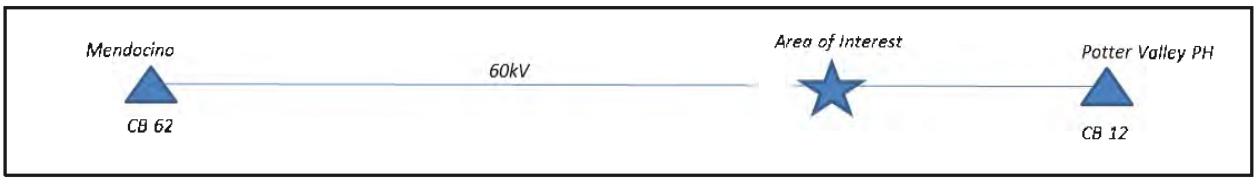
Background:

On October 9, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171009-8553) concerning an incident that occurred approximately 500 feet East of 13801 North Busch Road, Potter Valley, Mendocino County (the "incident location" as defined by the CPUC's December 7, 2017, letter). At the incident location the Potter Valley-Mendocino 60kV transmission line is mounted on the east side of the steel lattice structures. When PG&E arrived at the incident location, PG&E observed that a branch from a green, healthy California White Oak/Valley Oak tree had broken and was laying on the ground below 2 of 3 intact transmission conductors. PG&E also observed the middle conductor of the Potter Valley-Mendocino 60kV transmission line had broken and was on the ground. Three of three distribution conductors of the Potter Valley 1105 circuit, mounted on the west side of the steel lattice structures, were intact. The California White Oak/Valley Oak tree was rooted approximately 15 feet from the transmission conductors.

According to CAL FIRE's website, CAL FIRE has not identified a fire starting in Potter Valley. CAL FIRE has collected evidence at the incident location.

CAL FIRE has identified the Redwood Valley fire as occurring North of Highway 20, west of Mendocino National Forest, and south of Black Bart. According to CAL FIRE's website, the Redwood Valley fire started at 11:36 PM on October 8, 2017.

Incident Overview:



The transmission line at the incident location is the Potter Valley-Mendocino 60kV transmission line. Circuit Breaker 12 is a protective device north of the incident location, and is located at the Potter Valley Powerhouse Substation. Circuit Breaker 62 is a protective device south of the incident location, and it is located at the Mendocino Substation.

According to PG&E records, on October 8, 2017, Circuit Breaker 12 and Circuit Breaker 62 operated and locked out at approximately 11:33 PM. Per PG&E records, once Circuit Breakers 12 and 62 had automatically opened, the transmission conductors at the incident location were de-energized. Per PG&E records, the distribution conductors of the Potter Valley 1105 circuit routed through the incident location experienced a momentary outage at approximately the same

time because Line Recloser 64118 operated and reclosed. Apart from this momentary outage, the distribution conductors of the Potter Valley 1105 circuit routed through the incident location otherwise remained energized at this time because the Potter Valley Powerhouse Substation remained energized by the Potter Valley-Willits transmission line.

According to PG&E records, on October 8, 2017 at approximately 12:00 AM, the distribution conductors of the Potter Valley 1105 circuit routed through the incident location experienced momentary outages because Line Recloser 64118 operated and reclosed.[1] Later, at approximately 12:11 AM, the distribution conductors of the Potter Valley 1105 circuit routed through the incident location experienced additional momentary outages because Line Recloser 64118 operated and reclosed.

According to PG&E records, a troubleman was the first PG&E responder at the incident location. Per the PG&E troubleman, at 12:26 AM on October 9, 2017, he called the PG&E Distribution Control Center in Rocklin to request that the Potter Valley Powerhouse Substation be de-energized due to fire in the area.

According to PG&E records, on October 9, 2017, at approximately 12:33 AM, the Grid Control Center ("GCC") remotely opened via SCADA Circuit Breaker 22 at the Potter Valley Powerhouse Substation. Circuit Breaker 22 is the protective device for the Potter Valley-Willits transmission line located at the Potter Valley Powerhouse Substation. Then, at approximately 12:34 AM, Circuit Breaker 52G at Potter Valley Powerhouse Substation automatically opened and remained open, de-energizing the Potter Valley Powerhouse. Opening both Circuit Breaker 22 and 52G de-energized the distribution conductors at the incident location.

According to the PG&E troubleman, after the Potter Valley Powerhouse Substation was de-energized, CAL FIRE enlisted the troubleman to assist in cutting a downed conductor at the incident location. When he arrived at the Potter Valley incident location, the troubleman observed one conductor of the transmission line had come down near steel lattice structure number 0/8. The troubleman estimated about 100 yards of the transmission conductor to the south of the break point was laying on the ground, and the conductor span to the north of the break point was dangling above the ground. The troubleman also observed that a branch of a nearby tree had broken and was on the ground below the transmission line. Per the troubleman, he cut sections from both ends of the downed transmission conductor and provided them to CAL FIRE at CAL FIRE's request. The troubleman also observed charred vegetation in the area.

PG&E was granted access to the incident location again during daylight hours on October 9, 2017. At that time, PG&E identified that the tree was a California White Oak/Valley Oak tree and that it was rooted approximately 15 feet from the transmission line. The transmission conductor was #2CU (copper) installed in 1947.

By October 11, 2017, PG&E crews completed repair work at the incident location. On October 11, 2017 at around 2:56 PM, Circuit Breaker 12 was remotely closed via SCADA, re-energizing the Potter Valley Powerhouse Substation. This re-energized the transmission circuit at the incident location. On October 11, 2017 at around 5:00 PM, the Potter Valley Powerhouse Substation was again remotely de-energized via SCADA per CAL FIRE's request. This de-energized the transmission circuit at the incident location. On October 12, 2017 at 3:26 PM, the transmission line to the Potter Valley Powerhouse Substation was remotely re-energized via SCADA. This re-energized the transmission circuit at the incident location.

On October 13, 2017 at 9:27 AM, per PG&E records, a troubleman manually closed Line Recloser 64118, restoring distribution service to the Potter Valley 1105 circuit routed through the incident location.

Evidence Collection:

CAL FIRE collected sections of both ends of the downed transmission conductor. CAL FIRE also collected parts of a tree branch or branches from the incident location. PG&E does not know whether CAL FIRE collected additional evidence from the incident location.

On February 27, 2018, PG&E collected a branch and a section from a California White Oak/Valley Oak tree.

Timeline:

Potter		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 11:33 PM: Per PG&E records, Circuit Breaker 12 at the Potter Valley Powerhouse Substation operated and locked out.		
October 8, 2017, 11:33 PM: Per PG&E records, Circuit Breaker 62 at the Mendocino Substation operated and locked out.		PGE-CF_00140302
October 8, 2017, approximately 11:33 PM: Per PG&E records, Line Recloser 64118 operated and reclosed causing a momentary outage on the Potter Valley 1105 circuit routed through the incident location.		PGE-CF_00135210
October 8, 2017, 11:36 PM: According to CAL FIRE's website, the Redwood Valley fire started.		

October 9, 2017, approximately 12:00 AM: Per PG&E records, Line Recloser 64118 operated and reclosed causing momentary outages on the Potter Valley 1105 circuit routed through the incident location.[2]		PGE-CF_00135210
October 9, 2017, approximately 12:11 AM: Per PG&E records, Line Recloser 64118 operated and reclosed causing momentary outages on the Potter Valley 1105 circuit routed through the incident location.[3]		PGE-CF_00135210
October 9, 2017, approximately 12:33-12:34 AM: The GCC remotely opened Circuit Breaker 22 via SCADA at the Potter Valley Powerhouse Substation. Per PG&E records, Circuit Breaker 52G at Potter Valley Powerhouse Substation automatically opened and remained open. Opening Circuit Breakers 22 and 52G de-energized the Potter Valley Powerhouse Substation and the distribution conductors at the incident location.	PGE-CPUC_00015127	PGE-CF_00136317
October 9, 2017, approximately 3AM: According to a troubleman, he observed a broken branch laying on the ground below 2 of 3 intact transmission conductors. He also observed the middle conductor of the Potter Valley-Mendocino 60kV transmission line on the ground.		
October 9, 2017: CAL FIRE released the incident location site.		
October 11, 2017: Per PG&E records, repair work completed at incident location.		
October 11, 2017, 2:56 PM: Per PG&E records, Circuit Breaker 12 remotely closed via SCADA, re-energizing the Potter Valley Powerhouse Substation.	PGE-CPUC_00015127	PGE-CF_00136317
October 11, 2017, 5:00 PM: Per PG&E records, Potter Valley Powerhouse Substation remotely de-energized per CAL FIRE request.	PGE-CPUC_00015127	PGE-CF_00136317

October 12, 2017, 3:26PM: Per PG&E records, Potter Valley Powerhouse Substation remotely re-energized, restoring electric transmission service to incident location.	PGE-CPUC_00015127	PGE-CF_00136317
October 13, 2017, 9:27 AM: Per PG&E records, a troubleman manually closed Line Recloser 64118, restoring distribution service to the Potter Valley 1105 circuit routed through the incident location.	PGE-CPUC_00015127	PGE-CF_00136317

Source List:

Source	Brief Description
PGE-CPUC_00012216	Log of Evidence Collected by CAL FIRE (amended response)
PGE-CPUC_00015127	ILIS Outage Report 17-0085311
Redwood Electric Safety Incident Report	10/9/2017 Electric Safety Incident Report http://cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171009-8553.pdf
PGE-CPUC_00015140	Transmission Line Outage Report
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
PGE-CPUC_00015808	LC Tags
PGE-CPUC_00017161	Log of Evidence PG&E Collected (amended response)
Redwood Electric Safety Incident Report	20 Day Electric Safety Incident Report (EI171008A)
CAL FIRE Website	"Redwood Valley Fire (Mendocino Lake Complex) Incident Information" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1874
PGE-CPUC_00001203	Single Line Diagram
PGE-CF_00140302	Potter Valley Mendocino Line Operation 10/08/2017 Events
PGE-CF_00135234	SCADA Data
PGE-CF_00135210	Line Recloser Download from LR 64118
Response to Potter Q3	Response to CPUC's October 2017 Wildfire Data
PGE-CPUC_00016939	Photo to be produced to CPUC
Circuit Breaker 12 Relay Data	Circuit Breaker 12 Relay Data
Circuit Breaker 62 Relay Data	Circuit Breaker 62 Relay Data
Power Generation SCADA Alarms	Power Generation SCADA Alarms
Transmission Outage Tracking and Logging Tool (TOTL) Interruption Report	Transmission Outage Tracking and Logging Tool (TOTL) Interruption Report
10/9/2017 GCC Office Items Report	10/9/2017 GCC Office Items Report

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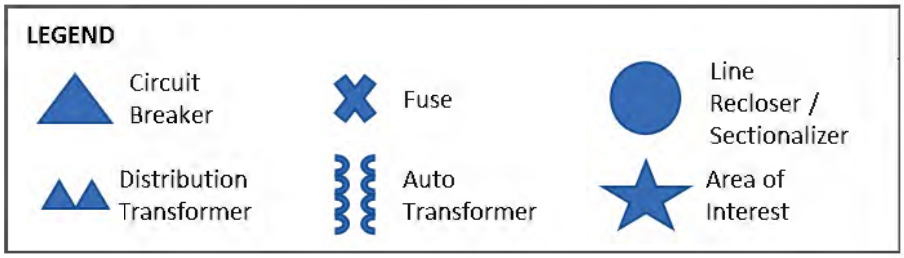

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PG&E has relied on certain operational data sets (*e.g.*, SCADA, AMI) in preparing these Reports. There may be data discrepancies between different operational data sources. For example, timestamps of a common event across different operational data 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.

<u>Reclosing Device Operations</u>

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.

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

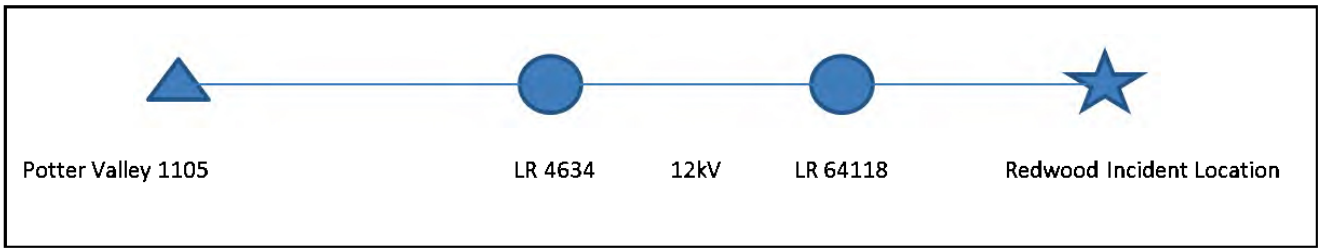
At the end of each Report, PG&E has included a list of records on which it relied in drafting each Report. When PG&E indicates in a Report that information is per PG&E records, PG&E is referring to the records identified at the end of the Report. Where records have been produced, PG&E provided the Bates 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.

EXHIBIT BB

REDWOOD LOCATION FACT REPORT

The Redwood incident location is the location on the PG&E system closest to the latitude and longitude coordinates (39°19.392, -123°07.867) which were provided in the April 20, 2018 communication from CAL FIRE to PG&E (the "Redwood incident location"). The electrical circuit that serves the Redwood incident location is the Potter Valley 1105 circuit.

Incident Overview



Per CAL FIRE, the Redwood incident location was first observed in the early morning hours of October 9, 2017. At the time of the incident, the Redwood Incident Location was on the 12kV Potter Valley 1105 Circuit.

The Redwood incident location is the location on the PG&E system closest to the latitude and longitude coordinates (39°19.392, -123°07.867) which were provided in the April 20, 2018 communication from CAL FIRE to PG&E (the "Redwood Incident Location"). The electrical circuit that serves the Redwood Incident Location is the Potter Valley 1105 circuit.

Line Recloser 64118 is a protective device upstream from the Redwood Incident Location on the Potter Valley 1105 circuit. According to PG&E records, on October 8, 2017 at approximately 11:33 PM, Line Recloser 64118 operated and reclosed, momentarily de-energizing the Redwood incident location. According to the CAL FIRE Investigation Report for the Redwood Incident, CAL FIRE started receiving reports of a vegetation fire in Potter Valley at 11:34 PM. Per PG&E records, on October 9, 2017 at approximately 12:00 AM, Line Recloser 64118 operated and reclosed, momentarily de-energizing the Redwood incident location. Per PG&E records, on October 9, 2017 at approximately 12:11 AM, Line Recloser 64118 operated and reclosed, momentarily de-energizing the Redwood incident location. Per PG&E records, on October 9, 2017 from 12:17 AM to 12:33 AM, a majority of smart meters on the Potter Valley 1105 circuit recorded a series of power off/on events. According to the CAL FIRE Investigation Report for the Redwood Incident, a CAL FIRE employee reported a small vegetation fire on the east side of Hawn Creek Road at 12:27 AM.

According to PG&E records, on October 9, 2017, at approximately 12:33 AM, the GCC remotely opened via SCADA Circuit Breaker 22 at the Potter Valley Powerhouse Substation. Then, at approximately 12:34 AM, Circuit Breaker 52G at

Potter Valley Powerhouse Substation automatically opened and remained open, de-energizing the Potter Valley Powerhouse. Per PG&E records, when both Circuit Breakers 22 and 52G were opened, the Redwood incident location was de-energized.

According to PG&E records, a PG&E troubleman was the first PG&E responder at the Redwood incident location when he drove down Hawn Creek Road around 1:12-1:32 AM on October 9, 2017. The PG&E troubleman drove south along Hawn Creek Road to look for downed wires or anything in the road that might be hazardous. The PG&E troubleman did not recall seeing any damage to PG&E equipment on Hawn Creek Road at that time. He did recall seeing fire activity on the west side of Hawn Creek Road, but saw no evidence that the fire burned any area on the east side of Hawn Creek Road.

Sometime later on October 9, 2017, during day light hours, the same PG&E troubleman recalled that he drove back down Hawn Creek Road. The PG&E troubleman recalled seeing one of three phases down between Pole 102176248 and the pole to the east. On October 10, 2017, PG&E crews completed repair work at the Redwood incident location.

Redwood Incident Location

The Redwood incident location is the location on the PG&E system closest to the latitude and longitude coordinates (39°19.392, -123°07.867), which were provided in the April 20, 2018 communication from CALFIRE to PG&E (the "Redwood incident location").

The timeline below includes a three hour window on either side of the start time designated by CAL FIRE in the April 20, 2018 communication, which was October 8, 2017, 11:30 PM.

Timeline

Redwood	
Event	**CAL FIRE Bates Number Reference**
October 8, 2017, approximately 11:33 PM: Per PG&E records, Line Recloser 64118 operated and reclosed, momentarily de-energizing the Redwood incident location.	PGE-CF_00135210
October 9, 2017, approximately 12:00 AM: Per PG&E records, Line Recloser 64118 operated and reclosed, momentarily de-energizing the Redwood incident location.	PGE-CF_00135210

Redwood	
Event	**CAL FIRE Bates Number Reference**
October 9, 2017, approximately 12:11 AM: Per PG&E records, Line Recloser 64118 operated and reclosed, momentarily de-energizing the Redwood incident location.	PGE-CF_00135210
October 9, 2017, 12:17 AM-12:33 AM: Per PG&E records, a majority of smart meters on the entire Potter Valley 1105 circuit recorded a series of power off/on events.	PGE-CF_00000055
October 9, 2017, approximately 12:33-12:34 AM: Per PG&E records, the PG&E GCC remotely opened via SCADA Circuit Breaker 22 at the Potter Valley Powerhouse Substation. Per PG&E records, Circuit Breaker 52G at Potter Valley Powerhouse Substation automatically opened and remained open. Per PG&E records, when both Circuit Breakers 22 and 52G were opened, the Redwood incident location was de-energized.	PGE-CF_00136317

Source List

Source	Brief Description
PGE-CF_00135210	Equipment Event Info – LR 64118
PGE-CF_00000055	AMI SmartMeter Data – PV 1105
PGE-CF_00136317	ILIS Outage Report 17-0085311
PGE-CF_00136317	ILIS Outage Report 17-0085311
Power Generation SCADA Alarms	Power Generation SCADA Alarms
GCC Office Items Report	GCC Office Items Report
AMI SmartMeter Data	AMI SmartMeter Data

EXHIBIT CC

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.

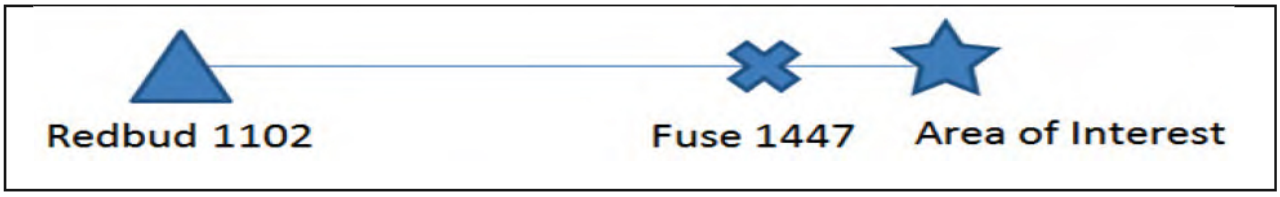
Background:

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

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:

Event	Sulphur CPUC Bates Number Reference	CAL FIRE Bates Number Reference
October 8, 2017, 11:59 PM: CAL FIRE reported start time for the Sulphur fire.		
October 9, 2017, 12:51 AM: 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
October 9, 2017, 2:14 AM: Per PG&E records, Switch 88137 was manually opened.	PGE-CPUC_00015148, at 153	PGE-CF_00136331
October 9, 2017, 2:20 AM: Per PG&E	PGE-CPUC_00015148,	PGE-CF_00136331

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

Source	Brief Description
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, http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171011-8562.pdf
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" http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1876 (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.

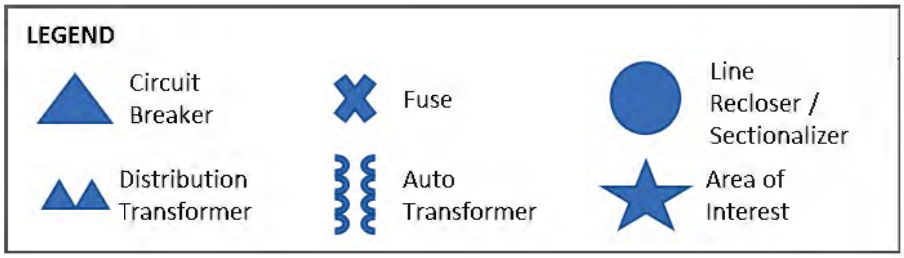
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT DD

TUBBS INCIDENT DESCRIPTION & FACTUAL SUMMARY

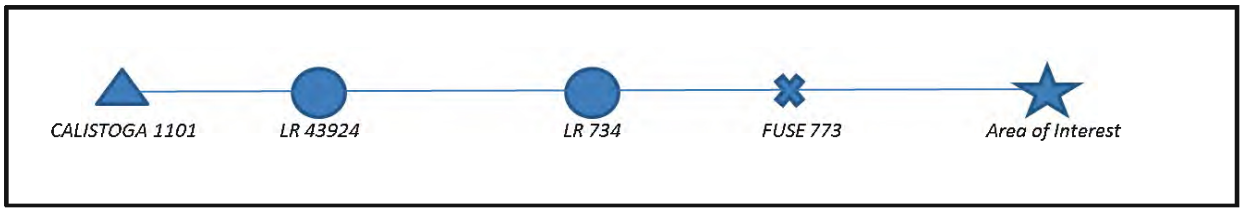
For completeness, this incident description and factual summary should be read in conjunction with the contemporaneously submitted response to Question 62.

Background:

On October 26, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171026-8601) concerning an incident that occurred near 1128 Bennett Lane, Calistoga, Napa County (the "incident location" as defined by the CPUC's December 7, 2017, letter). When PG&E was granted access to the incident location on October 25, 2017, PG&E observed that the only apparent damage to PG&E facilities was to a secondary service line that attached to the fire-damaged residential structure at 1128 Bennett Lane.

According to CAL FIRE's website, the Tubbs fire started at 9:45 PM on October 8, 2017, off of Highway 128 and Bennett Lane in Calistoga.

Incident Overview:



The incident location, which consists of the spans that are one span east and two spans north of Fuse 773, is served by the Calistoga 1101 (12kV) Circuit. Based on PG&E records, on October 8, at 9:20 PM, 18 smart meters downstream of Fuse 773 on the Calistoga 1101 Circuit recorded NIC Power Down events, and one smart meter at service point 3841237905 reported a Last Gasp event. The other 7 smart meters downstream of Fuse 773 have not reported data from October 8 through the end of 2017. Based on PG&E records, at 11:24 PM, Line Recloser 734, the closest line recloser upstream of the incident location, operated and locked out. Line Recloser 734 did not automatically reclose because it was part of the Wildfire Reclosing Operation Pilot Program, through which protection devices in certain high-risk wildfire areas were disabled during fire season in areas that were rated "Very High" or "Extreme" fire risk on a particular day. For additional information on the Pilot Program, please see PG&E's response to Question 91.

According to a PG&E troubleman who was the first responder on scene, he was assigned to a trouble assessment near Bennett Lane on October 11, 2017. According to the troubleman, he attempted to drive up the driveway of 1128 Bennett Lane to patrol the line, but was denied access by a guard. Based on PG&E records, at 4:25 PM on the same day, during the troubleman's subsequent patrol along Bennett Lane, the troubleman found two of three fuses blown at Fuse 773. Per the troubleman, he replaced the two blown fuses. Based on PG&E records, at 7:30 PM, the troubleman reported having closed Fuse 773 on a de-energized line. He also opened jumpers on the tap line feeding the incident location and on a pole-mounted transformer serving a structure on the south side of Bennett Lane due to not being able to patrol

the incident location. According to the troubleman, when he attempted to access the incident location again on October 12, 2017, to patrol the remaining portion of the tap line, CAL FIRE denied him access.

Based on PG&E records, on October 11, 2017, at 8:15 PM, Line Recloser 734 was manually closed, reenergizing parts of the line downstream of Fuse 773. Based on PG&E records, on October 13, 2017 at 1:10 PM, Line Recloser 734 was manually opened, due to ongoing fire activity. Based on PG&E records, on October 14, 2017 at 5:17 PM, Line Recloser 734 was closed manually, reenergizing parts of the line downstream of Fuse 773.

Based on PG&E records, on October 25, 2017, the remaining customers without fire damage downstream of Fuse 773 were restored manually by closing jumpers to the transformer one span east of Fuse 773.

CAL FIRE released the incident location on October 25, 2017.

Evidence Collection:

CAL FIRE collected a set of three distribution line fuses at Fuse 773, two of which the troubleman who was the first responder at the incident location had replaced prior to CAL FIRE's collection. These fuses were energized at the time of CAL FIRE's site visit, but were de-energized by PG&E prior to collection. CAL FIRE collected additional de-energized fuses and a de-energized, downed detached PG&E secondary service line composed of 2-strand aluminum triplex from a pole one span east and two spans north of Fuse 773. In addition, CAL FIRE collected customer-owned connectors and a customer-owned electrical conductor from the incident location, which served multiple pieces of customer-owned equipment at the incident location. Since the publication of the 20-day Electric Incident Report, PG&E became aware that CAL FIRE also collected three smart meters from structures near the incident location. PG&E is unaware of whether CAL FIRE collected additional evidence at the incident location.

On February 7, 2018, PG&E collected sections of copper wire and several paper casings from the ground below Fuse 773. On February 9, 2018, PG&E collected sections of the burnt customer-owned service pole from the incident location. On March 8, 2018, PG&E replaced the pole one span east of Fuse 773 (near 1151 Bennett Lane) due to fire damage. The original wood pole was retained. On April 23, 2018, PG&E collected a smart meter at 1200 Bennett Lane, a property neighboring the incident location, as well as conductor and a portion of a tree from 1128 Bennett Lane. This smart meter was not installed at the time of the fire, as it was a replacement for the meter taken as evidence by CAL FIRE.

Timeline:

Tubbs		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
October 8, 2017, 9:20 PM: Based on PG&E records, 18 smart meters downstream of Fuse 773 on the Calistoga 1101 Circuit recorded NIC Power Down events, and one smart meter at service point 3841237905 reported a Last Gasp event. The other 7 smart meters downstream of Fuse 773 have not reported data from October 8 through the end of 2017.		PGE-CF_00000033
October 8, 2017, 9:45 PM: According to CAL FIRE's website, the Tubbs fire started at this time.		
October 8, 2017, 11:24 PM: Based on PG&E records, Line Recloser 734, the closest line recloser upstream of the incident location, operated and locked out.	PGE-CPUC_00015429, at 429; PGE-CPUC 00001203, at 220; PGE-CPUC_00007911	PGE-CF_00136422; PGE-CF_00004959; PGE-CF_00000007
October 11, 2017, 4:25 PM: Based on PG&E records, a PG&E troubleman who was the first responder on scene found two of three fuses blown at Fuse 773, and per the troubleman, he replaced them.	PGE-CPUC_00015528	PGE-CF_00136459
October 11, 2017, 7:30 PM: Based on PG&E records, the troubleman reported closing Fuse 773 on a de-energized line.	PGE-CPUC_00015528	PGE-CF_00136459
October 11, 2017, 7:35 PM: Based on PG&E records, the troubleman also reported opening jumpers on the tap line feeding the incident location and on a pole-mounted transformer serving another structure on the south side of Bennett Lane.	PGE-CPUC_00015300	PGE-CF_00136373
October 11, 2017, 8:15 PM: Based on PG&E records, Line Recloser 734 was closed manually.	PGE-CPUC_00015429, at 429	PGE-CF_00136422, at 422
October 13, 2017, 1:10 PM: Based on PG&E records, Line Recloser 734 was manually opened.	PGE-CPUC_00015533	
October 14, 2017, 5:17 PM: Based on PG&E records, Line Recloser 734 was manually closed.	PGE-CPUC_00015367	PGE-CF_00136401
October 25, 2017, 4:34 PM: Based on PG&E records, the remaining customers without fire	PGE-CPUC_00015300; PGE-CPUC 00001203,	PGE-CF_00136373; PGE-CF_00004959

Tubbs		
Event	**CPUC Bates Number Reference**	**CAL FIRE Bates Number Reference**
damage downstream of Fuse 773 were restored manually by closing jumpers to the transformer one span east of Fuse 773.	at 220	
October 25, 2017: CAL FIRE released the incident location.[1]		

[1] PG&E's access to the site remains restricted by plaintiffs' counsel.

Source List:

Source	Brief Description
PGE-CPUC_00001203 PGE-CF_00004959	Tubbs single-line diagram response to CPUC Q28
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_00015300 PGE-CF_00136373	ILIS Outage Report 17-0086476
PGE-CPUC_00015528 PGE-CF_00136459	ILIS Outage Report 17-0086438
PGE-CPUC_00015429 PGE-CF_00136422	ILIS Outage Report 17-0085239
PGE-CPUC_00015533	ILIS Outage Report 17-0087141
PGE-CPUC_00015367 PGE-CF_00136401	ILIS Outage Report 17-0087211
PGE-CPUC_00015794	EC Tag #113742355 (completed 3/8/18)
PGE-CPUC_00007911 PGE-CF_00000007	SCADA Data
Response to Question 1	1/31/18 Response to CPUC's October 2017 Wildfire Data Request
Response to Question 91	3/30/18 Response to CPUC's October 2017 Wildfire Data Request
CPUC Letter	12/7/17 Letter Regarding Clarification for Commission's November 21, 2017 Data Request
CPUC Letter	2/16/18 Letter to E. Malashenko Regarding Evidence Collection
Tubbs Initial Electric Incident Report	10/26/17 Initial Electric Incident Report
Tubbs Electric Incident Report	11/27/17 20-Day Electric Incident Report
CAL FIRE Website	Tubbs Fire (Central LNU Complex) Incident Information, (last updated Feb. 9, 2018) http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1867
AMI Smart Meter Data	AMI Data including Service Points 3841300556, 3841303705, 3841304769, 2764451369 and 3841239005 (Produced to CAL FIRE as PGE-CF_00000033)
Supplemental AMI Smart Meter Data	Supplemental AMI Data for Service Points 979001798, 2764451369, 2980979305, 3841215005, 3841227505, 3841228605, 3841229605, 3841230605, 3841232717, 3841234805, 3841235905, 3841237905, 3841239005, 3841300556, 3841303705, 3841304769, 3841305705, 5866430205, 8293411205, 2427831535, 3841231705, 3841233816, 3841236952, 3841240002, 3841245205 and 3841246305

LR 734 Sequence of Events Data	Reclosing operations for LR 734
Supplemental SCADA Data	Supplemental SCADA data for LR 734 from 9/20/17 -- 10/18/17

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.

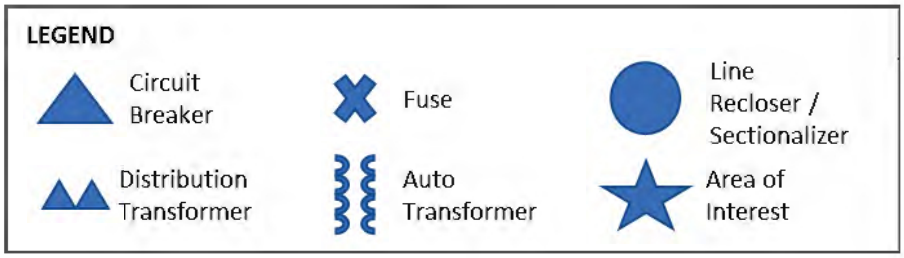
For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.

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.

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



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.

<u>Reclosing Device Operations</u>

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.

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.

EXHIBIT EE

SUPPLEMENT TO ADOBE INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that CAL FIRE investigators determined that the Adobe Fire was caused by a eucalyptus tree falling into a PG&E powerline. CAL FIRE has not publicly released its investigation report.

Supplemental Timeline Information:

The Adobe Factual Summary contained a timeline of PG&E's actions at or impacting the incident locations in the period immediately preceding CAL FIRE's designated start time until service to the incident locations was restored. The following additional information is relevant to the Adobe Fire timeline.

- October 8, 2017, 11:02 PM: REDCOM received its first 911 call regarding a fire at the Adobe incident location from an individual located at the Adobe incident location, the Chateau St. Jean Winery, 8555 Sonoma Highway (Highway 12) Kenwood, Sonoma County.
- October 9, 2017, 12:08 AM: At the direction of the Dispatch Operator, a PG&E troubleman manually opened Switch 1259, located upstream of Line Recloser 234, electrically isolating the section of the line between Switch 1259 and Line Recloser 234.

Supplemental Information Regarding Prior Inspections:

Between 2012 and October 2017, there were seven inspections of the vegetation at the incident location. PG&E's understanding based upon its records is that the subject tree was not identified for work during any of those inspections. Between 2009 and October 2017 there were four electric maintenance overhead inspection and patrols at the incident location. In addition, an inspection of poles on the incident span was conducted in 2017. Pole with SAP Equipment ID 101957980, one of the poles on the incident span, was marked "Replace". That pole was due to be replaced by November 30, 2018, but had not been replaced prior to the Adobe fire. Below is a summary of the vegetation management and electrical equipment patrols and inspections.

Date	Event	Findings
06/02/2009	PG&E performed an electric maintenance overhead inspection at the incident location.	PG&E's understanding based on its records is that no issues with PG&E equipment at the incident location were identified.
07/24/2012	PG&E performed an electric maintenance overhead patrol at the incident location.	PG&E's understanding based on its records is that no issues with PG&E equipment at the incident location were identified.

Date	Event	Findings
12/14/2012	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
02/05/2014	WECI performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
07/03/2014	PG&E performed an electric maintenance overhead inspection at the incident location.	PG&E's understanding based on its records is that three EC tags were created to trim overgrown vegetation above Guy Bob with a completion due date of July 3, 2019. PG&E's understanding based on its records is that work was not completed prior to the Adobe Fire.
03/27/2015	WECI performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
04/29/2016	WECI performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
06/28/2016	PG&E performed an electric maintenance overhead patrol at the incident location.	PG&E's understanding based on its records is that no issues with PG&E equipment at the incident location were identified.
10/19/2016 – 11/04/2016	WECI performed a CEMA patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
04/11/2017	PG&E conducted an inspection of poles at the incident location.	PG&E's understanding based on its records is that Pole with SAP Equipment ID 101957980, one of the poles on the incident span, was marked "Replace" and was due to be replaced by November 30, 2018, but was in fact replaced as part of restoration efforts on October 22, 2017.
07/11/2017	WECI performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
07/13/2017	WECI performed a CEMA patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Cause of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
Digital Switch Log	ILIS Outage Report 17-85286
Patrick Deignan Deposition	Patrick Deignan Deposition Transcript, 63:10-15; Deposition Exhibit 5
PGE-CF_00011217	Vegetation Management Inspection Records
PGE-CPUC_00020177; PGE-CPUC_00020182; PGE-CPUC_00020185	Electric Corrective Tags
PGE-CPUC_00007970; PGE-CPUC_00007977; PGE-CPUC_00007982; PGE-CPUC_00007990	Electric Maintenance Patrol/Inspection Daily Logs
PGE-CPUC_00006168	Pole Inspection Records
PGE-CPUC_00012586; PGE-CPUC_00012588; PGE-CPUC_00012589; PGE-CPUC_00012591	Vegetation Management CEMA Records
PGE-CPUC_00011388; PGE-CPUC_00011986	Vegetation Management CEMA Projects Lists for 2016 and 2017
PGE-CPUC_00010225	Vegetation Management Work Request
PGE-NBF-TP-0000001070	REDCOM Call
Physical Switch Log	Switching Log 17-85286

EXHIBIT FF

SUPPLEMENT TO ATLAS INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that its investigators determined that the Atlas Fire started in two different locations, both of which, according to CAL FIRE, involved contact between vegetation and PG&E's powerlines.

PG&E submits the following additional background:

Atlas 1. With respect to the Atlas 1 incident location, when the California White Oak/Valley Oak tree limb fell, it came to rest on a communications cable.

Atlas 2. With respect to the Atlas 2 incident location, PG&E has become aware that individuals performing fire restoration work on or around October 14, approximately six days after the Atlas fire ignited, marked the subject tree at Atlas 2 with blue/teal paint to indicate that the tree was fire-damaged and needed to be removed. The individuals then painted over the removal marking with the sign for trimming, indicating that the tree should be trimmed off the wire. Blue/teal paint is typically used for marking trees for removal *before* fires during one of PG&E's vegetation management patrols, whereas fluorescent green paint is typically used for marking trees for removal *after* fires. The individuals who marked the tree for removal and trimming following the fire informed PG&E that they had used the blue/teal paint to mark trees because they had run out of the fluorescent green paint, which was in limited supply in the immediate aftermath of the October 2017 wildfires.

Supplemental Evidence Collection Information:

PG&E indicated in the Atlas Factual Summary that CAL FIRE collected from the Atlas 1 incident location a primary conductor, a primary insulator and a California White Oak/Valley Oak tree branch. PG&E has learned that, in addition to those items, CAL FIRE also collected communications cable.

Supplemental Timeline Information:

The Atlas Factual Summary contained a timeline of PG&E's actions at or impacting the incident locations in the period immediately preceding CAL FIRE's designated start time until service to the incident locations was restored. The following additional information is relevant to the Atlas Fire timeline.

- October 8, 2017, 9:47 PM: Napa Dispatch received its first 911 call regarding the Atlas fire from an individual located at 3183 Atlas Peak Road.
- October 8, 2017, 10:00 PM: Several smart meters downstream of both incident locations powered down. These electrical events show that the line was still energized after the fire commenced. No smart meters downstream of the incident locations recorded data after 10:00 PM until service was restored on October 22, 2017.

- October 8, 2017, 10:10 PM: Napa City Fire Department sounded its alarm.
- October 14, 2017: Two contractors performing fire restoration work marked for removal the subject tree at the Atlas 2 incident location, then modified the marking to indicate that the tree should be trimmed off the wire. The contractors used blue/teal paint because they had run out of the fluorescent green paint typically used after fires.

Supplemental Information Regarding Prior Inspections:

Between 2012 and October 2017, there were eleven inspections of the vegetation at each incident location. PG&E's understanding based upon its records is that trees other than the subject trees were identified for work. The records do not indicate that work was prescribed for the subject trees. All incident poles passed their most recent inspections, in 2003 and 2012. Although damage was identified on three incident poles, the damage did not compromise any pole's strength and integrity. Between 2011 and October 2017, there were four overhead patrols and inspections. PG&E's understanding based upon its records is that no issues were found at either incident location identified by CAL FIRE.

Below are summaries of vegetation management patrols and inspections, pole inspections and electrical equipment patrols and inspections.

Date	Event	Findings
6/2003	PG&E performed intrusive pole inspections.	PG&E's understanding based upon its records is that all poles passed inspections. At the Atlas 1 incident location, one pole showed cracking, and one pole showed insect or animal damage. Neither pole's damage was substantial enough to require the pole's replacement or reinforcement. At the Atlas 2 incident location, one pole showed cracking. The pole's damage was not substantial enough to require the pole's replacement or reinforcement.
10/4/2011	PG&E performed an overhead inspection.	PG&E's understanding based upon its records is that no issues were identified at either incident location identified by CAL FIRE.
4/2012 – 5/2012	PG&E performed a vegetation management Public Safety & Reliability ("PS&R") patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Date	Event	Findings
4/26/2012	PG&E performed an overhead patrol.	PG&E's understanding based upon its records is that no issues were identified at either incident location identified by CAL FIRE.
10/2012	PG&E performed intrusive and visual pole inspections.	PG&E's understanding based upon its records is that all poles passed inspections. One pole at Atlas 1 showed rotting, insect or animal damage and termites. However, the damage was not substantial enough to require the pole's replacement or reinforcement.
10/3/2012	Davey Resource Group ("DRG") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
8/1/2013	DRG performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
2/20/2014	DRG performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
7/2014 – 9/2014	PG&E performed a vegetation management Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
9/8/2014	PG&E performed an overhead patrol.	PG&E's understanding based upon its records is that no issues were identified at either incident location identified by CAL FIRE.
2/5/2015	DRG performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
6/2015 – 7/2015	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
2/23/2016	DRG performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
4/2016 – 5/2016	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
8/2016	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Date	Event	Findings
10/2016 – 11/2016	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
9/13/2016	PG&E performed an overhead inspection.	PG&E's understanding based upon its records is that one pole near the Atlas 2 incident location was found to have a rotten crossarm, but that no issues were identified at either incident location identified by CAL FIRE.
1/13/2017	DRG performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
5/2017	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
8/4/2017	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
10/2017	DRG performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Source List:

Source	Brief Description
AMI Smart Meter Data	Data collected from smart meters on Atlas Peak Road
Atlas 20-Day Electric Incident Report	Incident No. 171020-8589, 20-Day Electric Incident Report to the CPUC (Nov. 17, 2017)
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Cause of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
Napa 911 Dispatch Records	Audio files of 911 calls made to Napa Dispatch on October 8, 2017 and October 9, 2017
Napa Fire Department Incident Reports	Napa Fire Department Incident Report #2017-0007498
PGE-CPUC_00011375	2012 Public Safety & Reliability Projects
PGE-CPUC_00014471	2014 All CEMA Projects
PGE-CPUC_00008042; PGE-CPUC_00008068	Electric Maintenance Inspection Daily Logs
PGE-CPUC_00008004; PGE-CPUC_00008030; PGE-CPUC_00008067	Electric Maintenance Overhead Inspection Records
PGE-CPUC_00008003	Electric Maintenance Patrol Daily Log
PGE-CF_00002866 – PGE-CF_00002876; PGE-CF_00002926 – PGE-CF_00002929	Electric Maintenance Patrol Daily Logs and Maps
PGE-CPUC_00008041	Electric Overhead Tag No. 112044188
PGE-CPUC_00008060	Electric Staged Tag No. 112044255
PGE-CPUC_00008032	Idle Facility Investigation Work Form No. 112044184
PGE-CPUC_00017162	Log of evidence collected by CAL FIRE
PGE-CPUC_00006183; PGE-CPUC_00006187; PGE-CPUC_00006197; PGE-CPUC_00006203; PGE-CPUC_00006205;	Pole Inspection Records
PGE-CPUC_00012593; PGE-CPUC_00012595; PGE-CPUC_00012597; PGE-CPUC_00012598	Vegetation Management CEMA Patrol Records
VM Work Request NPNB1014534; PGE-CPUC_00009913; PGE-CPUC_00009933; PGE-CPUC_00010230; PGE-	Vegetation Management Work Requests and Records

Source	**Brief Description**
CPUC_00010232; PGE-CPUC_00010233	
PGE-CPUC_00011183; PGE-CPUC_00011388; PGE-CPUC_00011986	Yearly CEMA Projects

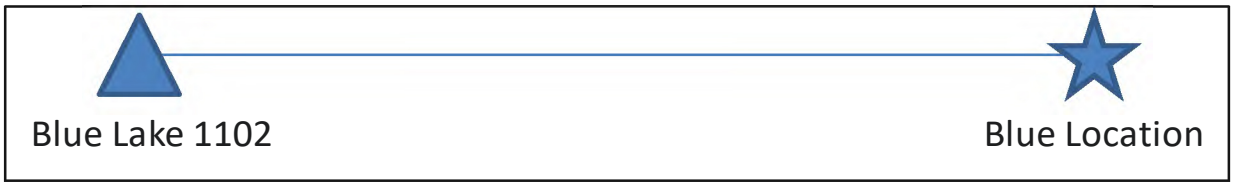
EXHIBIT GG

BLUE INCIDENT DESCRIPTION & FACTUAL SUMMARY

Background:

According to the California Department of Forestry and Fire Prevention ("CAL FIRE"), the Blue Fire started at 4:40 PM on October 8, 2017. CAL FIRE lists the location of the Blue Fire as "off of Blue Lake Blvd and Hwy 299, east of Eureka" on its website, and provided latitude and longitude coordinates relating to the Blue Fire (40º53.272, -123º59.512) in a December 14, 2017 communication from CAL FIRE to PG&E (the "Blue Location"). According to CAL FIRE, the Blue Fire did not destroy any structures or cause any injuries and burned a total of 20 acres.

Incident Overview:



According to a CAL FIRE press release dated June 8, 2018, the Blue Fire was ignited when a PG&E power line conductor separated from a connector and fell to the ground. A PG&E troubleman observed a downed conductor separated at an automatic splice at the Blue Location.

Evidence Collection:

PG&E is aware that CAL FIRE collected an automatic splice from the Blue Location.

Timeline:

On August 3, 2018, PG&E provided this timeline of events involving PG&E equipment at the Blue Location to the CPUC. The timeline includes events that took place during the three hour window on either side of the start time designated by CAL FIRE.

Event	Source(s)
October 8, 2017, 4:37 PM: Per PG&E records, Blue Lake Substation Circuit Breaker 1102 operated and reclosed.	AMI Data for Blue Lake 1102 SCADA Data for Blue Lake 1102 ILIS Outage Report 17-0085141 Switch Log 17-85141 (listing time as 4:36 PM)
October 8, 2017, 4:40 PM: Start time for Blue incident per CAL FIRE's website.	CAL FIRE website: (http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1864)
October 8, 2017, 4:41 PM: Per PG&E records, Blue Lake Substation Circuit Breaker 1102 operated and locked out, de-energizing the Blue Location.	ILIS Outage Report 17-0085141 AMI Data for Blue Lake 1102 SCADA Data for Blue Lake 1102

Event	**Source(s)**
	Switch Log 17-85141
October 8, 2017, 5:36 PM: Per PG&E records, Switch 4761 was manually opened by a troubleman. This switch is upstream of the Blue Location and downstream of Blue Lake Substation Circuit Breaker 1102.	ILIS Outage Report 17-0085141
October 8, 2017, 5:40 PM: Per PG&E records, Blue Lake Substation Circuit Breaker 1102 was closed via SCADA; however, the Blue Location remained de-energized because Switch 4761 was open.	ILIS Outage Report 17-0085141 AMI Data for Blue Lake 1102 SCADA Data for Blue Lake 1102 Switch Log 17-85141

Source List:

Source	**Brief Description**
AMI Data	AMI Data for Blue Lake 1102 Circuit
Blue Fire Incident Information	Blue Fire Incident Information, CAL FIRE, http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1864 (last updated Jan. 9, 2018)
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties," June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
ILIS Outage Report	ILIS Outage Report 17-0085141
SCADA Data	SCADA Data for Blue Lake 1102 Circuit
Switch Log 17-85141	Switch Log 17-85141

EXHIBIT HH

SUPPLEMENT TO CASCADE INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On September 24, 2018, CAL FIRE released its Investigation Report for the Cascade Incident, which is publicly available on CAL FIRE's website at the following link: http://calfire.ca.gov/fire_protection/downloads/FireReports/CascadeFire_InvestigationReport_Redacted.pdf.

According to that report, CAL FIRE investigators concluded that the Cascade Fire was "due to line sag during the October 8, 2017 wind event".

Supplemental Evidence Collection Information:

PG&E indicated in the Cascade Factual Summary that CAL FIRE collected an intact span of primary distribution conductors on a tap line serving 13916 Cascade Way as well as customer-owned electric equipment, including the customer service panel, and PG&E collected parallel groove connectors, unblown liquid transformer fuses, a dead-end transformer pole with a cross arm and a transformer.

In addition to those items, on April 20, 2018, PG&E collected customer owned electrical equipment (four sections of a customer owned pole, a dryer, a bag containing customer wiring and parts for the dryer) at 14034 Cascade Way, Browns Valley. PG&E also collected smart meter #106 399 627/1007531164 from 14034 Cascade Way.

Supplemental Timeline Information:

The Cascade Factual Summary contained a timeline of PG&E's actions at or impacting the incident locations in the period immediately preceding CAL FIRE's designated start time until service to the incident locations was restored. The following additional information is relevant to the Cascade Fire timeline.

- October 8, 2017, 10:00 PM: PG&E records indicate that a smart meter at service point 1062306405, located downstream of Fuse 5211, but not downstream of Fuse 17841, recorded a Swell, Sag and Zero Volt Reading.
- October 8, 2017, 10:57 PM: PG&E records indicate that at 10:57 PM the following events occurred:
    - PG&E records indicate that 9 of the 13 smart meters downstream of Fuse 17841 recorded a NIC Power Down or Last Gasp event.
    - PG&E records indicate that 21 of 25 smart meters downstream of Fuse 5211, but not downstream of Fuse 17841, recorded a NIC Power Down event.
    - PG&E records indicate that Line Recloser 1806 and Line Recloser 31502, both upstream from the Incident Location, reported above minimum-to-trip ("MTT") alerts.

- October 8, 11:00:38 PM: Yuba Sheriff Dispatch received a call about the Cascade Fire from an individual at 13852 Cascade Way, Browns Valley, who reported that "her field is on fire" and that the fire is approximately "the size of a house" and is "coming towards her house".
- October 8, 2017, 11:29 PM: Fire Trucks 527 and 565 arrived on scene at 14034 Cascade Way, Browns Valley.
- October 9, 2017, 12:15 AM: Fire Truck 539 arrived on scene at 14034 Cascade Way and Fire Truck 1524 arrived on scene at 13852 Cascade Way, Browns Valley.
- October 9, 2017, 12:23 AM: Fire Truck 1506 arrived on scene at 13852 Cascade Way, Browns Valley.
- October 9, 2017, Early Morning: According to CAL FIRE's Cascade Investigation Report, a dozer operator cut a line between 13916 and 14034 Cascade Way and observed a fire moving downhill (North) from 13916 Cascade Way. Per the CAL FIRE report, later that morning, a fire crew arrived and "used fire to improve the line".

Supplemental Information Regarding Prior Inspections:

The last pole inspection at the incident location occurred on October 22, 2007 and PG&E's records indicate that all poles passed intrusive pole inspections at that time. Between 2012 and October 2017, there were six vegetation inspections at the incident location. Between 2009 and October 2017 there were five electric maintenance overhead inspections and patrols at the incident location. Below is a summary of the vegetation management and electrical equipment patrols and inspections.

Date	Event	Findings
10/22/2007	PG&E performed intrusive pole inspections at the incident location.	PG&E's understanding based upon its records is that all poles at the incident location passed testing.
07/02/2009	PG&E performed an electric maintenance overhead inspection at the incident location.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
04/03/2013	ACRT performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that trees were identified for work, but there is no alleged subject tree associated with this incident location.
06/04/2013	PG&E performed an electric maintenance overhead inspection at the incident location.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.

Date	Event	Findings
05/29/2014	ACRT performed a vegetation management routine patrol at the incident location	PG&E's understanding based on its records is that no trees were identified for work.
08/5-6/2014	PG&E performed an electric maintenance overhead inspection at the incident location.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
06/04/2015	ACRT performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that no trees were identified for work.
06/29/2016	ACRT performed a vegetation management routine patrol at the incident location.	PG&E's understanding based on its records is that no trees were identified for work.
09/30/2015	PG&E performed an electric maintenance overhead patrol at the incident location.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
9/30/2016 - 10/05/2016	ACRT performed a Catastrophic Event Memorandum Account ("CEMA") patrol that included the incident location.	PG&E's understanding based upon its records is that no trees near the incident location were identified for work.
09/22/2017	PG&E performed an electric maintenance overhead patrol at the incident location.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
09/30/2017	ACRT performed a vegetation management routine patrol at the incident location.	PG&E's understanding based upon its records is that no trees near the incident location were identified for work.

Source List:

Source	**Brief Description**
AMI Smart Meter Data	AMI Smart Meter Data
Electric Maintenance Patrol/Inspection Log and Notification Sheet	6/4/2013 Electric Maintenance Patrol/Inspection Log and Notification Sheet
Evidence Log	Spreadsheet showing evidence collected in connection with the North Bay Fires, provided to CPUC on August 15, 2018
CAL FIRE Cascade Investigation Report	9/24/2018 CAL FIRE Investigation Report from the Cascade Fire http://calfire.ca.gov/fire_protection/downloads/FireReports/Cascade Fire_InvestigationReport_Redacted.pdf
PGE-CF_00137638; PGE-CF_00137639	SCADA Data
PGE-CPUC_00008144; PGE-CPUC_00008152; PGE-CPUC_00008157; PGE-CPUC_00008158	Electric Maintenance Patrol/Inspection Logs and Notification Sheets
PGE-CPUC_00006207; PGE-CPUC_00006208; PGE-CPUC_00006209; PGE-CPUC_00006210; PGE-CPUC_00006211; PGE-CPUC_00006212; PGE-CPUC_00006213	Pole Inspection Records
PGE-CPUC_00012605	Vegetation Management CEMA Record
PGE-CPUC_00009966	Vegetation Management Inspection Records
Yuba Sheriff Dispatch Call Logs	10/8/2017 – 10/13/2017 Logs of dispatch calls from the Yuba County Sheriff's Department

EXHIBIT II

SUPPLEMENT TO CHEROKEE INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

CAL FIRE released its Investigation Report, 17CABTU015933, on June 8, 2018. The report is publicly available via the following link on the CAL FIRE website: http://calfire.ca.gov/fire_protection/downloads/FireReports/17CABTU015933%20-%20Cherokee%20Fire_Redacted.pdf.

Supplemental Timeline Information:

The Cherokee Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Cherokee Factual Summary timeline.

- July 21, 2014: The subject tree was trimmed by Utility Tree Service, LLC. PG&E records indicate that trimmers achieved at least fifteen feet of clearance between the subject tree and the conductors.
- June 7, 2016: The subject tree was trimmed by Utility Tree Service, LLC. PG&E records indicate that trimmers achieved at least fifteen feet of clearance between the subject tree and the conductors.
- October 8, 2017, 9:09 PM: Butte County dispatch received its first 911 call in connection with the Cherokee incident from an individual located at 3401 Cherokee Road.
- October 8, 2017, 9:24 PM: Butte County dispatch received a second 911 call from an individual located at 3401 Cherokee Road who called to report a fire.

Supplemental Information Regarding Prior Inspections:

Between September 2012 and October 2017, there were seven vegetation management inspections at the incident location. PG&E's understanding based upon its records is that the subject tree was identified for work on June 17, 2014 and May 2, 2016, with pruning completed shortly thereafter each respective inspection. Between August 2012 and October 2017, there were three electric maintenance overhead patrols and inspections at the incident location. Additionally, intrusive pole test and treat inspections at the incident location took place on December 31, 2008. PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified during those patrols and inspections. Below is a summary of vegetation management patrols and inspections, electric maintenance overhead patrols and inspections, and intrusive pole Test and Treat inspections.

Date	Event	Findings
12/31/2008	PG&E contractor performed intrusive pole inspections on Poles 100404387 and 100435569.	PG&E's understanding based upon its records is that the subject poles were not identified for work.

Date	Event	Findings
08/29/2012	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no work was identified at the incident location.
06/18/2013	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
06/17/2014	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was identified for work and that Utility Tree Service, LLC completed the trimming on July 21, 2014.
07/07/2014	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no work was identified at the incident location.
08/05/2015	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
05/02/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was identified for work and that Utility Tree Service, LLC completed the trimming on June 7, 2016.
09/19/2016	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no work was identified at the incident location.
11/03/2016 – 11/11/2016	A PG&E contractor performed a vegetation management aerial Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
07/19/2017	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
09/28/2017 – 10/11/2017	A PG&E contractor performed a vegetation management aerial CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
Butte County 911 Log	Butte County 911 Log
PGE-CPUC_00008169; PGE-CPUC_00008172	Electric Maintenance Overhead Inspection Records
PGE-CPUC_00008164; PGE-CPUC_00008166; PGE-CPUC_00008178; PGE-CPUC_00008176	Electric Maintenance Overhead Patrol Records
PGE-CPUC_00006215; PGE-CPUC_00006217	Pole Inspection Records
PGE-CPUC_00012609; PGE-CPUC_00012607	Vegetation Management CEMA Records
PGE-CPUC_00009972–PGE-CPUC_000100019	Vegetation Management Routine Patrol Records
PGE-CPUC_00010257; PGE-CPUC_00010276	Vegetation Management Work Records

EXHIBIT JJ

SUPPLEMENT TO HONEY LOCATION FACT REPORT

Supplemental Background Information:

As part of discovery in civil litigation regarding the October 2017 wildfires, the California Department of Forestry and Fire Prevention ("CAL FIRE") recently produced its Investigation Report, 17CABTU015990-102 (the "CAL FIRE Report"). On May 25, 2018, CAL FIRE issued a press release stating that the Honey Fire was caused by an oak tree branch contacting PG&E powerlines.

PG&E submits the following background information:

The CPUC's designated area of interest is 2484 Honey Run Road in Chico and includes a span of two conductors between two utility poles. A PG&E troubleman observed a broken tree branch in contact with a PG&E conductor at the Honey Fire area of interest during the night of October 9-10, 2017, while assisting CAL FIRE in responding to the Honey Fire.

Supplemental Evidence Collection Information:

PG&E indicated in the Honey Fact Report that PG&E collected two branch sections from a Live Oak from the Honey area of interest, but stated that PG&E did not know whether CAL FIRE collected additional evidence from the area of interest.

In addition, since preparing the Honey Fact Report, PG&E has collected two additional branch sections from the same Live Oak and two overhead conductors.

Supplemental Timeline Information:

The Honey Factual Report contained a timeline of PG&E's actions at or impacting the area of interest in the period immediately preceding CAL FIRE's designated start time until service to the area of interest was restored. The following additional information is relevant to the Honey Factual Report timeline.

- August 15, 2017: The subject tree was trimmed by Utility Tree Service, LLC. PG&E records indicate that trimmers achieved at least twelve feet of clearance between the subject tree and the conductors.
- October 9, 2017, 3:03 PM: CAL FIRE received a 911 call reporting a vegetation fire near 2485 Honey Run Road.

Supplemental Information Regarding Prior Inspections:

Between October 2014 and October 2017, there were six vegetation management inspections at and near the area of interest. PG&E's understanding based upon its records is that the Live Oak tree near 2484 Honey Run Road ("the subject tree") was identified for work once, on July 25, 2017, with the trimming completed on August 15, 2017. There was an electric maintenance overhead inspection at and near the area of

interest on April 24, 2017. PG&E's understanding based upon its records is that no issues were identified with PG&E equipment at the area of interest during that inspection. Below is a summary of vegetation management patrols and inspections and the electric maintenance overhead inspection.

Date	**Event**	**Findings**
5/11/2015	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/6/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
8/1/2016–8/2/2016	A PG&E contractor performed a vegetation management aerial Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
11/3/2016	A PG&E contractor performed a vegetation management aerial Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
4/24/2017	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no issues were identified with PG&E equipment at the area of interest.
7/25/2017	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was identified for work, and was trimmed by Utility Tree Service, LLC on August 15, 2017.
9/29/2017	WECI performed a vegetation management aerial CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Report	CAL FIRE Investigation Report 17CABTU015990, Honey Fire
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties," May 25, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause%20v2%20AB%20(002).pdf
Evidence Log	Spreadsheet showing evidence collected in connection with the North Bay Fires, provided to CPUC on August 15, 2018
PGE-CF_00004926; PGE-CF_00004939	Electric Maintenance Overhead Inspection Records
PGE-NBF-0000020974; PGE-NBF-0000020976	Vegetation Management CEMA Records
PGE-CPUC_ 00011998	PG&E Annual Vegetation Management Plans
PGE-CPUC_00011399	PG&E Annual Vegetation Management Plans
PGE-NBF-0000021032	Vegetation Management Routine Patrol Record
PGE-NBF-0000020978	Vegetation Management Tree Trimming Record

EXHIBIT KK

SUPPLEMENT TO LAPORTE INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On May 20, 2018, CAL FIRE publicly released its Investigation Report, 17CABTU015954, regarding the LaPorte fire. The report is publicly available via the following link on the CAL FIRE website: http://calfire.ca.gov/fire_protection/downloads/FireReports/La%20Porte%2017CABTU015954_Redacted.pdf.

Supplemental Timeline Information:

The LaPorte Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the LaPorte Factual Summary timeline.

- October 8, 2017, 11:24 PM: Butte County Sheriff dispatch received a 911 report of a fire from 16 Paul Place and Darby Road, Bangor.

Supplemental Information Regarding Prior Inspections:

Between September 2012 and October 2017, there were eight vegetation management inspections at or near the incident location. A number of trees were identified for work during these inspections. PG&E's understanding based upon its records is that the subject tree was not identified as needing work during any of those inspections. Between June 2012 and October 2017, there were four electric maintenance overhead patrols inspections at or near the incident location. PG&E's understanding based upon its records is that there was one electric corrective tag issued at the incident location as a result of these patrols and inspections, and it was addressed the same day. Below is a summary of vegetation management patrols and inspections and electric maintenance overhead patrols and inspections at or near the incident location.

Date	Event	Findings
8/23/2013	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol.	PG&E's understanding based on its records is that the subject tree was not identified for work.
11/24/2013 – 11/27/2013 and 12/2/2013	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that one electric corrective tag was issued for the incident location. EC #107511521 noted one of the subject poles was a missing high voltage sign. PG&E installed a replacement sign on the same day.

Date	Event	Findings
7/16/2014 – 8/5/2014	WECI performed an aerial vegetation management Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/10/2014	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/30/2015	WECI performed an aerial vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
9/10/2015	ACRT, Inc. ("ACRT") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
11/19/2015	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
11/20/2015	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
4/13/2016 – 4/29/2016	WECI performed an aerial vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/27/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
3/7/2017 – 3/11/2017	WECI performed an aerial vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/18/2017	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.

Source List:

Source	**Brief Description**
CAL FIRE Report	CAL FIRE Investigation Report 17CABTU015954, LaPorte Fire http://calfire.ca.gov/fire_protection/downloads/FireReports/La%20Porte%2017CABTU015954_Redacted.pdf.
Event 17-AF8208	Butte County Sheriff Public Log
PGE-CPUC_00008180– PGE-CPUC_00008193; PGE-CPUC_00008201–PGE-CPUC_00008211; PGE-CPUC_00008213–PGE-CPUC_00008217	Electric Overhead Inspection and Patrol Records
PGE-CPUC_00012611; PGE-CPUC_000126	Vegetation Management CEMA Records
PGE-CPUC_00011472	PG&E Annual VM Plans
PGE-CPUC_00010020–PGE-CPUC_00010027; PGE-CPUC_00010032–PGE-CPUC_00010036	Vegetation Management Inspection and Patrol Records
PGE-CPUC_00010277– PGE-CPUC_00010286;	Vegetation Management Work Request Records
Yubabet.com Website	https://yubanet.com/Fires/lobo/.

EXHIBIT LL

SUPPLEMENT TO LOBO INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On May 25, 2018, CAL FIRE issued a press release stating that the Lobo fire was "caused by a tree contacting PG&E power lines." CAL FIRE has not publicly released its investigation report.

Supplemental Timeline Information:

The Lobo Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Lobo Factual Summary timeline.

- September 13-15, 2016: 46 trees at or near the incident location were felled as a result of PG&E's drought and tree mortality response program.
- October 8, 2017 11:32 PM: Nevada City 911 caller reported the first instance of a house fire on Lone Lobo Trail.
- October 8, 2017, 11:33 PM: Nevada City 911 caller reported a lawn fire.
- October 8, 2017, 11:37 PM: Yubanet.com website reported: "Vegetation fire, Lone Lobo Trail in Nevada City off Bitney Springs Road, Penn Valley, Grass Valley, Rough&Ready Fire responding."

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were eight vegetation management inspections at or near the incident location. Between August 2014 and October 2017, there were three electric maintenance overhead inspection and patrols at or near the incident location. Additionally, intrusive pole inspections at the incident location took place between December 2016 and January 2017. PG&E's understanding based upon its records is that the subject tree and the subject poles were not identified for work during any of those inspections. Below is a summary of vegetation management patrols and inspections, intrusive pole inspections, and electric overhead patrols and inspections at or near the incident location.

Date	Event	Findings
11/13/2012	ACRT, Inc. ("ACRT") performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/13/2014	ArborMetrics performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Date	Event	Findings
8/28/2014	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
3/23/2015	ArborMetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/4/2015	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
7/9/2015 – 8/20/2015	ArborMetrics performed an aerial vegetation management Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/13/2016	Arbormetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
8/2/2016 – 9/15/2016	ArborMetrics performed a ground vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
12/22/2016	The Davey Tree Expert Company ("Davey Tree") performed intrusive pole inspections at or near the subject poles.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
1/19/2017	Davey Tree performed intrusive pole inspections at or near the subject poles.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
2/14/2017	ArborMetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
7/10/2017	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
7/25/2017	A PG&E contractor performed an aerial vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release "CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties", May 25, 2018. http://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause%20v2%20AB%20(002).pdf
NCSO CAD Event No: 1710080205.	Nevada County Sheriff's Office Dispatch Records
PGE-CPUC_00008222–PGE-CF_00008251; PGE-CPUC_00008257–PGE-CF_00008261	Electric Overhead Inspection and Patrol Records
PGE-CPUC_00020774	Notices of Tree Work
PGE-CPUC_00011202; PGE-CPUC_00012040	PG&E Annual Vegetation Management Plans
PGE-CPUC_00006227-00006244;	Pole Inspection Records
PGE-CPUC_00012615–PGE-CPUC_00012620	Vegetation Management CEMA Records
PGE-CPUC_00010287–PGE-CPUC_00010293	Vegetation Management Work Request Records
PGE-CPUC_00010037– PGE-CPUC_00010040; PGE-CPUC_00010042–PGE-CPUC_00010044; PGE-CF_00137089–PGE-CF_00137091; PGE-CF_00137098–PGE-CF_00137100; PGE-CF_00137104–PGE-CF_00137106; PGE-CF_00137110–PGE-CF_00137112	Vegetation Management Inspection and Patrol Records
Yubabet.com Website	https://yubanet.com/Fires/lobo/.

EXHIBIT MM

SUPPLEMENT TO MAACAMA INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

CAL FIRE has not yet issued any determination as to the cause of the Maacama fire.

PG&E submits the following background information:

In response to data requests asking for additional details concerning the electrical devices which serve 995 Maacama Lane, Healdsburg, Sonoma County (the "incident location" as defined by the CPUC's December 7, 2017, letter) or work done at or near the incident location, PG&E has provided the following information to CAL FIRE and the CPUC:

- Fuse 751, the closest fuse upstream of the incident location, is a 10T fuse. The manufacturer time curve, which PG&E provided at PGE-CPUC_00020180 – PGE-CPUC_00020181, delineates both the length of time and the current required for fusible elements to melt, as well as the length of time and current required for the fuse to clear the line. Because Fuse 751 is a traditional fuse and does not record data, PG&E does not know what fault magnitude and duration caused Fuse 751 to operate, and does not know whether Fuse 751 operated according to the manufacturer time curve.

- PG&E provided event data for Line Recloser 4994 and Line Recloser 4522 (both of which lie upstream of Fuse 751 on the Fulton 1102 Circuit) for October 8, 2017, at PGE-CPUC_00020608 and PGE-CPUC_00020609, respectively. Both show the reclosers recording control alarms between 10:16 and 10:17 PM, which is the time at which the Fulton 1102 Circuit Breaker opened and remained open, de-energizing the circuit.

- In response to a data request asking for the settings for the Fulton 1102 Circuit Breaker prior to and after the Maacama incident, PG&E produced documents showing current settings for the Fulton 1102 Circuit Breaker, which were set on May 23, 2017 and have remained unchanged to date, at PGE-CPUC_00020610 to PGE-CPUC_00020734.

- In response to a data request asking whether any vegetation was cleared at the incident location between October 8, 2017 and October 20, 2017, PG&E produced a vegetation contract work record performed by Davey Tree indicating that a standing tree was identified for removal due to fire damage at 905 Maacama Lane, an address near the incident location.

In addition, in one data request, the CPUC asked for additional details concerning the wire down[1] on Highway 101 on October 8, 2017, which was reported in the Maacama

[1] The wire down near Highway 101 was determined by PG&E to have not met any of the five criteria for reportable electrical incidents, as set forth on the Electric Incident Report ("EIR") Forms that PG&E submits to the CPUC for reportable incidents because: 1) there were no known injuries or fatalities; 2) there was no significant public or media attention for this incident; 3) there was no known property damage; 4)

Factual Summary as the source of the outage affecting the Fulton 1102 Circuit, which serves the incident location.[2] The wire down occurred between Highway 101 and Hembree Lane, at the span between the second and third pole north of intersection of Hembree Lane and Victory Lane in Windsor, CA. The approximate coordinates of this location are 38°31'47.67"N, 122°47'36.78"W. PG&E responded that it has not been able to determine the cause of the wire down. The foreman of the repair crew who replaced the conductor on October 10, 2017 did not recall seeing nor did he document any clear indicators of causes in the course of his repair work. PG&E also does not know the exact time that the wire down occurred. PG&E's Outage Information System ("OIS") reported the wire down at approximately 2231 hours on October 8, 2017, and the troubleman that responded to the wire down arrived at the location of the wire down at approximately 2253 hours that night.

In another data request, the CPUC asked whether the incident location was identified as a higher potential fire risk for Vegetation Management. In response, PG&E stated that the incident location was inspected in connection with at least one of PG&E's projects addressing areas of higher potential risk. At the incident location, PG&E completed drought and tree mortality program inspections by air in 2016 and 2017. No tree work was prescribed as a result of these inspections. Based on the program parameters, no Fire Risk Reduction (FRR) or Public Safety & Reliability (PS&R) projects were identified for the incident location in the last five years.

Finally, PG&E also responded to another CPUC data request asking about when PG&E determined that the incident was reportable to the CPUC. PG&E explained that PG&E determined that the incident was reportable on October 18, 2017 because on this day, PG&E's mapping department identified the incident location as a unique fire outside the perimeter of published CAL FIRE maps.

<u>Supplemental Timeline Information</u>:

The Maacama Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding the CPUC's designated start

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the operator did not deem this incident reportable; and 5) there was no known aircraft involvement in this incident. *See* PGE-CPUC_DR-072718_Maacama_Q02.

[2] *See* PGE-CPUC_DR-072718_Maacama_Q02. The question asked: "In PG&E's Maacama Incident Description and Factual Summary it states that on October 8, 2017 there was a wire down on Highway 101. Please provide responses to the following: a. What caused the wire down? Explain in detail. b. The location of the wire down. c. At what time did the wire down occur? d. Did the wire down cause any incidents/fires? e. The EC tag for the wire down. f. Did the wire down meet reporting requirements? Explain in detail why or why not. g. A single line diagram showing the location of the wire down in reference to the incident location. Please include all protection devices".

time until service to the incident location was restored. The following additional information is relevant to the Maacama fire timeline.

- October 8, 2017, 9:51 PM: Firefighters from Geyserville Fire Department (Engines 6171 and 6192) were dispatched to respond to a vegetation fire at 995 Maacama Lane, the incident location.
- October 8, 2017, 10:14 PM: Firefighters from Geyserville Fire Department (Engines 6171 and 6192) arrived at 995 Maacama Lane, the incident location. They assisted CAL FIRE (Battalion 1411) with containing the fire.
- October 8, 2017, 10:31 PM: PG&E's Outage Information System ("OIS") reported a wire down between Highway 101 and Hembree Lane, at the span between the second and third pole north of intersection of Hembree Lane and Victory Lane in Windsor, CA. The approximate coordinates of this location are 38°31'47.67"N, 122°47'36.78"W.
- October 8, 2017, 10:53 PM: A troubleman arrived at the location of the wire down between Highway 101 and Hembree Lane and cleared the wire down.
- October 9, 2017, 12:05 AM: Firefighters from Geyserville Fire Department left 995 Maacama Lane, the incident location.
- October 10, 2017, 7:48 AM: Firefighters from Geyserville Fire Department were dispatched to 905 Young Road, Healdsburg.[3]
- October 10, 2017, 7:53 AM: Firefighters from Geyserville Fire Department inform REDCOM that there would be no response from Geyserville to the incident at 905 Young Road, Healdsburg, and that Cal Fire had command over it.
- October 18, 2017: PG&E determined that the Maacama incident was reportable.

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were thirteen vegetation management inspections at the incident location. PG&E's understanding based upon its records is that the subject tree was not identified for work during any of the vegetation management inspections during this time period. During this time period, there were eight electric maintenance overhead patrols and inspections at the incident location. Additionally, intrusive pole inspections at the incident location took place on April 19, 2017 and October 31, 2017. PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified during those patrols and inspections. Below is a summary of vegetation management patrols and inspections, electric maintenance overhead patrols and inspections and intrusive pole inspections.

[3] The address in the Geyserville Fire Department report is 905 Youngs Road, Windsor. However, no such road exists. PG&E believes the report refers to 905 Young Road, Healdsburg.

Date	Event	Findings
10/1/2012 – 10/2/2012	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that there were no findings at or near the incident location.
10/26/2012 – 10/31/2012	PG&E performed an electric maintenance overhead inspection.	The following work was identified: • At 14820 Young Road, Geyserville, CA: tree grown into service - replace service. • At 14820 Young Road, Geyserville, CA: remove side guy from pole. • At 14820 Young Road, Geyserville, CA: replace broken tree wire.
1/2/2013	Western ECI ("WECI") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that no trees were marked for work.
7/2/2013	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that there were no findings at or near the incident location.
3/11/2014	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
7/21/2014	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that there were no findings at or near the incident location.
8/21/2014	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that there were no findings at or near the incident location.
8/25/2014 – 9/15/2014	WECI performed a Catastrophic Event Memorandum Account ("CEMA") vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.

Date	Event	Findings
4/3/2015	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/2/2015	WECI performed a CEMA vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.
8/25/2015	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that there were no findings at or near the incident location.
3/30/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
4/7/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/15/2016	WECI performed a CEMA vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.
7/15/2016	Osmose Utilities Services ("Osmose") performed overhead infrared ("IR") inspections on the subject circuit.	PG&E's understanding based upon its records is that one hot spot was identified on the Fulton 1102 Circuit, which resulted in the replacement of an overhead connector.
7/27/2016	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that there were no findings at or near the incident location.
8/26/2016 – 8/29/2016	WECI performed a CEMA vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.

Date	Event	Findings
9/13/2016 – 10/07/2016	WECI performed an aerial CEMA vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.
10/25/2016 – 11/1/2016	WECI performed a CEMA vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.
4/19/2017	Osmose performed intrusive pole inspections for poles #101967384 and #101967385.	PG&E's understanding based upon its records is that both poles passed their inspections and no issues were identified.
4/25/2017	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
9/14/2017 – 9/20/2017	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that the following work was identified: • At 960 Maacama Lane, Healdsburg, CA: fill woodpecker holds; install high voltage signs; trim tree around pole and above guy bob. • At 960 Maacama Lane, Healdsburg, CA: install high voltage signs. • At 905 Maacama Lane, Healdsburg, CA: install high voltage signs, pole in vineyard.
10/24/2017	WECI performed an aerial CEMA vegetation management patrol.	PG&E's understanding based upon its records is that no trees at or near the incident location were identified for work.

Date	Event	Findings
10/31/2017	Osmose performed intrusive pole inspections for poles #101967384 and #101967385.	PG&E's understanding based upon its records is that both poles passed their inspections and no issues were identified.

Source List:

Source	**Brief Description**
CPUC Letter	12/7/17 Letter Regarding Clarification for Commission's November 21, 2017 Data Request
PGE-CF_00142643	6/1/18 Response to CAL FIRE's October 2017 Wildfire Data Request
PGE-CPUC_051818-DR_Maacama_Fire_Q10	6/13/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-071918_Maacama_Q04	8/10/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-071918_Maacama_Q05	8/10/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-071918_Maacama_Q01	8/24/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-072718_Maacama_Q02	8/24/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-071918_Maacama_Q03	8/24/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-071918_Maacama_Q06	8/3/18 Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_00011183; PGE-CPUC_00011388; PGE-CPUC_00011986; PGE-CPUC_00011471; PGE-CPUC_00019549; PGE-CPUC_00019550	CEMA Vegetation Management Patrol Records
PGE-CPUC 00020776	EC Tag #113702890 (completed 10/10/17)
; PGE-CPUC_00019589; PGE-CPUC_00019679; PGE-CPUC_00019715; PGE-CPUC_00019740;PGE-CPUC_00019778; PGE-CPUC_00019790; PGE-CPUC_00019834 PGE-CPUC_00019913;	Electric Maintenance Overhead Inspection Records
PGE-CPUC_00019801; PGE-CPUC_00019804; PGE-CPUC_00019921; PGE-CPUC_00019923; PGE-CPUC_00019935	Electric Maintenance Overhead Patrol Records
PGE-CPUC_00020608; PGE-CPUC_00020609	Event data for Line Recloser 4994 and Line Recloser 4522
PGE-CPUC_00020610–PGE-CPUC_00020734	Fulton 1102 Circuit Breaker settings

Source	**Brief Description**
Geyserville Fire Report 2017.10.08 - Incident 17-477.	Geyserville Fire Department Record
Geyserville Fire Report 2017.10.08 - Incident 17-490	Geyserville Fire Department Record
PGE-CPUC_00015697	ILIS Outage Report 17-0085251
PGE-CPUC_00019587	Infrared Inspection Record
PGE-CPUC_00019579; PGE-CPUC_00019583	Intrusive Pole Inspection Records
PGE-NBF-0000000092	Maacama Factual Summary
PGE-CPUC_DR-10192018_Maacama-Youngs_Q02	Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-10192018_Maacama-Youngs_Q03	Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_DR-10192018_Maacama-Youngs_Q04	Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_00019563; PGE-CPUC_00019552; PGE-CPUC_00019566	Vegetation Management Routine Inspection Records
PGE-CPUC_00019567; PGE-CPUC_00019568; PGE-CPUC_00019569; PGE-CPUC_00019570; PGE-CPUC_00019572	Vegetation Management Work Requests

EXHIBIT NN

SUPPLEMENT TO MCCOURTNEY INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On May 25, 2018, CAL FIRE issued a press release stating that the McCourtney Fire was "caused by a tree falling onto PG&E power lines." CAL FIRE has not publicly released its investigation report.

Supplemental Timeline Information:

The McCourtney Factual Summary contained a timeline of PG&E's actions at or impacting the incident locations in the period immediately preceding CAL FIRE's designated start time until service to the incident locations was restored. The following additional information is relevant to the McCourtney Factual Summary timeline.

- October 8, 2017, 11:48 PM: Nevada City Sheriff's Office dispatch received a 911 call from McCourtney Road near Fairgrounds Gate 4 reporting a blown transformer, then classified the call as a "FIRE" call and transferred to CAL FIRE.
- October 8, 2017, 11:57 PM: Nevada City Sheriff's Office dispatch received a 911 call from Orion Way reporting a fire.
- October 9, 2017, 12:10 AM: Nevada County Consolidated Fire Department sounded its alarm.

Supplemental Information Regarding Prior Inspections:

Between September 2012 and October 2017, there were seven vegetation management inspections at or near the Orion Way incident location. Between November 2012 and October 2017, there were four electric maintenance overhead patrols and inspections at or near the Orion Way incident location. Since May 2013, three intrusive pole inspections occurred at or near the Orion Way incident location. PG&E's understanding based upon its records is that the subject tree and the subject poles were not identified for work during any of those inspections. Below is a summary of vegetation management patrols and inspections, electric maintenance overhead patrols and inspections, and intrusive pole inspections at or near the Orion Way incident location.

The CPUC did not request information on vegetation management patrols and inspections, electric maintenance overhead patrols and inspections, or intrusive pole inspections for the McCourtney Road incident location.

Date	Event	Findings
11/16/2012	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.

Date	Event	Findings
2/7/2013	ACRT, Inc. ("ACRT") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/13/2013	Osmose Utilities Services, Inc. performed intrusive pole inspections at or near the subject poles on the circuit.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.
1/14/2014	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.
5/5/2014	ArborMetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/26/2015	ArborMetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
1/7/2016	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.
6/8/2016	ArborMetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/7/2016–10/31/2016	A PG&E contractor performed an aerial vegetation management Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
11/17/2016	The Davey Tree Expert Company ("Davey Tree") performed intrusive pole inspections at or near the subject poles on the circuit.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.
12/01/2016	Davey Tree performed intrusive pole inspections.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.
3/9/2017–3/10/2017	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the Orion Way incident location were identified.
4/25/2017	ArborMetrics performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Date	Event	Findings
10/4/2017 – 10/26/2017	A PG&E contractor performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release "CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties", May 25, 2018, http://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause%20v2%20AB%20(002).pdf
Nevada County Consolidated Fire Department Incident Report 17-0026279	Nevada County Consolidated Fire Department Records
NCSO CAD Event No: 1710080214 and No.: 1710080215	Nevada County Sheriff's Office Dispatch Records
PGE-CPUC_00008262–PGE-CPUC_00008327; PGE-CPUC_00008330–PGE-CPUC_00008346	Electric Overhead Inspection and Patrol Records
PGE-CPUC_00012017	PG&E Annual Vegetation Management Plans
PGE-CPUC_00006247–PGE-CPUC_00006248; PGE-CPUC_00006257 – PGE-CPUC_00006258; PGE-CPUC_00006265	Pole Inspection Records
PGE-CPUC_00012621–PGE-CPUC_00012624	Vegetation Management CEMA Records
PGE-CPUC_00010045; PGE-CPUC_00010051; PGE-CF_00137546–PGE-CF_00137547; PGE-CF_00140303–PGE-CF_00140305; PGE-CF_00140306–PGE-CF_00140315;	Vegetation Inspection and Patrol Records
PGE-CPUC_00010294 –PGE-CPUC_00010295;	Vegetation Management Work Request Records

EXHIBIT OO

SUPPLEMENT TO NORRBOM INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that the Norrbom fire "was caused by a tree falling and coming in contact with PG&E power lines." CAL FIRE has not publicly released its investigation report.

PG&E is not aware of which specific location is referred to in CAL FIRE's press release. It is possible CAL FIRE may be referring to a location at 16700 Gehricke Road, Sonoma, at which a black oak tree was found laying on downed conductors (the "wire down location"). The wire down location is located three spans to the source side of the location referenced in PG&E's 20-Day Electric Incident Report and discussed in the Norrbom Factual Summary, located at 16250 Norrbom Road, Sonoma (the "EIR location"). As noted in the Norrbom Factual Summary, PG&E collected the black oak from the wire down location on March 29, 2018.

Supplemental Timeline Information:

The Norrbom Factual Summary contained a timeline of PG&E's actions at or impacting the EIR location in the period immediately preceding CAL FIRE's designated start time until service to the EIR location was restored. The following additional information is relevant to the Norrbom Fire timeline.

- October 8, 2017, 10:36 PM: A REDCOM Dispatch operator reports a structure fire at 16250 Norrbom Road.

- October 8, 2017, 10:37 PM: Sonoma Valley Fire Unit 3381 is dispatched to 2310 Norrbom Road to respond to a natural vegetation fire affecting a field / open land.

- October 8, 2017, 11:02 PM: Fire service personnel arrive at 2310 Norrbom Road to extinguish the fire.

- October 8, 2017, 11:10 PM: Fire service personnel leave 2310 Norrbom Road.

- October 9, 2017, 8:15 AM: Responder calls REDCOM Dispatch and relays that another engine had reported a possible column of smoke in the Norrbom Road area. Responder reports that they are in the Norrbom Road area and are unable to locate the smoke.

- October 9, 2017, 8:17 AM: Responder calls REDCOM Dispatch and relays that they have been stopped by people evacuating out of Norrbom Road who told them that there was a fire on Norrbom Road. Responder reports that they are continuing up the road.

- October 9, 2017, 8:18 AM: REDCOM Dispatch operator tells Responder that he is looking at her screen "outside the very end of Norrbom, and it looks like there's

a private road that leads to something. And there's a flag there stating a fire". The operator notes that he's "going to check it a little further on [her] screen".

- October 9, 2017, 8:19 AM: REDCOM Dispatch operator reports to Responder that REDCOM received a call at 7:30 in the morning from a caller at 16200 Norrbom Road, stating that there is vegetation in the area on fire. The REDCOM Dispatch operator reports that they advised the caller to evacuate and have not been able to put the call as an assigned call.

- October 9, 2017, 8:20 AM: REDCOM Dispatch operator reports "we had three events at Gehricke and Bain Ranch". In another recording from the same time, a REDCOM Dispatch operator tells Responder that there are three events near Gehricke and Bain Ranch.

- October 9, 2017, 8:21 AM: Responder reports that they are at the top of Norrbom Road and that there is "drift smoke" but that they "can't really actually see a fire".

- October 9, 2017, 8:43 AM: Responder reports that they are heading up Gehricke Road and states that "possibly that's where this new fire is". Responder reports that they see some smoke and that there is a "new incident on Bain and Gehricke". REDCOM Dispatch operator notes that they have "Gehricke and Bain Ranch Road". Responder says, "that's about where it looks like it's at".

- October 10, 2017: A PG&E troubleman who "reported a wire down due to a tree six spans on the load side of Fuse 99309", responds to an outage at 16700 Gehricke Road. The PG&E troubleman meets with the homeowner who points in the direction of where he saw a fire originate down in a ravine. The PG&E troubleman and the homeowner then drive to 16600 Gehricke Road to Fuse 99309, where the PG&E troubleman discovers two of three fuses blown. The PG&E troubleman then patrols the line in the direction of where the homeowner had told him the fire started and finds a tree laying on a phone line with two severed conductors on the ground.

Supplemental Information Regarding Prior Inspections:

Between 2012 and October 2017, there were seven inspections of the vegetation at the wire down location. PG&E's understanding based upon its records is that the tree that fell at the wire down location (the "subject tree") was marked for trimming in March 2017 and was trimmed in May 2017. Additionally, PG&E's understanding based upon its records is that there is no evidence of vegetation involvement at the EIR location. Therefore, we have confined the chart below to the vegetation management activity at the wire down location and have not included a summary of vegetation management patrols and inspections at the EIR location.

Between 2000 and October 2017, there were two instances of intrusive inspections of the poles at the EIR location and wire down location. Between 2010 and October 2017, there

were four instances of overhead inspections and patrols at the EIR location and wire down location.

Below is a summary of the inspections and maintenance performed.

Date	Event	Findings
1/31/2000	PG&E performed an intrusive inspection for Pole 102032630 and Pole 101995538 at the EIR location.	PG&E's understanding based upon its records is that both poles passed inspection.
3/7/2000	PG&E performed an intrusive inspection for Pole 101995543 and Pole 102034189 at the wire down location.	PG&E's understanding based upon its records is that both poles passed inspection.
11/9/2010	PG&E performed an electric maintenance overhead inspection at the EIR location and wire down location.	PG&E's understanding based upon its records is that one EC tag was created requesting work at the EIR location and that the work was completed October 7, 2011.
11/10/2010	PG&E performed an electric maintenance overhead inspection at the EIR location.	PG&E's understanding based upon its records is that no additional issues were identified.
5/2/2011	PG&E performed an intrusive inspection for Pole 102032630 and Pole 101995538 at the EIR location, and Pole 101995543 and Pole 102034189 at the wire down location.	PG&E's understanding based upon its records is that the four poles passed inspection.
11/6/2012	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol at the wire down location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
1/16/2014	WECI performed a vegetation management routine patrol at the wire down location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
8/5/2014	PG&E performed an electric maintenance overhead patrol at the EIR location and wire down location.	PG&E's understanding based upon its records is that no issues were identified.
2/17/2015	WECI performed a vegetation management routine patrol at the wire down location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
7/21/2015	PG&E performed a Catastrophic Event Memorandum Account ("CEMA") patrol at the wire down location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
10/14/2015	PG&E performed an electric maintenance overhead inspection at the EIR location and wire down location.	PG&E's understanding based upon its records is that one EC was created requesting work to replace a high voltage sign, and that the work is due October 14, 2020.

Date	Event	Findings
2/11/2016	WECI performed a vegetation management routine patrol at the wire down location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
8/2/2016	PG&E performed a CEMA patrol at the wire down location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
9/26/2016	PG&E performed an electric maintenance overhead patrol at the EIR location and wire down location.	PG&E's understanding based upon its records is that no issues were identified.
3/29/2017	WECI performed a vegetation management routine patrol at the wire down location.	PG&E's understanding based upon its records is that two trees were identified for trimming, one of which was the subject tree, and that the work was completed on May 25, 2017.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	Cal Fire Press Release, "CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
Incident Report 17-0004073	Sonoma Valley Fire Department Incident Report
EC Tag Spreadsheet	Spreadsheet of Completed EC Tags
Deposition Transcript of Tim Broderius	Transcript of August 16, 2018 Tim Broderius Deposition
PGE-CF_00132827	EC Notifications Spreadsheet
PGE-CPUC_00008394; PGE-CPUC_00008467; PGE-CPUC00008602; PGE-CPUC_00008644;	Electric Maintenance Overhead Inspection Records
PGE-CPUC_00008356; PGE-CPUC_00008601	Electric Maintenance Overhead Patrol Records
PGE-NBF-0000000208	Norrbom Factual Summary
PGE-NBF-0000077954	October 16, 2017 E-mail from Tim Broderius to Jeffrey Coltharp
PGE-NBF-0000002728	PG&E 20-Day Electric Incident Report EI171008N
PGE-CF_00004722; PGE-CF_00004736; PGE-CPUC_00006279; PGE-CPUC_00006283	Pole Inspection Records
PGE-NBF-TP-0000000679; PGE-NBF-TP-0000001823; PGE-NBF-TP-0000003131; PGE-NBF-TP-0000005102; PGE-NBF-TP-0000005353; PGE-NBF-TP-0000005355; PGE-NBF-TP-0000005560; PGE-NBF-TP-0000006014; PGE-NBF-TP-0000006236; PGE-NBF-TP-0000006276; PGE-NBF-TP-0000006324	REDCOM 911 Recordings
PGE-CPUC_00012625; PGE-CPUC_00012626	Vegetation Management CEMA Records
PGE-CF_00011308	Vegetation Management Inspection Records

EXHIBIT PP

SUPPLEMENT TO NUNS INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE publicly released its Investigation Report for the Nuns Incident, which is available on CAL FIRE's website at the following link: http://calfire.ca.gov/fire_protection/downloads/FireReports/Nuns%20LE%2080_Redacted.pdf.

In addition, PG&E has become aware of the following additional background information:

Nuns 2. With respect to the Nuns 2 incident location, PG&E became aware after filing its 20-Day Electric Incident Report with the CPUC on November 30, 2017, that there were two, not one, Douglas Fir trees that came down at the Nuns 2 incident location.

Supplemental Evidence Collection Information:

PG&E indicated in the Nuns Factual Summary that CAL FIRE collected from the Nuns 1 incident location an insulator, an Alder tree limb, aluminum secondary conductors and wood pints. However, CAL FIRE does not list an insulator in its evidence log for the Nuns 1 incident location.

Supplemental Timeline Information:

The Nuns Factual Summary contained a timeline of PG&E's actions at or impacting the incident locations in the period immediately preceding CAL FIRE's designated start time until service to the incident locations was restored. The following additional information is relevant to the Nuns Fire timeline.

- October 8, 2017, 10:34 PM: REDCOM Dispatch received its first 911 call regarding the Nuns fire from an individual located at Beltane Ranch (11775 Sonoma Hwy).
- October 8, 2017, 10:45 PM: REDCOM Dispatch received a 911 call regarding the Nuns fire from an individual located at 1210 Nuns Canyon Road (*i.e.,* the Nuns 1 incident location).
- October 8, 2017, 11:11 PM: the CAL FIRE Saint Helena Emergency Command Center ("ECC") dispatched a wildland fire at 2 Nuns Canyon Road.
- October 9, 5:25 PM: CAL FIRE secured the Nuns 1 incident location by providing and maintaining security through the duration of CAL FIRE's investigation.
- October 13, 2017, 2:25 PM: Sonoma County Public Works arrived at the Nuns location to perform road clean-up work on Nuns Canyon Road north of the Nuns 1 incident location.

- October 15, 2017, 4:43 – 5:19 PM: CAL FIRE removed portions of the downed Red Alder tree top from the Nuns 1 incident location and transported this evidence to the CAL FIRE Middletown evidence storage.
- October 16, 2017, 2:57 – 7:40 PM: PG&E arrived at the Nuns 1 incident location and assisted CAL FIRE with removing conductors and power pole hardware. CAL FIRE transported this evidence to the CAL FIRE Santa Rosa evidence storage.
- October 18, 2017, 6:00 PM: A PG&E troubleman found two of two fuses opened at Fuse 15877 at the Nuns 2 incident location.

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were 13 vegetation inspections at the incident locations. PG&E's understanding based upon its records is that the subject trees were not identified for work during any of the vegetation inspections. Between October 2012 and October 2017, there were two overhead inspections and six overhead patrols at the incident locations. PG&E's understanding based upon its records is that none of the subject poles were identified for work during any of those inspections. Between October 2012 and October 2017, there were two intrusive pole inspections at the incident locations. PG&E's understanding based upon its records is all poles at the incident location passed testing. Below is a summary of the patrols and inspections.

Date	Event	Findings
10/5/2012	PG&E performed an overhead inspection at Nuns 1.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
10/8/2012	PG&E performed an overhead inspection at Nuns 2	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
12/17/2012	Western ECI ("WECI") performed a routine patrol at Nuns 1.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
12/18/2012	WECI performed a routine patrol at Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
9/5/2013 – 9/24/2013	WECI performed a Public Safety & Reliability ("PS&R") patrol at the Nuns 1 location.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
2/5/2014	WECI performed routine patrols at Nuns 1.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Date	Event	Findings
2/5/2014	WECI performed routine patrols at Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
8/6/2014	PG&E performed an overhead patrol at Nuns 1 and Nuns 2.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
3/19/2015	WECI performed a routine patrol at Nuns 1.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
3/25/2015	WECI performed a routine patrol at Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
5/5/2016	WECI performed a routine patrol at Nuns 1.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
5/6/2016	WECI performed a routine patrol at Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
8/31/2016	PG&E performed an overhead patrol at Nuns 1 and Nuns 2.	PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified.
11/30/2016	Catastrophic Event Memorandum Account ("CEMA") patrol at Nuns 1 and Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
4/3/2017	PG&E performed intrusive pole inspections for the subject poles at Nuns 1 and Nuns 2.	PG&E's understanding based upon its records is that all poles at the incident location passed testing.
6/30/2017	WECI performed a routine patrol at Nuns 1.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
7/1/2017	WECI performed a routine patrol at Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
7/13/2017	CEMA patrol at Nuns 1 and Nuns 2.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Date	Event	Findings
9/22/2017	PG&E performed an overhead inspection at Nuns 1 and Nuns 2.	One of the subject poles at Nuns 1 was identified for work to address a broken tree branch putting strain on the secondary wire; the work was not overdue at the time of the fires. PG&E's understanding based upon its records is that no issues with PG&E equipment at the Nuns 2 incident location were identified.

Source List:

Source	Brief Description
CAL FIRE Report	CAL FIRE Investigation Report, Nuns Fire, http://calfire.ca.gov/fire_protection/downloads/FireReports/Nuns%20LE%2080_Redacted.pdf
PGE-CPUC_00010967	2013 List of Public Safety & Reliability Projects
PGE-CPUC_00011986 PGE-CPUC_00011388	2016 All CEMA Projects 2017 All CEMA Projects
PGE-CPUC_00008687	Electric Corrective Tag No.113271607
PGE-CPUC_00008648; PGE-CPUC_00008670; PGE-CPUC_00008677; PGE-CPUC_00008702; PGE-CPUC_00008713; PGE-CPUC_00008719; PGE-CPUC_00008725; PGE-CPUC_00008736	Electric Maintenance Patrol/Inspection Daily Logs
PGE-CPUC_00006285 - PGE-CPUC_00006294; PGE-CPUC_00006295 - PGE-CPUC_00006309	Pole Inspection Records
PGE-NBF-TP-0000003946; PGE-NBF-TP-0000003649	REDCOM Dispatch Call/Records
PGE-CPUC_00012628; PGE-CPUC_00012629	Vegetation Management CEMA Maps
PGE-CPUC_00010070; PGE-CPUC_00010073; PGE-CPUC_00010077	Vegetation Management Inspection Records
PGE-CPUC_00010300; PGE-CPUC_00010305; PGE-CPUC_00010306	Vegetation Management Work Request Records
Response to Nuns Question 2	Response to CPUC's October 2017 Wildfire Data Request from 10/19/2018, submitted on 11/30/2018
Response to Nuns Question 2	Response to CPUC's October 2017 Wildfire Data Request from 7/9/2018, submitted on 8/24/2018

EXHIBIT QQ

SUPPLEMENT TO OAKMONT INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that the Oakmont fire was "caused by a downed power line after PG&E attempted to re-energize the line". CAL FIRE has not publicly released its investigation report.

Supplemental Incident Overview Information:

In the Oakmont Factual Summary, PG&E explained that its understanding based upon its records is that on October 13, 2017, a PG&E troubleman patrolled the load side of Fuse 1251 before PG&E re-energized the incident location.

According to the PG&E troubleman, he patrolled up to a fence and performed a visual inspection of the portion of the line beyond the fence that was visible from that vantage point.

In the Oakmont Factual Summary, PG&E also explained that its understanding based upon its records is that on October 13, 2017 between 2:56 PM and 3:00 PM, and again at 3:54 PM, 14 of 17 Smart Meters downstream of Fuse 1251 recorded a NIC Power Down and Restore event and/or a zero volt reading.

PG&E's understanding based upon its records is that when PG&E re-energized the conductors surrounding the incident location, 14 of 17 Smart Meters along the tap line past Fuse 1251 came back online and three Smart Meters did not. Two of those three were downstream of the incident location.

In the Oakmont Factual Summary, PG&E explained that on October 13, 2017, a PG&E troubleman met CAL FIRE at the incident location so that he could make the lines at the incident location safe. This troubleman arrived at the area around 5:30 PM. Engine 25 of the Santa Rosa Fire Department had arrived at the Oakmont incident location at 4:59 PM. According to the Captain of Engine 25, his crews were standing by waiting for confirmation from PG&E that the lines were de-energized. Also according to the Captain, he moved his crews back down to Pythian Road after a long wait (more than 2.5 hours) due to "hazardous" conditions in the area and because the PG&E troubleman who was at the site could not confirm that the lines were de-energized. However, PG&E's understanding based upon its records is that the PG&E troubleman had ensured that the lines were de-energized before leaving the area around 8:30 PM.

Supplemental Timeline Information:

The Oakmont Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Oakmont Fire timeline.

- October 13, 2017, 3:40 PM: Emergency dispatch received call reporting "a new fire on Sugarloaf and we're responding . . . just to help".

- October 13, 2017, 3:42 PM: The Santa Rosa Fire Department (SRFD) received an alarm for fire near Highway 12 at Pythian Road.

- October 13, 2017, 3:56 PM: The Santa Rosa Fire Department arrived at the scene of the Oakmont Fire.

- October 14, 2017, 2:56 AM: Emergency dispatch received call from emergency responder reporting, "some sort of fire north of Highway 12. Not sure where access is right now. Past Los Alamos, Pythian".

- October 14, 2017, 3:59 AM: An emergency responder asks another responder to standby in Wildwood (which is northwest of Pythian Road) because "this thing in Oakmont is about to really blow up".

- October 14, 2017, 6:00 AM: In a CAL FIRE Incident Status Summary for the period from 6:00 AM to 5:00 PM on October 14, 2017, the following was stated in relation to the Oakmont Fire: (a) acreage: 550; 10% contained; (b) extreme fire behavior was observed in the early morning due to winds; (c) afternoon winds subsided and moderate fire behavior has been observed; (d) fire is burning in a southern direction and backing to the north; flanking on the east.

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were six inspections of the vegetation at the Oakmont incident location. PG&E's understanding based upon its records is that the subject tree was not identified for work during any of those inspections. There were also inspections of the poles at the incident location during this time period. Finally, there were two electric maintenance and overhead inspections and patrols. Below is a summary of these inspections and patrols.

Date	Event	Findings
12/27/2012	Western ECI ("WECI") conducted a routine distribution vegetation management patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/20/2014	WECI conducted a routine distribution vegetation management patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/25/2014	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that subject poles were not identified for work.
3/16/2015	WECI conducted a routine distribution vegetation management patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Date	Event	Findings
2/3/2016	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that subject poles were not identified for work.
5/3/2016	WECI conducted a routine distribution vegetation management patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
11/1/2016	A Catastrophic Event Memorandum Account (CEMA) vegetation management patrol was performed.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
4/4/2017	PG&E contractor performed intrusive pole inspections.	PG&E's understanding based upon its records is that subject poles were not identified for work.
7/7/2017	WECI conducted a routine distribution vegetation management patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/31/2017	PG&E contractor performed intrusive pole inspections.	PG&E's understanding based upon its records is that subject poles were not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release "CAL FIRE Investigators Determine Cause of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
Incident Status Summary for Central LNU Complex	Incident Status Summary (ICS-209), Central LNU Complex (Report Time Period: 10/14/2017, 0600 – 10/14/2017, 1700)
PGE-CF_00000052; PGE-CF_00000053	AMI Smart Meter Data
PGE-CPUC_00008801; PGE-CPUC_00008827	Electric Maintenance Patrol/Inspection Log and Notification Sheets
PGE-CPUC_00008821; PGE-CPUC_00008825	Electric Maintenance Patrol/Inspection Maps
PGE-NBF-TP-0000007455; PGE-NBF-TP-0000009194; PGE-NBF-TP-0000009825	Emergency dispatch calls
PGE-CPUC_00015807	Pending Electric Corrective Notifications Responsive to Question 4 of CPUC's October 2017 Wildfire Data Request
PGE-CPUC 00006310; PGE-CPUC_00006313; PGE-CPUC_00006316; PGE-CPUC_00006320; PGE-CPUC_00006324	Pole Inspection Records
PGE-CPUC_00012630	Vegetation Management CEMA Map
PGE-CPUC_00010095; PGE-CPUC_00010110	Vegetation Management Inspection Records
PGE-CPUC_00010308; PGE-CPUC_00010312	Vegetation Management Work Requests
Santa Rosa Fire Department Incident Report	10/19/2017 Santa Rose Fire Department Incident Report (2017-0025472)

EXHIBIT RR

SUPPLEMENT TO PARTRICK INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that it had concluded that the Partrick Fire was caused by an oak tree falling into PG&E powerlines. CAL FIRE has not publicly released its investigation report.

Supplemental Evidence Collection Information:

PG&E indicated in the Partrick Factual Summary that CAL FIRE collected from 1721 Partrick Road, Napa (the "incident location" as defined by CPUC's December 7, 2017, letter), primary conductors and a section of a Coast Live Oak tree and that PG&E collected multiple sections of the Coast Live Oak tree and pieces of melted aluminum scraps. PG&E has learned that, additionally, Subrogation Plaintiffs collected assorted aluminum fragments and segments, melted aluminum wire, three pieces of fulgurite and one fourteen-inch branch on October 19, 2017.

Supplemental Timeline Information:

The Partrick Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time (October 8, 2017 at 11:48 PM) until service to the incident location was restored. The following additional information is relevant to the Partrick Fire timeline.

- October 8, 11:25 PM: Napa Dispatch received a 911 call regarding a fire from an individual located at 1427 Partrick Rd. The caller reported that there was a fire "right out [their] back door". The dispatcher indicated that "that is a new fire that they have going on".
- October 8, 11:29 PM: Napa City Fire Department sounded alarm. Engines were dispatched to a vegetation fire in the area of Partrick Rd. and Browns Valley.
- October 8, 11:45 PM: Napa Dispatch received a 911 call from 1051 Borrette Ln. The caller reported a fire on Partrick Rd. and the dispatcher indicated that fire crews were already on scene.
- October 8, 11:45 PM: Napa Dispatch received a 911 call from 1477 Partrick Rd. The caller informed the dispatcher of "a fire that's spreading up the backside of the property on [unintel.] vineyard" and that it was "creeping up towards the house".
- October 9, 12:11 AM: Napa City Fire Department sounded alarm. Engines were dispatched to a brush fire at 1585 Henry Rd.
- October 9, 12:59 AM: Responders coordinated fire response efforts, and decided to send an engine from Sonoma to the fire at Nicholson Ranch Winery.

- October 9, 4:30 AM: Napa Fire Department crew found access to road past 1555 Henry St. to be "blocked by downed/suspended powerlines and downed trees".

Supplemental Information Regarding Prior Inspections:

Between 2013 and October 2017, there were eight patrols and inspections of the vegetation at the incident location. Between 2012 and October 2017, there were five instances of inspections and maintenance of the poles of the incident span and four instances of electric maintenance overhead inspections and patrols. Below is a summary of the inspections and maintenance performed.

Date	Event	Findings
5/23/2012	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based on its records is that four EC tags were created and that the equipment of the incident span was not identified for work.
10/8/2012	PG&E performed an intrusive pole inspection.	PG&E's understanding based on its records is that pole 102269338 passed inspection.
10/8/2012	PG&E performed an intrusive pole inspection.	PG&E's understanding based on its records is that pole 102269339 passed inspection.
3/20/2013	Davey Resource Group (PG&E contractor) performed a vegetation management routine patrol.	PG&E's understanding based on its records is that the subject tree was not identified for work.
6/4/2014	Davey Resource Group performed a vegetation management routine patrol.	PG&E's understanding based on its records is that the subject tree was not identified for work.
9/5/2014	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based on its records is that no issues were identified.
4/24/2015	Davey Resource Group performed a vegetation management routine patrol.	PG&E's understanding based on its records is that the subject tree was not identified for work.
5/4/2016	Davey Resource Group performed a vegetation management routine patrol.	PG&E's understanding based on its records is that the subject tree was not identified for work.

Date	Event	Findings
8/26/2016	PG&E vegetation management contractor performed a CEMA patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.
10/6/2016	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based on its records is that the equipment of the incident span was not identified for work.
5/16/2017	Davey Resource Group performed a vegetation management routine patrol.	PG&E's understanding based on its records is that the subject tree was not identified for work.
6/12/2017	PG&E performed pole maintenance at the incident location.	PG&E replaced pole 102269338 after a tree fell into a line and broke the pole.
6/20/2017	PG&E vegetation management contractor performed a vegetation outage inspection.	Vegetation management contractor inspected a fallen tree near pole 102269338. A living 35 foot Coast Live Oak, located 15 feet from the lines had failed at its base and fallen into pole 102269338 on June 11, 2017, causing the pole to break.
9/18/2017	PG&E performed an electric maintenance overhead inspection.	PG&E's records indicate that four EC tags were created in total. PG&E's understanding based on its records is that one of the EC tags was created for the equipment of the incident span (pole 102269338) to remove pole butt and old pole and hardware at base of pole following the replacement of the pole. This work was not completed before the Partrick fire.
10/27/2017	PG&E performed a visual pole inspection.	PG&E's understanding based on its records is that pole 102269339 passed inspection.
10/27/2017	PG&E performed a visual pole inspection.	PG&E's understanding based on its records is that pole 102269338 was marked for "fire damage" and passed inspection.
10/31/2017	PG&E vegetation management contractor performed a CEMA patrol at the incident location.	PG&E's understanding based on its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Cause of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
CAL FIRE Website	"Partrick Fire (Central LNU Complex) Incident Description", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1869 (last updated January 9, 2018).
Incident Report #2017-0007501	Napa Fire Department Incident Report
Incident Report #2017-0007507	Napa Fire Department Incident Report
PGE-CPUC_00008904; PGE-CPUC_00008883; PGE-CPUC_00009027; PGE-CPUC_00009040	Electric Corrective Tags
PGE-CPUC_00008832; PGE-CPUC_00008845; PGE-CPUC_00008859; PGE-CPUC_00009084	Electric Maintenance Patrol/Inspection Daily Logs
PGE-CPUC_00008840; PGE-CPUC_00008849; PGE-CPUC_00008871; PGE-CPUC_00009068	Electric Maintenance Patrol/Inspection Maps
PGE-CPUC_00014541	Outages Report, Pueblo-2103
PGE-NBF-TP-0000000059; PGE-NBF-TP-0000000071; PGE-NBF-TP-0000000227	Napa 911 Dispatch Records
PGE-CPUC_00006329; PGE-CPUC_00006335	Pole Inspection Records
PGE-CF_00136936; PGE-CF_00136937	Vegetation Management CEMA Records
PGE-CF_00135486	Vegetation Management Distribution Outage Report
PGE-CPUC_00010113	Vegetation Management Inspection Records
PGE-CPUC_00010317; PGE-CPUC_00010321; PGE-CPUC_00010322; PGE-CPUC_00010324; PGE-CPUC_00010327; PGE-CF_00025280; PGE-CF_00025300	Vegetation Management Work Requests
PGE-NBF-TP-0000005026	Napa REDCOM Record

Source	**Brief Description**
Subrogation Plaintiffs' Discovery Responses	Subrogation Plaintiffs' Discovery Responses to PG&E's Ninth Set of Requests for Inspection Related to the Nuns Fire, July 17, 2018.

EXHIBIT SS

SUPPLEMENT TO POCKET INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that CAL FIRE investigators determined that the Pocket Fire was caused by the top of an oak tree breaking and coming into contact with PG&E powerlines. CAL FIRE has not publicly released its investigation report.

Supplemental Timeline Information:

The Pocket Factual Summary contained a timeline of PG&E's actions at or impacting the incident location identified by the CPUC in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Pocket Fire timeline.

- October 9, 2:08 AM: Per PG&E records, a PG&E lineman called PG&E's Distribution Control Center for assistance with Line Recloser 570 after patrolling the area and finding the recloser locked open.
- October 9, 2017, 5:47 AM: Geyserville Fire was dispatched to River Road and Ridge Oaks Road, but the response was canceled by the Pocket Incident Commander while the dispatched units were still in route.
- October 9, 2017, 8:16 AM: REDCOM dispatcher reported that someone was rescued from 22 Pocket Ranch Road.
- October 9, 2017, 12:30 PM: Geyserville Fire reported that CAL FIRE's Incident Management Team assumed command of a fire that is described as having begun at 21200 Pocket Ranch Road.
- October 9, 2017 6:42 PM: Geyserville Fire was dispatched to Pocket Ranch Road, but the response was canceled while the dispatched units were still in route.
- October 9, 2017, 7:49 PM: Geyserville Fire was dispatched to Coyote Ridge Road, but the response was canceled immediately.

Supplemental Information Regarding Prior Inspections:

The CPUC's designated incident location is near the intersection of Ridge Ranch Road and Ridge Oaks Road in Geyserville and includes a span of two 12kV conductors between two utility poles (the "incident span"). Between December 2011 and October 2017, there were two inspections of the poles on the incident span, three electric maintenance patrols at and near the incident location and eight inspections of the vegetation at and near the incident location. PG&E's understanding based upon its records is that the California White Oak/Valley Oak tree near the intersection of Ridge Ranch Road and Ridge Oaks Road (the "subject tree") was identified for pruning during two inspections and in each instance the pruning was completed less than two months after the identification. At the time of the fire, there were no outstanding work orders for

the subject tree. Below is a summary of vegetation management patrols and pole inspections.

Date	Event	Findings
12/21/2011	UPT performed an intrusive pole inspection.	UPT intrusively inspected Pole 102037763, which is the northern pole on the incident span, and Pole 101962684, which is the southern pole on the incident span. PG&E's understanding based upon its records is that no issues were identified and the inspector noted that the poles were in "fair" condition and passed inspection.
7/24/2012	PG&E performed an electric maintenance overhead patrol.	PG&E performed a routine patrol of all equipment at and near the incident span. PG&E's understanding based upon its records is that no equipment was identified for work and no abnormal conditions were identified.
10/10/2012	Western ECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was identified for accelerated priority pruning.
10/23/2012	PG&E issued a work request.	PG&E requested that Davey Tree perform tree pruning on the subject tree, which was identified for pruning during the October 10, 2012 patrol.
12/4/2012	Davey Tree completed tree pruning.	Davey Tree completed the tree pruning on the subject tree, which was identified for work during the October 10, 2012 patrol.
12/20/2013	Western ECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that no trees were identified for work.
8/11-14/2014 8/22/2014	PG&E performed an electric maintenance overhead inspection.	PG&E performed a routine inspection of all equipment at and near the incident span. Thirty-eight pieces of equipment were identified for work. PG&E's understanding based upon its records is that no equipment on the incident span was identified for work.

Date	Event	Findings
8/21/2014	PG&E performed a Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
1/20/2015	Western ECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was identified for routine priority pruning.
2/3/2015	PG&E issued a work request.	PG&E requested that Davey Tree perform tree pruning on the subject tree, which was identified for pruning during the January 20, 2015 patrol.
3/5/2015	Davey Tree completed tree pruning.	Davey Tree completed the tree pruning on the subject tree, which was identified for pruning during the January 20, 2015 patrol.
6/26/2015	PG&E performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
12/22/2015	Western ECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/22/2016	PG&E performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
9/17/2016 9/19/2016	PG&E perform an electric maintenance overhead patrol.	PG&E performed a routine patrol of all equipment at and near the incident span. PG&E's understanding based upon its records is that no equipment was identified for work and no abnormal conditions were identified.
3/13/2017	Western ECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/18/2017	Osmose performed an intrusive pole inspection.	Osmose intrusively inspected Pole 102037763, which is the northern pole on the incident span, and Pole 101962684, which is the southern pole on the incident span. PG&E's understanding based upon its records is that no issues were identified and the inspector noted that the poles were in "fair" condition and passed inspection.

Date	Event	Findings
7/6/2017	PG&E performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
Geyserville Fire Report Incident 17-484	10/9/2017 Geyserville Fire Report of response to a potential fire at 21200 Pocket Ranch Road.
Geyserville Fire Report Incident 17-486	10/9/2017 Geyserville Fire Report of response to a potential fire at River Road and Ridge Oaks Road.
Geyserville Fire Report Incident 17-488	10/9/2017 Geyserville Fire Report of response to a potential fire at Pocket Ranch Road
Geyserville Fire Report Incident 17-489	10/9/2017 Geyserville Fire Report of response to a potential fire at Coyote Ridge Road
PGE-NBF-TP-0000001431	10/9/2017 Call recording from REDCOM disptach
PGE-CPUC_00009158; PGE-CPUC_00009336; PGE-CPUC_00009339	Electric Maintenance Patrol and Inspection Records
PGE-CPUC_00009155; PGE-CPUC_00009230; PGE-CPUC_00009196; PGE-CPUC_00009241; PGE-CPUC_00009163; PGE-CPUC_00009272; PGE-CPUC_00009237; PGE-CPUC_00009341	Electric Maintenance Patrol/Inspection Daily Logs and Notification Sheets
PGE-CPUC_00006352; PGE-CPUC_00006343	Pole Inspection Records
PGE-CPUC_00012634; PGE-CPUC_00012635; PGE-CPUC_00012636; PGE-CPUC_00012637	Vegetation Management CEMA Records
PGE-CF_00009971	Vegetation Management Inspection Records
PGE-CF_00024972; PGE-CPUC_00010329	Vegetation Management Work Requests

EXHIBIT TT

SUPPLEMENT TO POINT INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

As part of discovery in civil litigation regarding the October 2017 wildfires, CAL FIRE recently produced its Investigation Report, 17 CATCU012170. According to that report, CAL FIRE investigators concluded that the Point Fire was caused when an oak tree limb came in contact with a PG&E powerline.

Supplemental Timeline Information:

The Point Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Point Factual Summary timeline.

- October 9, 2017, 1:03 AM: Calaveras County dispatch received the first 911 call reporting a fire from 22744 West Point Pioneer Rd, West Point, CA.

Supplemental Information Regarding Prior Inspections:

Between September 2012 and October 2017, there were twelve vegetation management inspections at the incident location. PG&E's understanding based upon its records is that the subject tree was not identified for work during any of those inspections. Between June 2012 and October 2017, there were four electric maintenance overhead patrols and inspections at the incident location. Additionally, pole test and treat inspections at the incident location took place on October 2, 2014. PG&E's understanding based upon its records is that no issues with PG&E equipment at the incident location were identified during those patrols and inspections. Below is a summary of vegetation management patrols and inspections, electric maintenance overhead patrols and inspections, and pole Test and Treat inspections.

Date	Event	Findings
6/28/2012	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no issues with PG&E equipment were identified at the incident location.
10/13/2012	ACRT, Inc. ("ACRT") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/10/2013	PG&E performed an aerial electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment were identified at the incident location.
1/8/2014	ACRT performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Date	Event	Findings
10/2/2014	A PG&E contractor performed test and treat intrusive pole inspections.	PG&E's understanding based upon its records is that all incident poles passed testing and no issues were identified.
12/10/2014	ACRT performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
4/17/2015	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues with PG&E equipment were identified at the incident location.
5/19/2015 – 8/4/2015	PG&E vegetation management contractor performed a Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
9/8/2015	ACRT performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/28/2015	PG&E vegetation management contractor performed a CEMA LiDAR patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
1/21/2016	ACRT performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/10/2016– 7/10/2016	ACRT performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
9/7/2016	ACRT performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
3/16/2017	ACRT performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/21/2017	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that no issues with PG&E equipment were identified at the incident location.
7/12/2017– 8/12/2017	ACRT performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
8/25/2017	ACRT performed a vegetation management CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
Calaveras County Computer Aided Dispatch log	Calaveras County Computer Aided Dispatch log listing incidents between October 8, 2017 at 7:00 PM to October 9, 2017 at 7:00 AM
PGE-CPUC_00009453; PGE-CPUC_00009454; PGE-CPUC_00009462; PGE-CPUC_00009388; PGE-CPUC_00009398	Electric Maintenance Overhead Inspection Records
PGE-CPUC_00009378; PGE-CPUC_00009380; PGE-CPUC_00009382; PGE-CPUC_00009383; PGE-CPUC_00009384; PGE-CPUC_00009386	Electric Maintenance Overhead Patrol Records
PGE-CPUC_00011215; PGE-CPUC_00011467; PGE-CPUC_00012079;	PG&E Annual Vegetation Management Plans
PGE-CPUC_00006356; PGE-CPUC_00006358; PGE-CPUC_00006362	Pole Inspection Records
PGE-CPUC_00012639; PGE-CPUC_00012641	Vegetation Management CEMA Records
PGE-CPUC_00010154; PGE-CPUC_00010155– PGE-CPUC_00010156; PGE-CPUC_00010158; PGE-CPUC_00010161; PGE-CPUC_00010170	Vegetation Management Routine Patrol Records

EXHIBIT UU

SUPPLEMENT TO POTTER VALLEY BUSCH ROAD INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

After PG&E submitted the Potter Factual Summary, CAL FIRE released its Final Report, 17CAMEU012169 ("CAL FIRE Report"). This report is publicly available at http://calfire.ca.gov/fire_protection/downloads/FireReports/LE-80%20Redwood%20 Incident%20Report_Redacted.pdf.

According to the CAL FIRE Report, CAL FIRE started receiving reports of a vegetation fire in Potter Valley at 11:34 PM.

Supplemental Evidence Collection Information:

PG&E indicated in the Potter Valley Busch Road Factual Summary that CAL FIRE collected both ends of the downed transmission conductor and parts of a tree branch or branches from the Potter incident location. The CAL FIRE Report does not indicate that CAL FIRE collected parts of a tree branch or branches from the Potter incident location.

Supplemental Timeline Information:

The Potter Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Potter Factual Summary timeline.

- March 27, 2014: The subject tree was trimmed by Family Tree Service. PG&E's understanding based upon its records is that trimmers achieved at least 18 feet of clearance between the subject tree and the conductors.
- October 8, 11:34 PM: CAL FIRE Howard Forest Emergency Command Center received a report of a vegetation fire in a patch of blackberry bushes east of 13801 N. Busch Road, Potter Valley, CA.

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were 14 vegetation management inspections of the incident location. PG&E's understanding based upon its records is that the subject tree was identified for routine work during one of those inspections in February 2014. The identified work was completed in March 2014. Between October 2012 and October 2017, there was one overhead inspection and one overhead patrol of the transmission line at or near the incident location. PG&E's understanding based upon its records is that the subject structure was not identified for work. Between October 2012 and October 2017, there was one intrusive inspection at or near the incident location. PG&E's understanding based upon its records is that the subject structure was not identified for work.

Below is a summary of vegetation management patrols and inspections, electric maintenance overhead patrols and inspections, and intrusive inspections performed at or near the incident location.

Date	Event	Findings
12/4/2012	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
4/15/2013	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
6/6/2013	A PG&E contractor performed an intrusive inspection.	PG&E's understanding based upon its records is that the subject structure was not identified for work.
2/10/2014	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that two trees near the incident location were identified for routine trimming and that one of those trees was the subject tree. PG&E's understanding based upon its records is that Family Tree Service completed the work on March 27, 2014.
4/10/2014	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
11/5/2014 – 11/10/2014	PG&E performed a transmission overhead inspection.	PG&E's understanding based upon its records is that the subject structure was not identified for work.
2/18/2015	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/20/2015	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/19/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
4/1/2016	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
8/5/2016	A PG&E contractor performed a Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Date	Event	Findings
9/22/2016	PG&E performed a transmission overhead patrol.	PG&E's understanding based upon its records is that the subject structure was not identified for work.
10/17/2016	A PG&E contractor performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
1/27/2017 – 1/28/2017	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/28/2017	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
7/20/2017	WECI performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
8/8/2017	WECI performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
CAL FIRE Report	CAL FIRE Investigation Report 17CAMEU012169, Redwood, http://calfire.ca.gov/fire_protection/downloads/FireReports/LE-80%20Redwood%20Incident%20Report_Redacted.pdf
PGE-CPUC_00017162	Log of Evidence CAL FIRE collected
PGE-CPUC_00010351; PGE-CPUC_00010352	Vegetation Management Work Requests
PGE-CPUC_00010171; PGE-CPUC_00010172; PGE-CPUC_00010173; PGE-CPUC_00010174; PGE-CPUC_00010175; PGE-CPUC_00010176; PGE-CPUC_00010177; PGE-CPUC_00010178; PGE-CPUC_00010179; PGE-CPUC_00010180; PGE-CPUC_00010182	Vegetation Management Inspection Records
PGE-CPUC_00006364	Pole Inspection Record
PGE-CPUC_00009754-00009759	Transmission Overhead Detailed Inspection Records
PGE-CPUC_00012644; PGE-CPUC_00012645; PGE-CPUC_00012647; PGE-CPUC_00012648	Vegetation Management CEMA Maps
PGE-CPUC_00011183; PGE-CPUC_00011388; PGE-CPUC_00011471; PGE-CPUC_00011986	Yearly CEMA Projects
PGE-CPUC_00009748-00009753	Transmission Overhead Air Patrol Records

EXHIBIT VV

PRESSLEY INCIDENT DESCRIPTION & FACTUAL SUMMARY

Background:

According to CAL FIRE's website, the Pressley fire started at 1:30 AM on October 9, 2017. The CAL FIRE website lists the location of the Pressley Fire as "east of Rohnert Park" in Sonoma County, CA. The website further identifies latitude and longitude coordinates—38.36685, -122.64001 (the "incident location")—which fall within the Fairwind Farm property on 2276 Crane Canyon Road.

Incident Overview:

CAL FIRE's website lists Pressley as part of the "Nuns fire", which consists of six different fires: Adobe, Norrbom, Nuns, Oakmont, Partrick and Pressley. However, the Pressley fire did not merge with the other five fires.

Timeline:

The following is a timeline of events that took place in the period immediately preceding and immediately following the start time, according to CAL FIRE, of the Pressley fire.

Event	Source(s)
October 9, 2017, 1:18 AM: PG&E's understanding based upon its records is that Line Recloser 478, which is upstream of the incident location, noted a single line to ground fault but did not open.	SCADA data
October 9, 2017, 1:30 AM: The Pressley fire start time according to CAL FIRE.	CAL FIRE website (http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1888)
October 9, 2017, 3:01 AM: Active fire was reported on Crane Canyon Road, Crane Creek Park and on Oak Springs Lane.	Emergency dispatch calls

Source List:

Source	**Brief Description**
Pressley Incident Information	Pressley Incident Information, CAL FIRE, http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1888
REDCOM records	Emergency dispatch calls
SCADA	SCADA data

EXHIBIT WW

SUPPLEMENT TO REDWOOD LOCATION FACT REPORT

Supplemental Background Information:

On June 8, 2018 CAL FIRE released its Final Report, 17CAMEU012169 ("CAL FIRE Report"). This report is publicly available via the following link on the CAL FIRE website: http://calfire.ca.gov/fire_protection/downloads/FireReports/LE-80%20Redwood%20Incident%20Report_Redacted.pdf.

According to the CAL FIRE Report, CAL FIRE started receiving reports of a vegetation fire in Potter Valley at 11:34 PM.

Supplemental Evidence Collection Information:

In the CAL FIRE Report, CAL FIRE reported that it collected a portion of a 12kV conductor, a fulgurite, and a fulgurite with a portion of a conductor from the Redwood Incident Location.

Supplemental Timeline Information:

The Redwood Location Fact Report contained a timeline of PG&E's actions at or impacting the incident location within a three-hour window on either side of the start time designated by CAL FIRE in the April 20, 2018 communication, which was October 8, 2017, 11:30 PM. The following additional information is relevant to the Redwood Location Fact Report timeline.

- October 8, 11:34 PM: CAL FIRE started receiving reports of a vegetation fire in Potter Valley.
- October 9, 12:27 AM: A CAL FIRE Heavy Fire Equipment Operator reported a new vegetation fire at Hawn Creek Road and Main Street.

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were thirteen vegetation management inspections at or near the incident location. PG&E's understanding based upon its records is that the subject tree was never identified for work. Between May 2014 and October 2017, there were two electric maintenance overhead patrols and one electric maintenance overhead inspection. PG&E's understanding based upon its records is that the subject poles were not identified for work. Between May 2013 and October 2017, there was one intrusive inspection. PG&E's understanding based upon its records is that the subject poles were not identified for work.

Below is a summary of vegetation management patrols and inspections, electric maintenance overhead patrols and inspections, and intrusive inspections performed at or near the incident location.

Date	Event	Findings
12/3/2012	Western Environmental Consultants, Inc. ("WECI") performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
1/4/13	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/7/2013 - 5/29/2013	A PG&E contractor performed an intrusive pole inspection.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
2/7/14-2/12/14	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
5/5/2014	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
9/17/2014	A PG&E contractor performed a Catastrophic Event Memorandum Account ("CEMA") patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/3/2015- 2/20/2015	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
3/23/2015	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that eight electric corrective forms were created, but the subject poles were not identified for work.
7/27/2015	A PG&E contractor performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
2/17/2016 – 2/18/16	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
3/17/16	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
3/30/2016	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
8/5/2016	A PG&E contractor performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
10/17/2016	A PG&E contractor performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Date	Event	Findings
2/27/2017- 2/28/2017	WECI performed a vegetation management routine patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
7/20/2017	WECI performed a CEMA patrol.	PG&E's understanding based upon its records is that the subject tree was not identified for work.
8/8/2017	WECI performed a CEMA patrol	PG&E's understanding based upon its records is that the subject tree was not identified for work.

Source List:

Source	**Brief Description**
August 2014 Patrol	August 2014 CEMA Patrol of the Potter Valley 1105 Circuit
CAL FIRE Report	CAL FIRE Investigation Report 17CAMEU012169, Redwood, http://calfire.ca.gov/fire_protection/downloads/FireReports/LE-80%20Redwood%20Incident%20Report_Redacted.pdf
December 2012 Inspection	December 2012 routine vegetation inspection of the Potter Valley 1105 Circuit
February 2014 Inspection	February 2014 routine vegetation inspection of the Potter Valley 1105 Circuit
February 2015 Inspection	February 2015 routine vegetation inspection of the Potter Valley 1105 Circuit
February 2016 Inspection	February 2016 routine vegetation inspection of the Potter Valley 1105 Circuit
February 2017 Inspection	February 2017 routine vegetation inspection of the Potter Valley 1105 Circuit
PGE-CPUC_00009688-00009736	Electric Maintenance Overhead Inspection Records
PGE-CPUC_00009683; PGE-CPUC_00009737; PGE-CPUC_00009686; PGE-CPUC_00009739	Electric Maintenance Overhead Patrol Records
PGE-CF_00004843; PGE-CF_00004849	Pole Inspection Records
PGE-CF_00142703; PGE-CF_00142705; PGE-CPUC_00012645; PGE-CPUC_00012647; PGE-CPUC_00020768; PGE-CPUC_00020769	Vegetation Management CEMA Maps
PGE-CPUC_00020762; PGE-CPUC_00020760; PGE-CPUC_00020758-00020759	Vegetation Management Inspection Records
PGE-CPUC_00020756; PGE-CPUC_00020762-	Vegetation Management Work Requests

00020763; PGE-CPUC_00020757; PGE-CPUC_00020761	
PGE-CPUC_00011183; PGE-CPUC_00011388; PGE-CPUC_00011471; PGE-CPUC_00011986	Yearly CEMA Projects

EXHIBIT XX

SULLIVAN INCIDENT DESCRIPTION & FACTUAL SUMMARY

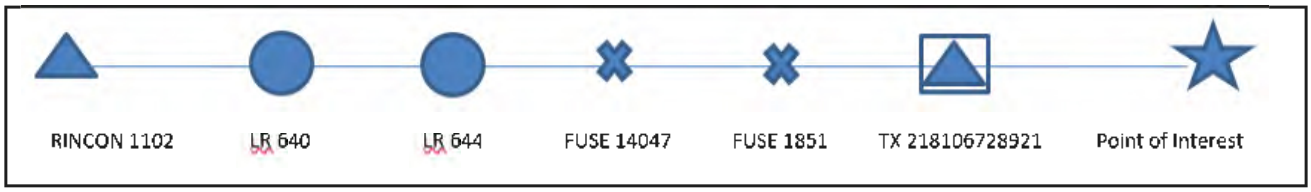
Background:

On October 15, 2017, PG&E filed an Electric Safety Incident Report (No. 171015-8573) concerning an incident that occurred near 4818 Sullivan Way, Santa Rosa, CA. On November 13, 2017, PG&E filed a 20-Day Electric Incident Report (Reference No. E171008H), indicating that the location of the incident was near 4814 Sullivan Way, Santa Rosa, CA (the "incident location"). According to the Santa Rosa Fire Department, the fire started in the early morning of October 9, 2017 near the incident location.

As of the present date, neither CAL FIRE nor the CPUC has initiated an investigation or issued any statements related to the cause of the Sullivan Fire.

The Santa Rosa Fire Department prepared an incident report on the Sullivan fire, dated January 17, 2018, including a narrative of the investigation. The narrative states, "[T]he fire appears to have been the result of a natural cause and consequence of the Red Flag weather event that occurred the night of October 8, 2017 and extended into the early morning hours of October 9, 2017. Ignition of vegetation resulted from the arcing overhead power lines that were damaged by the extreme winds, spreading fire upslope and into the two structures." The narrative concludes, "Investigation closed."

Incident Overview:



Based on PG&E records, on October 8, the smart meter at service point 1008110728, which was at 4822 Sullivan Way, Santa Rosa, CA and downstream of Transformer 218106728921, failed to report interval data between 8:12 PM and midnight. Based on PG&E records, the smart meter at service point 1008110727, which was at the incident location and downstream of Transformer 218106728921, failed to report interval data between 8:28 PM and midnight.

Based on PG&E records, on October 9, at 12:13 AM, nine other smart meters downstream of Transformer 218106728921 recorded NIC Power Down events.

According to the Santa Rosa Fire Department, on October 9, at 12:17 AM, an alarm went off at 4822 Sullivan Way, Santa Rosa, CA. This location is adjacent to the incident location. At 12:31 AM, the Santa Rosa Fire Department arrived at 4822 Sullivan Way, Santa Rosa, CA, and the "Last Unit Cleared" was recorded at 12:44 PM. According to the Santa Rosa Fire Department, at 2:49 PM, an alarm went off at the incident location. At 3:20 PM, the Santa Rosa Fire Department arrived at the incident location, and the

"Last Unit Cleared" was recorded at 10:34 PM. Two structures, 4814 and 4822 Sullivan Way were damaged in the fire.

Based on PG&E records, on October 15, at 1:20 PM, a PG&E troubleman, Jon Kotula, was dispatched to Sullivan Way. At 1:39 PM, the troubleman arrived near the incident location and requested a repair crew. Based on PG&E records, this troubleman was the first responder to the Sullivan incident. Kotula testified to this at his deposition. Per the troubleman, when he arrived near the incident location, he saw that the self-protecting transformer upstream of the incident location had been tripped. The troubleman then tested the voltage at the secondary to confirm that the line was deenergized, and the test confirmed that it was de-energized.

Per the troubleman, the secondary conductors at the area of interest were in a vertical rack construction. The middle phase was a neutral line that was sagging beneath the lower phase. There appeared to be evidence of arcing on the middle phase and the preform on the middle phase appeared to be broken. The troubleman, Jon Kotula, prepared a form incident report for the Sullivan incident. The incident report states that the copper wire on the opposite side of the pole with the broken preform was "pitted", the "4/0 neutral was sagging into hot leg on rack secondary" and "4/0 neutral had sagged below the 4/0 hot leg".

At 2:37 PM, a repair crew consisting of PG&E employees was dispatched to Sullivan Way. At 4:16 PM, the arrival of a PG&E repair crew at the Sullivan incident location was recorded. The repair crew repaired a secondary conductor that had been damaged with flash burns. They also replaced connectors and a broken preform, before re-sagging one conductor. At 6:26 PM, nine smart meters downstream of Transformer 218106728921 recorded "NIC Power Restore Trap" events. The smart meters at service points 1008110727 and 1008110728 remained offline.

Evidence Collection:

PG&E collected a conductor and preform on October 16, 2017.

Timeline:

Event
October 8, 2017, 8:12 PM: The smart meter at service point 1008110728, which was at 4822 Sullivan Way, Santa Rosa, CA and downstream of Transformer 218106728921, failed to report interval data after 8:12 PM.
October 8, 2017, 8:28 PM: Based on PG&E records, the smart meter at service point 1008110727, which was at 4814 Sullivan Way, Santa Rosa, CA and downstream of Transformer 218106728921, failed to report interval data after 8:28 PM.
October 9, 2017, 12:13 AM: Nine other smart meters downstream of Transformer 218106728921 recorded NIC Power Down events.

Event
October 9, 2017, 12:17 AM: According to the Santa Rosa Fire Department, an alarm went off at 4822 Sullivan Way, Santa Rosa, CA. This location is adjacent to the incident location.
October 9, 2017, 12:31 AM: According to the Santa Rosa Fire Department, the Santa Rosa Fire Department arrived at 4822 Sullivan Way, Santa Rosa, CA.
October 9, 2017, 12:44 PM: According to the Santa Rosa Fire Department, the "Last Unit Cleared" was recorded.
October 9, 2017, 2:49 PM: According to the Santa Rosa Fire Department, an alarm went off at 4814 Sullivan Way, Santa Rosa, CA.
October 9, 2017, 3:20 PM: According to the Santa Rosa Fire Department, the Santa Rosa Fire Department arrived at 4814 Sullivan Way, Santa Rosa, CA.
October 9, 2017, 10:34 PM: According to the Santa Rosa Fire Department, the "Last United Cleared" was recorded.
October 15, 2017, 1:20 PM: PG&E's understanding based upon its records is that a PG&E troubleman was dispatched to Sullivan Way.
October 15, 2017, 1:39 PM: PG&E's understanding based upon its records is that the PG&E troubleman arrived near the area of interest and requested a repair crew.
October 15, 2017, 2:37 PM: PG&E's understanding based upon its records is that a repair crew was dispatched to Sullivan Way.
October 15, 2017, 4:16 PM: The arrival of a PG&E repair crew at the Sullivan incident location was recorded. The crew repaired a secondary wire with "flash burn" marks, replaced a preform and all connectors and resagged one neutral line on or around Pole 102020529.
October 15, 2017, 6:26 PM: Nine smart meters downstream of Transformer 218106728921 recorded "NIC Power Restore". The smart meters at service points 1008110727 and 1008110728 remained offline.
October 18, 2017: Troubleman Jon Kotula submitted an incident report stating that a preform was broken at the insulator, a neutral line at the incident location was sagging into the hot conductor and the copper wire on the opposite side of the pole was "pitted".

Information Regarding Prior Inspections

Between 2013 and October 2017, there were 18 inspections of the vegetation and electric equipment at the Sullivan incident location. Below is a summary of overhead line patrols and inspections, vegetation management inspections, as well as the intrusive inspections of the poles at issue.

Date	Event	Findings
1/24/2013 & 2/8/2013	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that no issues were found in the location of interest.
4/17/2013	Western Environmental Consultants Inc. ("WECI") performed a vegetation management routine patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
1/10/2014 & 1/30/2014	PG&E performed an electric maintenance overhead patrol of the area.	PG&E's understanding based upon its records is that no issues were found in the location of interest.
5/15/2014	WECI performed a vegetation management routine patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
1/9/2015	PG&E performed an electric maintenance overhead patrol of the area.	PG&E's understanding based upon its records is that no issues were found in the location of interest.
6/3/2015	WECI performed a vegetation management routine patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
1/19/2016	WECI performed a vegetation management routine patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
3/17/2016 – 3/18/2016	PG&E performed an electric maintenance overhead detailed inspection of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work. PG&E's understanding based upon its records is that no issues were found in the location of interest. A high voltage sign was installed on the pole near 4811 Sullivan Way.
8/29/2016	PG&E performed a Catastrophic Event Memorandum Account ("CEMA") patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Date	Event	Findings
9/29/2016	PG&E performed a CEMA patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
5/25/2016 – 8/27/2016	PG&E performed a CEMA aerial patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.
1/18/2017	WECI performed a vegetation management routine patrol of the area.	PG&E's understanding based on its records is that the subject trees were not identified for work.
3/20/2017	PG&E performed an intrusive inspection on a pole near 4811 Sullivan Way.	PG&E's understanding based upon its records is that no issues were found.
3/20/2017	PG&E performed an intrusive inspection on a pole near 4819 Sullivan Way.	PG&E's understanding based upon its records is that no issues were found.
3/23/2017	PG&E performed an intrusive inspection on a pole near 4814 Sullivan Way.	PG&E's understanding based upon its records is that no issues were found.
3/23/2017	PG&E performed an intrusive inspection on a pole near 4819 Sullivan Way.	PG&E's understanding based upon its records is that no issues were found.
3/28/2017	PG&E responded to a customer call at 4814 Sullivan Way.	One tree at 4814 Sullivan Way was trimmed on 6/14/2017. PG&E's understanding based upon its records is that the subject trees were not identified for work.
5/19/2017 & 5/31/2017	PG&E performed an electric maintenance overhead patrol of the area.	PG&E's understanding based upon its records is that no issues were found in the location of interest.
6/24/2017 - 6/28/2017	PG&E performed a CEMA patrol of the area.	PG&E's understanding based upon its records is that the subject trees were not identified for work.

Source List:

Source	**Brief Description**
AMI Data	AMI Data for Smart Meters downstream of Transformer 218106728921.
PGE-NBF_0000097491	EC tag #112714583, March 28, 2017
PGE-NBF-0000112585	EC Tag created by Jon Kotula and completed by Tala Atoe. Dated 10/15/17
PGE-NBF-0000099850	EC tags #111474244 and 111474246, March 17, 2016
PGE-NBF-0000099786; PGE-NBF-0000099778; PGE-NBF-0000099819; PGE-NBF-0000099822; PGE-NBF-0000099823; PGE-NBF-0000099825; PGE-NBF-0000099826; PGE-NBF-0000099830 PGE-NBF-0000099838; PGE-NBF-0000099842; PGE-NBF-0000099911; PGE-NBF-0000099912; PGE-NBF-0000099917; PGE-NBF-0000099920	Electric Maintenance Overhead Patrol/Inspection Maps and Daily Logs
PGE-NBF-0000111744	Kotula Incident Report, October 21, 2017
PGE-NBF-0000092131	OIS Report #1901300. Indicates dispatch times and on-site times for the PG&E employees that responded to the Sullivan incident. Dated 10/15/2017.
PGE-NBF-0000000403	PG&E Evidence Log
PGE-NBF-0000117399; PGE-NBF-0000117403; PGE-NBF-0000117401; PGE-NBF-0000117405	Pole Inspection Records

Santa Rosa Fire Department Incident Report (public record)	Santa Rosa Fire Department Incident Reports 2017-0025033 and 2017-0025091, January 23, 2018
PGE-NBF-0000002758	Sullivan 20-Day Electric Incident Report, Reference No. E171008H. Dated 11/13/2017
PGE-NBF-0000002877	Sullivan Initial Electric Incident Report, No. 171015-8573, http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171015-8573.pdf Dated 10/15/2017.
PGE-NBF-0000113642; PGE-NBF-0000113644; PGE-NBF-0000113646; 2016 CEMA Summary Data; 2017 CEMA Summary Data	Vegetation Management CEMA Records
April 2014 VM Patrol Records; May 2014 VM Patrol Records; June 2015 VM Patrol Records; January 2016 VM Patrol Records; January 2017 VM Patrol Records	Vegetation Management Patrol Records

EXHIBIT YY

SUPPLEMENT TO SULPHUR INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

On June 8, 2018, CAL FIRE issued a press release stating that CAL FIRE investigators determined that the Sulphur Fire was caused by the failure of a PG&E power pole. CAL FIRE has not publicly released its investigation report.

Supplemental Evidence Collection Information:

PG&E indicated in the Sulphur Factual Summary that PG&E collected portions of Fuse Cutout Pole 1447, portions of the crossarm, and both ends of the conductors. PG&E also collected a communications wire from the incident location.

Supplemental Timeline Information:

The Sulphur Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident location was restored. The following additional information is relevant to the Sulphur Factual Summary timeline.

- October 9, 2017, 12:53 AM: Lake County Fire Department received its first call regarding a fire on Sulphur Bank Road from an unknown individual.
- October 9, 2017, 1:09 AM: Lake County Fire Department arrived on scene for a fire on Sulphur Bank Road.

Supplemental Information Regarding Prior Inspections:

Between October 2012 and October 2017, there were three electric maintenance overhead patrols and one electric maintenance overhead inspection. PG&E's understanding based upon its records is that neither of the subject poles was identified for work during any of those inspections. Between 2013 and October 2017 there was one intrusive pole inspection. PG&E's understanding based upon its records is that the subject poles were not identified for work.

Below is a summary of the electric maintenance overhead patrols and inspections and intrusive pole inspections performed at or near the incident location.

Date	Event	Findings
04/08/2013	PG&E performed an intrusive pole inspection.	PG&E's understanding based upon its records is that the subject poles were not identified for work. A comment on a report regarding a subject pole stated "Shell Rot/Decay, Insect or Animal Damage, Excessive Checking or Cracked".

Date	Event	Findings
10/03/2013 – 10/04/2013	PG&E performed an electric maintenance overhead inspection.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
10/12/2015	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
11/07/2016	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that the subject poles were not identified for work.
02/28/2017	PG&E performed an electric maintenance overhead patrol.	PG&E's understanding based upon its records is that the subject poles were not identified for work.

After PG&E submitted the Sulphur Factual Summary to the CPUC, the CPUC requested information related to PG&E's Vegetation Control activities at the Sulphur incident location. The poles at the incident location are not within the State Responsibility Area, and therefore are not subject to the requirements of Public Resource Code § 4292.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf
Lake County Fire Protection District Records	Lake County Fire Protection District Records
PGE-CPUC_00009774–PGE-CPUC 00009814	Electric Maintenance Overhead Inspection Records
PGE-CF_00004352-PGE-CF_00004356; PGE-CPUC_00009815-PGE-CPUC_00009819; PGE-CPUC_00009820-PGE-CPUC_00009824	Electric Maintenance Overhead Patrol Records
PGE-NBF-0000101474	PG&E Response to CPUC August 16, 2018 Data Request, Sulphur Question 2
PGE-CPUC_00006366–PGE-CPUC_00006379	Pole Inspection Records

EXHIBIT ZZ

SUPPLEMENT TO TUBBS INCIDENT DESCRIPTION & FACTUAL SUMMARY

Supplemental Background Information:

CAL FIRE has not yet announced any determination by CAL FIRE investigators as to the cause of the Tubbs Fire.

In the pending civil litigations concerning the North Bay Fires, PG&E has obtained information concerning customer-owned equipment located at 1128 Bennett Lane, Calistoga, CA, a property in Napa County owned by Ann Zink (the CPUC "incident location", as defined by the CPUC's December 7, 2017, letter). The evidence supports the conclusion that this equipment, located beyond PG&E's service delivery point, was planned, designed, installed, maintained and operated by third parties, not PG&E.

Ms. Zink's property at 1128 Bennett Lane consisted of a series of different structures prior to the Tubbs Fire, including a main house, a carport, a garage and a guest house adjacent to a swimming pool. PG&E provided electricity to the property via a tapline that ran northwest up a hill from Bennett Lane. That tapline, which connected to a distribution line running adjacent to Bennett Lane, serviced two properties: 1128 Bennett Lane and the neighboring home of 1200 Bennett Lane.

PG&E's lines connected to Ms. Zink's house through a service riser located on the roof. After the service delivery point, and therefore after the point at which PG&E had legal responsibility for operation, inspection and maintenance, Ms. Zink owned and maintained private electrical equipment on the property that provided electricity to the other structures on her property as well as certain pieces of equipment such as water pumps. Specifically, customer-owned lines extended from the house to a customer-owned pole located adjacent to the house. Two customer-owned lines branched off from this pole to feed power to different areas on the property. One of those lines ran to two other customer-owned power poles on the property, powering a water pump and a water storage tank. That line was strung along trees down the hill, and connected to and powered a pump located in Ms. Zink's well on Bennett Lane.

Since 1988, Michael Andrews has been the caretaker of Ms. Zink's property. Mr. Andrews has no electrical training and was not licensed to perform electrical work. In February 2017, Mr. Andrews was driving up Ms. Zink's driveway when he noticed that one of Ms. Zink's poles "had broken and was suspended about three and a half feet off the ground in the middle of the driveway". Mr. Andrews then looped a rope around the lines, "pulled them to where they would come off of the road" and could "stay suspended off the road by a stake", and tied the rope so he could proceed up the driveway. The broken pole, at least ten feet long, remained suspended in the air supported by Ms. Zink's electrical lines for approximately a week.

After purchasing a replacement for the "snapped" pole from a hardware store in Sonoma County, Mr. Andrews had DirtWorx, a company owned by third-party Drew Bohan, help him replace the pole. According to Mr. Andrews, Drew Bohan "arrived with his excavator, came up, dug out the pole—what was left of the old pole out of the ground,

dug a six-and-a-half-feet hole, and [they] installed the pole". Mr. Andrews then reattached the power lines to the pole with Derek Bohan, who, like Mr. Andrews, was not a licensed electrician at the time. The process of installing a new pole and reattaching the lines took about a week. Even though the lines had been suspended in the air for about a week—supporting a portion of broken pole at least ten feet in length—Mr. Andrews did not replace the lines or connection, but reattached the same lines to the new pole using the old connection. Mr. Andrews tied the lines to the pole. Derek Bohan did not recall checking the condition of the electrical equipment before or after it was reattached to the new pole. Mr. Bohan and Mr. Andrews testified that they did not obtain permits for this work. Other third-party witness testimony suggests that other repair work on the private electrical equipment was previously required and performed without permits.

When PG&E examined evidence at the incident location following the Tubbs Fire, PG&E observed that one of the customer-owned poles was severely burned at the top. Although PG&E has not yet had the opportunity to analyze the customer-owned equipment collected by CAL FIRE, the PG&E equipment that CAL FIRE collected was intact and appeared to be in working order, apart from a detached PG&E secondary service line which had detached from the fire-damaged home.

Supplemental Incident Overview Information:

In the Tubbs Factual Summary, PG&E explained that fuse 773 is the closest fuse upstream of the incident location, located on pole #102220385 ("pole with fuse 773"). That pole is adjacent to Bennett Lane, at the base of the hill on which Ms. Zink's property sits, located south of the main series of structures on Ms. Zink's property. PG&E has become aware that due to a mapping error, vegetation on the ground beneath the pole with fuse 773 should have been cleared pursuant to Public Resources Code ("PRC") 4292 prior to October 8, 2017, but was not.[1] The pole with fuse 773 is south / southeast from the Zink home and the location of her customer-owned equipment that exhibited signs of damage.

On the night of October 8, 2017, the government-owned weather stations at Santa Rosa and Hawkeye reported that the wind was blowing from the north / northeast to the south / southwest.[2] At 9:00 PM, these stations recorded wind speeds around 25 mph with sustained wind gusts around 60 mph.[3]

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[1] California Public Resources Code § 4292 requires PG&E to maintain a firebreak of at least ten feet in radius around a utility pole if it is within a State Responsibility Area and has non-exempt equipment installed; a firebreak requires removal of all flammable materials including "ground litter, duff and dead or desiccated vegetation that will allow fire to spread" at ground level. A 2013 map drawn by a contractor mistakenly indicated that the pole with fuse 773 was within a Local Responsibility Area, which does not require a ten-foot firebreak. This mistake was not corrected prior to October 8, 2017, although it was identified in 2016.

[2] PG&E reserves the right to present evidence that wind speeds on October 8, 2017, were higher than those reported by the publicly available weather stations.

[3] PG&E reserves the right to present evidence that wind speeds on October 8, 2017, were higher than those reported by the publicly available weather stations.

Officer Dale Hoskins, the first responder on scene, testified that the winds on October 8 were moving southwest, and were "very intense", "strong" and "basically fast enough that you could hear it . . . [making] almost like a roaring sound". Another first responder, Fire Captain Jason Tamagni of the Calistoga Fire Department, testified that the conditions that night were "hot, dry [and] windy", and estimated that the wind was moving "over 50 miles per hour."

A number of witnesses have provided sworn testimony concerning the direction the Tubbs Fire spread in the early hours after it began. For example, Willard Hamilton, who lives at 3300 State Highway 128, observed fire on the Bennett Lane hill. Ronald Risi, who lives at 1177 Bennett Lane, also observed fire on the Bennett Lane hill and saw flames 20 feet off the ground between 10:04 and 10:09 PM. Mr. Risi testified that the fire was moving towards 1110 and 1108 Bennett Lane, but had not moved down to Bennett Lane itself when he observed the fire. Doug Towne, who lives at 3200 State Highway 128, observed fire on the Bennett Lane hillside between 9:45 and 10:00 PM. He testified that the fire was midway between the tops of the vineyards and the ridgeline of the hill on which 1128 Bennett Lane sits. Officer Hoskins testified that from his vantage point on the night of October 8 at 9:51 PM, near the intersection of State Highway 128 and North Fork Bennett Lane, the fire was "moving in the direction of the wind" as it crossed State Highway 128.

Photographs and videos from the night of October 8, 2017, also depict the early stages of the Tubbs Fire on the hillside where 1128 Bennett Lane is located.

Officer Hoskins, one of the first responders to the Tubbs Fire, testified that the intersection of State Highway 128 and Bennett Lane was the first area of fire he encountered and he took a photo immediately upon arriving at the scene at 9:48 PM. He testified that the area depicted in the bottom right of the photo, toward the direction of the pole with fuse 773, was not on fire. At approximately 9:52 PM, Officer Hoskins drove north on Bennett Lane to evacuate 1133 Bennett Lane, a residence on the right side of Bennett Lane facing east, with a driveway across the street from the pole with fuse 773. Officer Hoskins testified that, at that point in the night, across the street from 1133 Bennett Lane, the fire was 15 to 20 yards off the road and up on the Bennett Lane hillside.

One Calistoga firefighter, Rob Ebling, testified that he observed something that he believes was a wire down on Bennett Lane on October 8, 2017, at approximately 10:03 PM in the vicinity of the pole with fuse 773. Engineer Ebling drove one of two fire engines (Engine 19) that arrived at the intersection of Bennett Lane and State Highway 128 at approximately 9:57 PM on the night of October 8, 2017. He testified that when he backed up his fire engine and began to turn the corner onto Bennett Lane, he "saw what appeared to be a power line down." He estimated the power line was approximately fifteen feet off the ground, and would have contacted the top of his fire engine's windshield if he continued east on Bennett Lane. Firefighter Adam Ramirez, who rode in the fire engine with Engineer Ebling, testified that he only saw heavy smoke—not any power lines—and did not recall any specific reason given by Engineer Ebling for his decision to back up, except that it was not safe. Other first responders testified to not

seeing any wires down or failed electrical equipment on Bennett Lane itself, including Officer Hoskins, who drove on Bennett Lane multiple times on the night of October 8, 2017. Robert Villagomez, the PG&E troubleman who was the first PG&E responder on scene previously identified in the Tubbs Factual Summary, testified that he did not go further than the "buck pole" one span northeast of the pole with fuse 773, but that he did not recall seeing any lines down, sagging, evidence of arcing, pitting or deformation, any trees or branches down in that area, or any PG&E personnel cutting or removing trees. The only other failed PG&E equipment found at or near the incident location was a broken pole found by PG&E troublemen Jonathan Johnson and Phil Montoya, pole 102220410, located near 1270 Bennett Lane, but this was approximately 0.4 miles from the incident location and according to eyewitness testimony, the fire was not at that area prior to at least 12:30 AM to 1:00 AM on the morning of October 9, 2017.

Supplemental Electrical Information:

Since PG&E submitted its Factual Summary to the CPUC, PG&E has obtained additional information about the outages at or near the incident location on the night of October 8, 2017. Based on the data, there appear to be three fuses that operated in the vicinity of Bennett Lane between 8:46 PM (the first reported outage time) and 11:24 PM (when LR 734 opened) on October 8, 2017. Those fuses are 765, 773, and 3677. The operation of fuse 773, as it is the closest fuse upstream of the incident location, was described in the Tubbs Factual Summary.

The first outage in the area on October 8, 2017, was recorded by four smart meters downstream of fuse 3677. Fuse 3677 protects a different tap line than fuse 773 and is not downstream of fuse 773. The tap line downstream of fuse 3677 does not service 1128 Bennett Lane. There are seven total smart meters downstream of fuse 3677,[4] and three meters downstream of fuse 3677 recorded Last Gasp events at 8:46 PM on October 8, 2017, and one reported a NIC Power Down at 8:46 PM.[5]

Another outage in the area on October 8, 2017, is linked to fuse 765. Fuse 765 serves a tap line that is on the northwest side of State Highway 128, is located about half a mile

[4] Those smart meters have the following badge ID numbers: 1006667505, 5000001018, 1010081154, 1009535710, 1009554902, 1010057540 and 1009573554. Three of those smart meters did not record events at 8:46 PM on October 8, 2017, because two had stopped communicating with PG&E's smart meter network ("UIQ") on October 4, 2017, and October 7, 2017, respectively. The third did not transmit data to UIQ after 8:10 PM on October 8, 2017, and PG&E has been unable to download additional data since this time. PG&E believes that six of the seven smart meters downstream of fuse 3677 were destroyed by the fire.

[5] Civil plaintiffs have served various interrogatories asking about an outage at 8:51 PM on October 8, 2017, due to a posting on PG&E's outage website indicating an outage at that time. However, the operation of fuse 3677 is the source of the initial outage time of 8:51 PM that was posted on PG&E's customer-facing outage website. PG&E has confirmed that this is a function of how this outage website operates. When an outage is initially reported in a general area, subsequent outages merge with that first reported outage and become associated with that outage start time. However, smart meter outage information is not reported to PG&E's Outage Information System ("OIS") and the customer outage website until approximately five to eight minutes after a smart meter records an outage (to quality check that only sustained, rather than momentary, outages are captured) which is why the website listed 8:51 PM, rather than 8:46 PM, as the outage start time.

from fuse 773 and protects a different portion of the Calistoga 1101 Circuit than fuse 773. The line that is downstream of Fuse 765 does not service 1128 Bennett Lane. PG&E's records indicate that there was an outage downstream of fuse 765 at 8:51 PM. Based on PG&E's investigation, PG&E has been unable to confirm whether the four smart meters downstream of fuse 765 powered down at this time because none of the meters transmitted any usage data to PG&E's smart meter network ("UIQ") after 8:25 PM on October 8, 2017.[6] PG&E is unable to collect further data from these meters because PG&E believes that these meters were destroyed in the fire.[7] In the absence of any other data, PG&E's Outage Information System ("OIS") defaulted to assigning the fuse 765 outage the same start time as the earliest nearby outage. However, this outage could have occurred any time between 8:25 PM and 11:24 PM on October 8, 2017, which is the period from the time of the last meter communication to UIQ and the approximate time that an upstream protective device operated and thereby de-energized the line that fuse 765 protected.

In assessing whether events that could have caused Fuses 765 and 3677 to operate are relevant to the cause of the Tubbs Fire, the testimony of Officer Ryan Jung, another first responder to the Tubbs Fire, is relevant. The City of Calistoga produced Officer Jung's body camera footage from October 8, 2017, showing himself driving east on State Highway 128 for several minutes, including through the intersection with Bennett Lane at approximately 10:22 PM. This video also depicts Officer Jung driving past the pole with fuse 765 and the pole with fuse 3677. The poles containing these fuses are located on the northbound side of State Highway 128 and are roughly half a mile west of the 1128 Bennett Lane incident location. Officer Jung's video does not show fire at or near either pole as he drove past these poles, well after the start of the Tubbs Fire.

Supplemental Evidence Collection Information:

PG&E indicated in the Tubbs Factual Summary that CAL FIRE collected a set of three distribution line fuses at the pole with fuse 773, additional de-energized fuses and a de-energized, downed detached PG&E secondary service line composed of 2-strand aluminum triplex from a pole one span east and two spans north of the pole with fuse 773, and customer-owned connectors and a customer-owned electrical conductor from the Tubbs incident location. To the best of PG&E's knowledge, CAL FIRE has not collected additional evidence. However, as noted above, PG&E has not yet had the opportunity to examine evidence collected by CAL FIRE.

PG&E indicated in the Tubbs Factual Summary that PG&E collected sections of copper wire and several paper casings from the ground below the pole with fuse 773, sections of the burnt customer-owned service pole from the Tubbs incident location, the PG&E service pole one span east of the pole with fuse 773, a smart meter from 1200 Bennett Lane, and a conductor and portion of a tree from 1128 Bennett Lane. PG&E has not

[6] One of the four meters (badge ID number 1006763622) sent its last usage read to UIQ at 8:13 PM on October 8, 2017, and powered back on at 9:35 PM, but went back offline and did not send additional data to UIQ after 9:35 PM on October 8, 2017.

[7] The badge ID numbers for these meters are: 1006667502, 1005574246, 1006763622 and 1006667503.

collected additional evidence from the Tubbs incident location since it submitted the Tubbs Factual Summary to the CPUC.

Supplemental Timeline Information:

The Tubbs Factual Summary contained a timeline of PG&E's actions at or impacting the incident location in the period immediately preceding CAL FIRE's designated start time until service to the incident locations was restored. The following additional information is relevant to the Tubbs Fire timeline, and includes actions of first responders and third-party eyewitnesses at or impacting the incident location.

- October 8, 2017, 8:46 PM: three smart meters downstream of fuse 3677 recorded Last Gasp events at 8:46 PM on October 8, 2017, and one reported a NIC Power Down at 8:46 PM.[8]

- October 8, 2017, 9:20 PM: 21 smart meters downstream of fuse 773 reported outage events. 20 of those meters recorded NIC Power Down events (four of these meters also reported Last Gasps), and one meter recorded a Last Gasp.[9]

- October 8, 2017, 9:41 PM: Call to Napa 911 to report a fire. Call came from 3381 State Highway 128, south of 1128 Bennett Lane. Michelle Hickman is a resident at this address.

- October 8, 2017, 9:42 PM: 911 Caller reports a big fire at Old Faithful Geyser. Old Faithful Geyser is located at 1299 Tubbs Lane, Calistoga, CA 94515, east of Bennett Lane.

- October 8, 2017, 9:44 PM: Officer Hoskins hears Napa County Fire dispatching Calistoga Fire Department to a report of a fire on State Highway 128 across from Tubbs Lane and responded from Lerner Drive.

- October 8, 2017, 9:48 PM: Officer Hoskins arrives at Bennett Lane and State Highway 128 and begins evacuations. He takes a photo of the fire, which is time-stamped 9:48 PM.

- October 8, 2017, 9:52 PM (approximate): Officer Hoskins testified that at this time Engine 419 of Calistoga Fire Department arrives at Bennett Lane and State Highway 128. Officer Hoskins notifies residents to evacuate immediately over his patrol vehicle's PA system.

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[8] These smart meters have the following badge ID numbers: 10006667505, 1010081154, 1009535710 and 5000001018.

[9] Since PG&E submitted the Tubbs Factual Summary to the CPUC, PG&E has been able to extract additional data from the Smart Meters collected by CAL FIRE. In addition, some meters have come back online and have recorded additional outage events.

- October 8, 2017, 9:53 PM: According to Calistoga Fire Department records, Calistoga Fire Department sounds the alarm.

- October 8, 2017, 9:57 PM: According to Calistoga Fire Department records, Calistoga Fire Captain Jason Tamagni and Firefighter Jaime Orozco (Engine 419) arrive at State Highway 128.

- October 8, 2017, 9:58 PM (approximate): Calistoga Fire Engineer Rob Ebling and Firefighter Adam Ramirez (Engine 19) arrive at the intersection of Bennett Lane and State Highway 128.

Supplemental Information Regarding Prior Inspections:

Between May 2012 and October 2017, PG&E's understanding, based upon its records, is that there were four electric maintenance overhead patrols / inspections, thirteen vegetation management inspections and two intrusive wood pole inspections of each pole at or near the Tubbs incident location. Below is a summary of electric maintenance overhead patrols and inspections, vegetation management inspections and intrusive wood pole inspections of PG&E equipment that took place at or near the Tubbs incident location between May 2012 and October 2017.

Date	Event	Findings
5/3/2012	PG&E performed an electric maintenance overhead inspection of the Tubbs incident location.	PG&E's understanding based upon its records is that there were no findings.

Date	Event	Findings
10/31/2012 – 01/30/2013	UPT performed intrusive wood pole inspections.	PG&E's understanding based upon its records is that eight poles two spans in both directions from the Tubbs incident location passed their inspections. The poles and their dates of inspection are: • Pole #102220382 on 10/31/2012; • Pole #102220385 on 10/31/2012; • Pole #102220388 on 10/31/2012; • Pole #102220398 on 10/31/2012; • Pole #102220397 on 10/31/2012; and • Pole #102220387 on 10/31/2012; • Pole #102220511 on 11/05/2012; and • Pole #102220390 on 01/30/2013.
6/18/2013	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.

Date	Event	Findings
6/19/2013	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
7/1/2014	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
7/24/2014 – 7/25/2014	PG&E performed an electric maintenance overhead inspection of the Tubbs incident location.	PG&E's understanding based upon its records is that the following work was identified: • Across from 1133 Bennett Lane: install a high voltage sign on the pole and trim above a guy insulator. • Across from 1151 Bennett Lane: replace a decayed cross-arm and install high voltage signs. • At 1128 Bennett Lane: free the guy wire from strain caused by a tree, trim vegetation above a guy insulator and install visibility strips on the pole.

Date	Event	Findings
8/13/2014	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
8/15/2014	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
6/4/2015	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
6/8/2015	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
8/12/2015	PG&E performed an electric maintenance overhead patrol of the Tubbs incident location.	PG&E's understanding based upon its records is that there were no findings.
3/1/2016	Davey Resource Group performed a Catastrophic Event Memorandum Account ("CEMA") vegetation management inspection of the Tubbs incident location.	PG&E's understanding based upon its records is that there were no findings.

Date	Event	Findings
7/14/2016	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
7/20/2016	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
7/25/2016	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
11/3/2016 – 12/5/2016	Davey Resource Group performed a CEMA vegetation management inspection of the Tubbs incident location.	PG&E's understanding based upon its records is that there were no findings.
5/27/2017	Davey Resource Group performed a vegetation management routine inspection.	PG&E's understanding based upon its records is that trees were identified for work, but there is no alleged subject tree associated with the incident location.
8/24/2017	PG&E performed an electric maintenance overhead patrol of the Tubbs incident location.	PG&E's understanding based upon its records is that there were no findings.

Date	Event	Findings
10/28/2017	Osmose performed intrusive wood pole inspections.	PG&E's understanding based upon its records is that ten poles two spans in both directions from the Tubbs incident location passed their inspections. The poles are: • Pole #102220511; • Pole #102220382; • Pole #102220398; • Pole #102220390; • Pole #103781586; • Pole #102220387; • Pole #103224459; • Pole #102220397; • Pole #102220388; and • Pole #102220385.

Source List:

Source	**Brief Description**
14 Cal Code of Regs. § 1254	14 CCR § 1254. Minimum Clearance Provisions – PRC 4292
PGE-NBF-0000100906	2013 Photo depicting service riser
PGE-CPUC_DR-081618	9/7/2018 response to the CPUC's October Wildfires 2017 Data Request
0020-001-044	Calistoga Fire Department Record
CPD00002	Calistoga Police Department Record
PGE-CF_00001188; PGE-CF_00001208; PGE-CF_00001229	Electric Corrective Work Forms
PGE-CPUC_00009827; PGE-CPUC_00009828; PGE-CPUC_00009877; PGE-CPUC_00009882	Electric Distribution Maps
PGE-CPUC_00009825; PGE-CF_00001237; PGE-CF_00001287	Electric Maintenance Patrol/Inspection Daily Logs
Rob Ebling Deposition Exhibit 0030-007	Exhibit 0030-007 from Rob Ebling's deposition
Michael Andrews Deposition Exhibit 0038-009	Exhibit 0038-009 from Michael Andrews' deposition
Paul Block Deposition Exhibit 0043-005	Exhibit 0043-005 from Paul Block's deposition
Ryan Jung Deposition Exhibit 0045-003	Exhibit 0045-003 from Ryan Jung's deposition
Willard Hamilton Deposition Exhibit 0048-002	Exhibit 0048-002 from Willard Hamilton's deposition
Rebekah Turknett Deposition Exhibit 0055-001.	Exhibit 0055-001 from Rebekah Turknett's deposition
Marshall Hayman Deposition Exhibit 0056-009	Exhibit 0056-009 from Marshall Hayman's deposition
Dale Hoskins Deposition Exhibits 0039-007; 0039-010	Exhibits 0039-007 and 0039-010 from Dale Hoskins' deposition
James Pence Deposition Exhibits 0050-003–0050-008	Exhibits 0050-003–0050-008 from James Pence's deposition

Source	**Brief Description**
Don Meyer Deposition Exhibits 0058-003–0058-10	Exhibits 0058-003–0058-10 from Don Meyer's deposition
PGE-CPUC_00015375–00015377	ILIS Outage Report 17-0086475
11/1/2017 Email from Shawn Zimmermaker to Maria De Luca	Letter from CAL FIRE requesting additional data from PG&E for CAL FIRE's investigations
PGE-CPUC_00007963	Log of evidence that CAL FIRE collected
PGE-NBF-TP-0000000398; PGE-NBF-TP-0000000061	Napa 911 Call Records
PGE-NBF-0000100905	Photo depicting customer pole on the side of the house located on the Zink Property
PGE-CPUC_00006380; PGE-CPUC_00006382; PGE-CPUC_00006384; PGE-CPUC_00006386; PGE-CPUC_00006388; PGE-CPUC_00006389; PGE-CPUC_00006391; PGE-CPUC_00006392; PGE-CPUC_00006394; PGE-CPUC_00006396	Pole Inspection Records
Cal. Pub. Res. Code § 4292	PRC § 4292
PGE-NBF-0000104097; PGE-NBF-0000104098	Smart Meter Event and Interval Data Reports
PGE-CF-00136369	Smart Meter Outage Report
Adam Ramirez Deposition Transcript	Transcript of Adam Ramirez's deposition taken 9/11/2018
Dale Hoskins Deposition Transcript	Transcript of Dale Hoskins' deposition taken 10/5/2018
Derek Bohan Deposition Transcript	Transcript of Derek Bohan's deposition taken 10/26/2018
Douglas Towne Deposition Transcript	Transcript of Douglas Towne's deposition taken 12/4/2018
James Herndon Deposition Transcript	Transcript of James Herndon's deposition taken 11/7/2018
Jason Tamagni Deposition Transcript	Transcript of Jason Tamagni's deposition taken 8/3/2018
Michael Andrews Deposition Transcript	Transcript of Michael Andrews' deposition taken 10/3/2018, and continued until a later date to be determined

Source	**Brief Description**
Michael McCoy Deposition Transcript	Transcript of Michael McCoy's deposition taken 11/8/2018
Rob Ebling Deposition Transcript	Transcript of Rob Ebling's deposition taken 9/11/2018
Robert Villagomez Deposition Transcript	Transcript of Robert Villagomez's deposition taken 9/26/2018
Ronald Risi Deposition Transcript	Transcript of Ronald Risi's deposition taken 12/3/2018
Willard Hamilton Deposition Transcript	Transcript of Willard Hamilton's deposition taken 11/7/2018
PGE-NBF-0000002776	Tubbs 20-Day Follow-On Electric Incident Report; sent to the CPUC on 11/27/2017
PGE-CPUC-00012650; PGE-CPUC-00012651	Vegetation Management CEMA Maps
PGE-CPUC_00010185; PGE-CPUC_00010186	Vegetation Management Inspection Records
PGE-CF_00024980; PGE-CF_00024985; PGE-CF_00024986; PGE-CF_00024987; PGE-CF_00024988; PGE-CF_00024991; PGE-CF_00025021; PGE-CF_00025054; PGE-CF_00025128; PGE-CF_00025137; PGE-CF_00025144; PGE-CF_00025196; PGE-CF_00025207; PGE-CF_00025217; PGE-CF_00025228; PGE-CPUC_00010355; PGE-CPUC_00010359; PGE-CPUC_00010360	Vegetation Management Work Request Records
PGE-NBF-0000085630	Video recorded at Bennett Lane Winery in direction of Bennett Lane hill on the night of 10/8/2017

EXHIBIT AAA

37 INCIDENT DESCRIPTION & FACTUAL SUMMARY

Background:

The 37 Fire occurred in Sonoma County on or around the night of October 8, 2017. According to the California Department of Forestry and Fire Prevention ("CAL FIRE"), it burned a total number of 1,660 acres. No structures were damaged as a result of the fire.

On June 8, 2018, CAL FIRE issued a press release concerning its investigation of the 37 Fire, as well as a redacted copy of its full investigation report (the "CAL FIRE Report"), which can be found at http://calfire.ca.gov/fire_protection/downloads/FireReports/17CAMRN002957(ThirtySeven)%20LE80%20Report_Redacted.pdf. CAL FIRE investigators determined that they "could not rule out the possibility of the high voltage electrical powerlines, which were located above the general origin area of starting the fire", but there were no violations of state law.

The CAL FIRE Report stated that on the night of October 8, 2017, a vegetation fire occurred near 7701 Lakeville Highway in the county of Sonoma (the "general origin area" or "GOA" as defined by the CAL FIRE Report). Per the CAL FIRE Report, the fire was first reported to Redwood Emergency Dispatch Communications Center ("REDCOM") on October 9, 2017 at 1:53 AM. Per CAL FIRE's website, the start time was October 9, 2017 at 2:00 PM.

The CAL FIRE Report stated that CAL FIRE was unable to adequately inspect the transmission line near the incident location, or identify any other evidence indicating PG&E's assets contributed to the fire. The CAL FIRE Report states that it was unable to rule out electrical as a cause of the fire.

Incident Overview:

PG&E records do not indicate any occurrences outside of normal operations at the GOA on the evening of October 8, 2017 or early in the morning on October 9, 2017. The CAL FIRE Report states that the GOA is located under two transmission lines. It further notes that Supervisory Control and Data Acquisition ("SCADA") data "showed no faults or electrical power outage within the area during the time of the fire". Per the CAL FIRE Report, CAL FIRE's investigator was unable to adequately inspect PG&E's transmission powerlines near the GOA due to numerous factors, including the height of the transmission powerlines, a partial (bottom-side) view of the line, and the placement of the sun at the time of the inspection. CAL FIRE "was unable to locate any direct physical evidence which links the cause for the fire to an electrical cause". After ruling out 9 other common causes of fire, the CAL FIRE Report concludes that CAL FIRE could not "rule out electrical as a cause due to the inability to adequately inspect the powerlines".

PG&E has become aware that Distribution Line Technician Joseph Greene, who PG&E identified as the First Responder to the 37 Fire, never inspected or accessed the GOA, which was situated under a transmission line.

Evidence Collection:

PG&E did not collect any evidence in connection with the 37 Fire. CAL FIRE collected a sample of primary distribution conductor approximately 0.2 miles from the GOA; however, the CAL FIRE Report does not mention this evidence. Rather, the Report states that CAL FIRE "was unable to locate any direct physical evidence which links the cause for the fire to an electrical cause."

Timeline:

The following timeline indicates CAL FIRE's designated start time and the first 911 call according to the CAL FIRE Report.

Event
October 8, 2017: CAL FIRE Report start time.
October 9, 2017, 1:53 AM: Per CAL FIRE, a fire in the area of Highway 37 and Lakeview Highway is first reported to REDCOM.

Source List:

Source	**Brief Description**
CAL FIRE Press Release	CAL FIRE Press Release, "CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties", June 8, 2018, https://calfire.ca.gov/communications/downloads/newsreleases/2018/2017_WildfireSiege_Cause.pdf.
CAL FIRE Report	CAL FIRE Investigation Report 17CAMRN002957, 37 Fire, http://calfire.ca.gov/fire_protection/downloads/FireReports/17CAMRN002957(ThirtySeven)%20LE80%20Report_Redacted.pdf.
CAL FIRE Website	"37 Fire Incident Information", http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1882 (last updated Jan. 9, 2018).
Deposition Transcript of Joseph Greene	Deposition of PG&E Distribution Line Technician and First Responder Joseph Greene.

EXHIBIT BBB

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection

CONTACT: Scott McLean
Chief of Public Information
Phone: (530) 227-3571
@CALFIRE_PIO

RELEASE DATE: May 25, 2018

CAL FIRE Investigators Determine Cause of Four Wildfires in Butte and Nevada Counties

Sacramento – After extensive and thorough investigations, CAL FIRE investigators have determined that four Northern California wildfires in last year's October Fire Siege were caused by trees coming into contact with power lines. The four fires, located in Butte and Nevada counties, are the first fire investigations from last October to be completed.

CAL FIRE investigators were dispatched to the fires last year and immediately began working to determine their origin and cause. The Department continues to investigate the remaining 2017 fires, both in October and December, and will release additional reports as they are completed.

The October 2017 Fire Siege involved more than 170 fires and charred more than 245,000 acres in Northern California. More than 11,000 firefighters from 17 states helped battle the blazes.

Below is a summary of the four completed investigations:

- The La Porte Fire, in Butte County, started in the early morning hours of Oct. 9 and burned a total of 8,417 acres, destroying 74 structures. There were no injuries to civilians or firefighters. CAL FIRE has determined the fire was caused by tree branches falling onto PG&E power lines. CAL FIRE investigators determined there were no violations of state law related to the cause of this fire.

- The McCourtney Fire, in Nevada County, started the evening of Oct. 8 and burned a total of 76 acres, destroying 13 structures. There were no injuries to civilians or firefighters. CAL FIRE has determined the fire was caused by a tree falling onto PG&E power lines. The investigation found evidence that PG&E allegedly failed to remove a tree from the proximity of a power line, in violation of the state Public Resources Code section 4293.

- The Lobo Fire, in Nevada County, started the evening of Oct. 8 and burned a total of 821 acres, destroying 47 structures. There were no injuries to civilians or firefighters. CAL FIRE has determined the fire was caused by a tree contacting PG&E power lines. The investigation found evidence that Public Resources Code section 4293, which requires adequate clearance between trees and power lines, was allegedly violated.

- The Honey Fire, in Butte County, started in the early morning hours of Oct. 9 and burned a total of 76 acres. There were no injuries to civilians or firefighters and no structures were destroyed. CAL FIRE has determined the fire was caused by an Oak branch contacting PG&E power lines. The investigation found evidence that Public Resources Code 4293, which requires adequate clearance between trees and power lines, was allegedly violated.

The McCourtney, Lobo, Honey investigations have been referred to the appropriate county District Attorney's offices for review.

Californians are encouraged to remain vigilant and prepared for wildfire. For more information, visit www.readyforwildfire.org or www.fire.ca.gov

# # #

EXHIBIT CCC

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection

CONTACT: Michael Mohler
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Calfire.dutypio@fire.ca.gov

RELEASE DATE: June 8, 2018

CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties

Sacramento – After extensive and thorough investigations, CAL FIRE investigators have determined that 12 Northern California wildfires in the October 2017 Fire Siege were caused by electric power and distribution lines, conductors and the failure of power poles.

The October 2017 Fire Siege involved more than 170 fires and burned at least 245,000 acres in Northern California. About 11,000 firefighters from 17 states and Australia helped battle the blazes.

CAL FIRE investigators were dispatched to the fires last year and immediately began working to determine their origin and cause. CAL FIRE investigators continue to investigate the remaining 2017 fires, both in October and December, and will release additional reports as they are completed. The cause of four Northern California fires were released on May 25.

Below is a summary of the findings from the 12 completed investigations:

The **Redwood Fire**, in Mendocino County, started the evening of Oct. 8 and burned a total of 36,523 acres, destroying 543 structures. There were nine civilian fatalities and no injuries to firefighters. CAL FIRE has determined the fire started in two locations and was caused by tree or parts of trees falling onto PG&E power lines.

The **Sulphur Fire**, in Lake County, started the evening of Oct. 8 and burned a total of 2,207 acres, destroying 162 structures. There were no injuries. CAL FIRE investigators determined the fire was caused by the failure of a PG&E owned power pole, resulting in the power lines and equipment coming in contact with the ground.

The **Cherokee Fire**, in Butte County, started the evening of Oct. 8 and burned a total of 8,417 acres, destroying 6 structures. There were no injuries. CAL FIRE investigators have determined the cause of the fire was a result of tree limbs coming into contact with PG&E power lines.

The **37 Fire**, in Sonoma County, started the evening of Oct. 9 and burned a total of 1,660 acres, destroying 3 structures. There were no injuries. CAL FIRE investigators have determined the cause of the fire was electrical and was associated with the PG&E distribution lines in the area.

more

The **Blue Fire**, in Humboldt County, started the afternoon of Oct. 8 and burned a total of 20 acres. There were no injuries. CAL FIRE investigators have determined a PG&E power line conductor separated from a connector, causing the conductor to fall to the ground, starting the fire.

The Norrbom, Adobe, Partrick, Pythian and Nuns fires were part of a series of fires that merged in Sonoma and Napa counties. These fires started in the late-night hours of Oct. 8 and burned a combined total of 56,556 acres, destroying 1355 structures. There were three civilian fatalities.

> CAL FIRE investigators determined the **Norrbom Fire** was caused by a tree falling and coming in contact with PG&E power lines.
>
> CAL FIRE investigators determined the **Adobe Fire** was caused by a eucalyptus tree falling into a PG&E powerline.
>
> CAL FIRE investigators determined the **Partrick Fire** was caused by an oak tree falling into PG&E powerlines.
>
> CAL FIRE investigators determined the **Pythian Fire** was caused by a downed powerline after PG&E attempted to reenergize the line
>
> CAL FIRE investigators determined the **Nuns Fire** was caused by a broken top of a tree coming in contact with a power line.

The **Pocket Fire**, in Sonoma County, started the early morning hours of Oct. 9 and burned a total of 17,357 acres, destroying 6 structures. There were no injuries. CAL FIRE has determined the fire was caused by the top of an oak tree breaking and coming into contact with PG&E power lines.

The **Atlas Fire,** in Napa County, started the evening of Oct. 8 and burned a total of 51,624 acres, destroying 783 structures. There were six civilian fatalities. CAL FIRE investigators determined the fire started in two locations. At one location, it was determined a large limb broke from a tree and came into contact with a PG&E power line. At the second location, investigators determined a tree fell into the same line.

CAL FIRE's investigations have been referred to the appropriate county District Attorney's offices for review in eight of the 12 fires – Sulphur, Blue, Norrbom, Partrick, Pythian, Adobe, Pocket and Atlas – due to evidence of alleged violations of state law.

Californians are encouraged to remain vigilant and prepared for wildfire. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov

# # #

EXHIBIT DDD

on

CAL FIRE NEWS RELEASE

California Department of Forestry and Fire Protection

CONTACT: Michael Mohler
Deputy Director
Phone: (619) 933-2357
calfire.dutypio@fire.ca.gov

RELEASE DATE: October 9, 2018

CAL FIRE Investigators Determine the Cause of the Cascade Fire

Sacramento – After a thorough investigation, CAL FIRE has determined the Cascade Fire which occurred during the October 2017 Fire Siege was started by sagging power lines coming into contact during heavy winds.

No violations of the Public Resources Code were found by CAL FIRE.

The Cascade Fire in Yuba County, started on the evening of October 8 and burned a total of 9,989 acres, destroying 264 structures and resulted in four civilian fatalities and one firefighter injury.

A high wind event in conjunction with the power line sag on two conductors caused the lines to come into contact, which created an electrical arc. The electrical arc deposited hot burning or molten material onto the ground in a receptive fuel bed causing the fire. The common term for this situation is called “line slap” and the power line in question was owned by the Pacific Gas and Electric Company.

The investigative report has been forwarded to the Yuba County District Attorney.

In total, the October 2017 Fire Siege involved more than 170 fires and burned at least 245,000 acres in Northern California. Approximately 11,000 firefighters from 17 states and Australia helped battle the blazes.

CAL FIRE investigators were dispatched to the fires last year and immediately began working to determine their origin and cause. CAL FIRE investigators continue to investigate the Tubbs Fire and will release the report once it is completed.

Californians are encouraged to remain vigilant and prepared for wildfire. For more information on how to be prepared, visit www.readyforwildfire.org or www.fire.ca.gov.

###

Attachment K

TD-1001M Electric Transmission Preventive Maintenance Manual,

Rev: 03

Bates PGE-CAMP-CPUC-0000002535

Pacific Gas and Electric Company®

Electric Transmission Preventive Maintenance Manual TD-1001M

May 12, 2016 Rev: 03

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CAMP-0452
PGE-CAMP-CPUC-0000000526

Introduction

This manual covers preventive maintenance for overhead and underground electric transmission facilities. These facilities must be inspected and patrolled in accordance with the following sections of this manual:

1. General Inspection and Patrol Procedures
2. Inspections
3. Patrols
4. Infrared (IR) Inspection Procedures
5. Maintenance Procedures

The procedures outlined in this manual (Sections 1 through 5) have been established to ensure uniform and consistent required procedures for inspections, patrols, equipment testing, and condition assessment of electric transmission line facilities.

This standard also includes requirements for the prioritization, scheduling, managing and documentation of corrective actions identified on existing electric transmission facilities that affect safety and reliability. These requirements comply with PG&E standards and current industry practices.

In addition, Section 6 provides specific enhanced inspection and maintenance requirements unique to facilities serving Diablo Canyon and Morro Bay Power Plants.

This standard supports UO Policy 3-7, "Gas and Electric Operation, Maintenance, and Construction," Utility Standard TD-1001S, "Electric Transmission Line Inspection and Preventive Maintenance Program" and the requirements to comply with California Public Utilities Commission (CPUC) General Order (G.O.) 165 "Inspection Requirements for Electric Distribution and Transmission Facilities", as well as relevant portions of G.O. 95 "Rules for Overhead Electric Line Construction" and G.O. 128 "Rules for Construction of Underground Electric Supply and Communication Systems". The requirements described in this document reduce the potential for component failures and facilitate a proactive approach to repairing or replacing abnormal components. This standard does not necessarily identify nonconformance to PG&E standards.

This standard is to be reviewed annually for updates, changes, errors, or omissions. When it is updated, the Filed Maintenance Practice (FMP) with the California Independent System Operator (CAISO) must also be reviewed and revised, as necessary. Significant changes in the frequency or scope of patrols and inspections may also trigger a review with the CPUC.

For the acronyms and definition of terms used in this manual, see 6.6Appendix A: Acronyms and Definition of Terms.

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CAMP-0456

1. General Inspection and Patrol Procedures

1.1 Record Keeping

This section provides general records guidance and retention requirements for the maps, logs, and notifications used to document the inspections, patrols abnormalities and corrective actions identified on the electric transmission line system.

1.1.1 General Guidelines for Company Records and Documentation

All hand-written records must be completed using non-erasable ink. To correct an item on a hand-written record, the following requirements must be met:

- Use a non-erasable black or blue ink pen.
- Do not erase or white out any portion of the log.
- Draw a single line through the entry(s) being deleted.
- Enter the correct information into the log.
- Initial and date the change.

To ensure legibility, personnel must print their full name, initials, or LAN ID, as required, on these documents. Rubber stamps are not allowed to meet this requirement (Bulletin 247, Gas and Electric M&O Record Requirements, 12/31/07). Until such time as Pacific Gas & Electric (Company) (PG&E) adopts a corporate standard for electronic signatures, or the patrol and inspection function moves to a non-paper-based process, all forms and paperwork requiring a qualified Company representative (QCR) or supervisor signature must be "wet" signed by hand in non-erasable blue or black ink by the respective personnel. Computer print outs with the date and LAN ID are acceptable; however all signatures must be "wet".

Routine, non-routine, and emergency circuit inspection or patrol reports generated by the QCR must be recorded in the appropriate SAP database, and the records maintained in accordance with the Independent System Operator (ISO) Transmission Control Agreements (TCA). Use ETPM Forms TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet - Typical" and TD-1001M-F06, "Monthly Pipe-Type Routine Inspection - Typical" to document abnormal conditions identified by the QCR during inspection and patrol.

These documents must identify that all structures and facilities were inspected or patrolled, and that all abnormal conditions observed were corrected or captured as maintenance notifications during the inspection or patrol.

In general, additional notes and comments should not be added to forms unless they further describe the findings captured. Acceptable notes for patrol and inspection field documentation includes:

- Access notes describing the navigation path or procedure used to safely and efficiently access the target structure or equipment
- Range finder readings describing the target span, temperature, date, time, and laser range finder (or similar) result
- Status of non-findings being monitored such as woodpecker hole position and size; ground movement near the structure; species presence.

CAMP-0457

1.1.2 Records Retention Requirements

Overhead and underground transmission line inspection and maintenance records must be maintained in accordance with CPUC General Order (G.O.) 165. Records may be in paper and/or electronic form and must be kept for 10 years, with the exception of climbing inspections on the 500 kV system, which must be maintained for 14 years.

When completed, inspection datasheets and forms, and notification forms, must be kept in files by circuit name at the responsible transmission line maintenance supervisor's headquarters. The clerk will scan the datasheet and attach it to the patrol in SAP. Refer to Appendix E: Line Patrol File Guidelines for requirements on how to complete the forms and how to store the files. Annually for each circuit, two folders should be created. There will be one folder for Annual Patrols and one folder for the Line Files. Print the appropriate forms and include in the specific folder for each circuit. The following are typical management reports and records used to track required inspection and maintenance work. When applicable, these documents should be included in the respective circuit files at the transmission line maintenance supervisor's headquarters/central filing office.

- Underground Transmission Line Inspection Sheets
- Overhead Transmission Line Datasheets
- Notification forms within SAP for maintenance work performed by transmission employees
- Object lists
- Notification forms submitted to other support groups that will be performing the maintenance, such as area maintenance and construction (M&C) employees, contractors, vegetation management (VM) personnel, pole asset management (PAM) personnel, etc.
- Completion notices in SAP for work performed by transmission employees
- Completion notices for work performed by others
- Poles Inspection Test Reports

1.2 Purpose of Inspection and Patrol Activities

Inspection and patrol procedures are a key element of the preventive maintenance program. The actions recommended in this manual reduce the potential for component failures and facility damage, and facilitate a proactive approach to repairing or replacing identified, abnormal components.

Inspections include detailed visual observations of individual components, structures and equipment; operational readings; and component testing (i.e., hammer test, etc.) to identify abnormalities or circumstances that will negatively impact safety, reliability, or asset life.

Patrols include visual observations to identify abnormalities (i.e., obvious structural problems or hazards) or circumstances that will negatively impact safety.

Electric transmission line maintenance organizations may establish additional inspection, patrol, testing, and/or preventive maintenance requirements that exceed the requirements in this manual, based on area experience and local conditions, and as needed for special equipment unique to the area. Additionally, the Asset Management organization may require electric transmission line maintenance organizations to undertake unique, non-routine patrols and inspections as dictated by asset performance or other external factors.

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1.2.1 Problem Identification

PG&E performs periodic inspections, patrols, and maintenance on its overhead and underground transmission facilities. Identify abnormal or potentially hazardous conditions by any of the following means:

- Periodic inspections or patrols of facilities in accordance with existing standards.
- Condition-based and/or diagnostic testing and monitoring of facilities.
- Observation by any employee during other activities, such as normal job assignments and emergency patrols QCR must perform a field assessment).
- Internal reviews.
- Customer or general public reports (a QCR must perform a field assessment).
- During emergency or storm activities.
- The QCR does **not** define the specific corrective action to be performed, but makes recommendations.

1.3 Documenting Abnormalities and Nonconformance

1.3.1 Reporting Nonconformance with CPUC General Orders

Any nonconformance with G.O. 95, "Rules for Overhead Electric Line Construction," and G.O. 128, "Rules for Construction of Underground Electric Supply and Communication Systems," that impacts safety or reliability, or an abnormal condition caused by third-parties that negatively impacts Company facilities, must be documented on an SAP notification. Abnormal conditions caused by third-parties must be reported to Land Management.

1.3.2 Reporting Abnormalities in Manufacture

Abnormal conditions or failures that could be the result of a manufacturer or workmanship defect must be reported on a Form 62-0113, "Material Problem Report" (MPR), and submitted to supplier quality improvement personnel for follow-up action, as described in SCM-2106P-01, "Material Problem Report Procedure".

IF material is sent to Applied Technology Services (ATS) personnel for testing, THEN include a form TD-1957P-01-F01, "Component Testing Information Sheet." as described in Utility Procedure TD-1957P-01, "Electric Transmission Line Equipment Failure Analysis Procedure." CAUTION: When collecting failed components, care should be taken to protect the failed surfaces by avoiding touching the failed sections. Even minimal contact with the failed surfaces can prevent an accurate failure analysis.

MPR's are **not** to be used for material which has failed as a result of end-of-service life or because of normal wear.

1.3.3 Reporting Vegetation Nonconformance

Initiate an SAP notification if trees or brush are within the vegetation clearance distances, or pose a potential threat to fall into a conductor.

In addition to initiating the notification, take the action required, as based on the voltage class and the vegetation-to-conductor clearance distance listed in Table 1. Vegetation Clearance Distance.

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Table 1. Vegetation Clearance Distance

Voltage (kV)	Clearance Distance	Action Required
60/70*	4 feet or less	Call VPM (Veg Program Manager)/Forester
115*	10 feet or less	Call VPM/Forester
230	10 feet or less	Call GCC and VPM/Forester
500	15 feet or less	Call GCC and VPM/Forester

* If the line is NERC/CAISO critical, call the GCC and VPM/Forester as required for 230 kV and 500 kV lines.

For all NERC transmission lines, if a tree poses an **imminent threat** (e.g., the tree is uprooting and has the potential to fall into conductors), but not within the clearance distances shown in Table 1. Vegetation Clearance Distance, also perform the required action described in Table 1. Contact the VPM/ Forester directly. A voice mail is not considered notification for an imminent threat. The information must be given directly to a person. If the VPM/Forester is not available, contact the next person within VM. The VM department will verify the condition per Utility Procedure VEG-2005P, "Transmission Vegetation Imminent Threat Procedure". Provide the following information:

- Description of the vegetation condition
- Location, including the line name, nearest tower number and approximate distance to the tower
- Field conditions, including information on environmentally sensitive areas
- Location access

For all vegetation notifications and hazard conditions that are encroaching on the vegetation-to-conductor clearance distance listed in Table 1. Vegetation Clearance Distance, the SAP notification form must indicate the following information:

- Facility Code = VEGN, Damage Code = CLER, Action Code = REMV
- Priority A = Emergency Unsafe Condition
- Work Type Code 564, Maintenance Planner Group = TLV

The VM group manages all vegetation notifications and will verify the condition and confirm the clearance distance per Utility Procedure VEG-1010P, "T&D Vegetation Hazard Notification Procedure". . VM must notify the issuing department when the conditions have been corrected or resolved and ensure that the notification has been closed.

In addition, VM performs tower and pole clearing as part of their tree work, to allow for the inspections of tower and pole bases and footings and down guys. The pre-inspection and tree crew contractors will inspect the vegetation around the poles, towers and down guys while doing their patrols and inspections. If woody vegetation is in contact with the pole or tower, or significantly interferes with the inspection of the pole or tower base or footings, then the contractors will arrange for appropriate vegetation work. If woody vegetation is in contact with the guy wire, the contractors will determine if vegetation work will be required, and arrange for any necessary work. See Utility Bulletin Veg-2001B-001, "Transmission Patrol Procedure Addendum – Tower Clear and Guy Wire Tree Work".

1.3.4 Reporting Other Nonconformance With Distribution Facilities

When QCRs are performing patrols and inspections on facilities with distribution assets, a patrol of the distribution assets should also be performed. Examples of the type of issues that could be identified are:

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- Damaged or broken poles
- Broken or decayed crossarms
- Broken insulators
- Damaged tie wire
- Vegetation issues

If there is an immediate hazard and/or emergency, contact the transmission line maintenance supervisor and standby, if needed. If a structural problem or hazard is identified, that is NOT an emergency, note the issue on the List of the Datasheet. Submit a digital photo documenting the issue and the pole number. Contact the local PS&R Supervisor, leaving a voice mail message if not available, including the following information:

- Issue identified (e.g., broken crossarm)
- Transmission pole number (if distribution underbuild) or distribution pole number
- Confirm that a map will be emailed if there is no pole number.
- Latitude and longitude of the pole

The transmission line maintenance supervisor will review the finding while reviewing the patrol or inspection documents. The clerk will create an email outlining the above details to the local PS&R Supervisor with a cc: to the QCR and the transmission line maintenance supervisor, and attach the copy of the map with the location identified and all photos. The clerk will print a copy of the email and file it with the completed datasheets.

1.3.5 Reporting Nonconformance With Access Roads and Gates

Access related work generally falls into several primary categories:

- Create road – there is no road or trail and one is needed
- Vegetation clearing – road is overgrown, or vegetation is encroaching so road needs to be “brushed”.
- Road work – can be a range of issues from rockslides and small cutslope slumps of dirt to larger fillslope failures, downed trees or boulders blocking access, rills and gullies (erosion from drainage problems), blown out crossings, etc.
- Watercourse crossings – (e.g., culverts and bridges) blowout or failed.
- Gates – existing gate is broken or damaged and needs to be replaced, gate has been stolen, or there is no gate and one is needed.

For any type of access issue, the Corrective Work Form (Facility-Damage-Action) approach to creating a new line corrective notification should be followed. By selecting Facility type “ROAD”, the appropriate management team will receive the corrective work notification.

If QCR determines access is needed, Damage should be “MISS” for Missing, and Action should be “INST” for Install. Use Field Comments to indicate type of vehicle for which access is needed – Bucket truck; Pickup; OHV – Razor; Foot trail.

Do not use ROW1. box. The term Rights-of-Way (ROW) is typically associated with transmission corridor, which is managed by VM. If there is a road in the ROW, treat it like any road, and check brush fuel, or Broken/Damaged and Facility Type = ROAD.

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If work area is greater than 10,000 square feet, approximately longer than ¼ mile of road, then consider this for Capital work. QCR would need to make a note of this in the Field Comments.

1.3.6 Reporting Nonconformance With Boardwalks

Boardwalk repairs are part of a program based approach that prioritizes all issues to determine the need to reconstruct, repair or abandon the boardwalk to ensure safe and reliable access to facilities. Construction work is complicated due to short construction windows and alignment with environmental agencies permitting cycles. The patrol frequency is on a five year cycle, performed by Natural Resources Management (NRM). Transmission line personnel may identify new or worsening conditions that can be submitted to NRM. When deterioration or trespassing is encountered, the prioritization of the reconstruction or repair is based on public and employee safety, functionality during routine inspections or emergencies, alternate access and compliance schedules.

Evaluate the deterioration or trespassing.

- Determine if there have been multiple trespass incidents risking public safety
- Determine if the boardwalk is completely or partially deteriorated (<100' is generally expense repair and >100' is generally capital replacement.)
- Determine if there is an alternate access (waders, air boat, etc.) and if response time would be reasonable during an emergency

The SAP notification form must indicate the following information:

- Facility Code = BRDW, Damage Code = NG, Action Code = REPA, Priority Code = F, Work Type Code = 624, Maintenance Planner Group = TLR,
- Facility Code = BRDW, Damage Code = NG, Action Code = REPL (Replace), Priority Code = F, Work Type Code = 373, Maintenance Planner Group = TLR, **OR**
- Facility Code = BRDW, Damage Code = MISS (Missing), Action Code = INST (Install), Priority Code = F, Work Type Code = 373, Maintenance Planner Group = TLR

Land Management will prioritize and plan the work, obtain permits and execute the projects.

1.3.7 Reporting Nonconformance With Rights-of-Way

Select the "ROW1" box as the Facility code and alert the local Vegetation Management Program supervisor.

1.3.8 Reporting Nonconformance With Trespass or Encroachment

When encroachments or other uses on PG&E property or easements are identified, they are evaluated for interference with maintaining, operating or constructing electric transmission facilities as described in Utility Procedure TD-1005P-03, "Evaluating Uses of Company Transmission Line Easements by Others" and Utility Standard TD-1005S, "Right-of-Way and Encroachments".

Evaluate the proposed use or encroachment.

- If the activity poses a threat of potential damage to facilities that could cause an immediate danger, contact your supervisor immediately.
- Determine if there is interference and whether permanent access can be maintained for inspections, routine maintenance, reconstruction, growth of facilities and emergency response.

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- Confirm there is sufficient conductor-to-ground clearance, radial line clearances and clearances around structures.
- Confirm whether excavation, grading, equipment use or land erosion is impacting pole or tower stability.
- Determine if there are any uses or encroachments that require grounding or there are any prohibited uses (e.g., buildings, structures and wells).
- Refer to TD-1005S, Attachment 1, "Permissible Uses of Pacific Gas and Electric Company (Company) Easements".

Verify if the encroachment has already been submitted. If it hasn't, complete TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead", and initiate a notification in SAP, including digital photographs, if appropriate.

The SAP notification form must indicate the following information:

- Facility Code = ROW1, Damage Code = ENCR, Action Code = REMV
- Work Type Code 931, Maintenance Planner Group = TLS (Land Management Services)

The QCR's supervisor reviews the location and sends to electric transmission asset reliability specialist. The electric transmission asset reliability specialist will approve or disapprove of any encroachment or other use. The supervisor will send an email or hard copy to the land agent summarizing:

- How the encroachment or use interferes with utility operation
- What modifications could be implemented to eliminate any interference
- Whether Land Management should abate the encroachment or compel the user to enter into an encroachment agreement
- What measures might be taken to protect facilities during future changes or installations (e.g., maintaining minimum approach distances during construction)
- Any issues that might jeopardize safety or service reliability (e.g., construction near conductors)
- Any steps to meet regulatory requirements (e.g., grounding metal fences)
- Any utility activity that could damage the new use, with a statement that the Company is not liable for such damage.

The land agent will negotiate the Company position with the third party, if required, and discuss the proposed agreement with the electric transmission stakeholders, including the electric transmission reliability supervising specialist and the transmission line maintenance supervisor. The electric transmission reliability supervising specialist and the transmission line maintenance supervisor must review and approve the land agent's proposed agreement, which the land agent will present to the third party. When this process is complete, the land agent will notify the transmission line maintenance supervisor that the work is complete and the transmission line maintenance supervisor will close the notification in SAP.

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1.4 Overhead Methodology, Facility, Damage and Action Codes

1.4.1 Inspection Methodology

This methodology establishes a consistent inspection sequence for components, and determines the type of inspection that provides the best viewing position for identifying component defects.

Table 2. Inspection Best-View-Position

Description	Aerial Inspection	Ground Inspection (below 10 feet)	Ground Inspection (above 10 feet)	Climbing Inspection (above 10 feet)
Cellular site	X	X		X
Insulators and hardware	X		X	X
Conductor and fittings	X		X	X
Switches and associated elements	X		X	X
Right-of-way/ access/vegetation	X	X		X
Overhead ground wire / fiber optic cable (OPGW)	X		X	X
Foundations		X		
Anchors and guys		X		X
Structures	X	X		X
Electrical clearances			X	X
Arms/braces	X		X	X

1.4.2 Facility Codes

Defective elements and abnormal conditions identified during inspections and patrols must be identified and recorded using the facility codes and damage codes (FDA codes) as shown in Table 3. Facility Codes and Table 4. Damage Codes.

The lists in the following tables are not all-inclusive. During inspections, identify any obvious component defects that are not listed. Where "Other" is selected, additional descriptive information must be recorded in the SAP notification form to describe the facility, damage, and action prescribed.

IF the QCR identifies inoperable, damaged, misaligned or otherwise non-functional Obstruction Lighting (see the facility code list for specific situations),

THEN the QCR should refer to TD-1001P-03, "Obstruction Lighting Failure Notification Process" for procedure on notifying Federal Aviation Administration (FAA). The QCR's supervisor reviews the recommendations for priority/repair codes before they are entered in SAP.

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Table 3. Facility Codes

Facility	Facility Name		Facility	Facility Name		Facility	Facility Name	
ALRM	Alarm-Underground	*	GAUG	Gauge-Underground	*	OIL1	Oil System-Underground	*
ANCS	Anchor-Steel		GO9S	GO95 Clear Infract-Steel		OTHR	Other	**
ANCW	Anchor-Wood		GO9W	GO95 Clear Infract-Wood		DUCT	Pipe / Duct-Underground	*
ANMS	Animal Guard-Steel		GRWS	Ground Wire-Steel		PUMP	Pump-Underground	*
ANMW	Animal Guard-Wood		GRWT	Ground Wire-Tower		RPTS	Raptor Guard-Steel	
ANOD	Anode-Tower	**	GRWW	Ground Wire-Wood		RPTW	Raptor Guard-Wood	
BAYW	Bay Water-Tower		GRND	Grounds-Underground	*	RECT	Rectifier-Underground	*
BRDW	Boardwalk		GUYS	Guy Pole / Guy Stub-Steel		ROW1	Right of Way	
CTRM	Cable Termination-Underground	*	GUYD	Guy Pole / Guy Stub-Wood		RWAY	Right of Way-Underground	*
CABL	Cable-Underground	*	STUS	Guy Stub-Steel		RISR	Riser-Underground	*
CONS	Conductor-Steel		STUW	Guy Stub-Wood		ROAD	Road	**
CNDW	Conductor-Wood		GMKS	Guy Wire Mark /Indic-Steel		SCDS	SCADA-Steel	
CONN	Connector-Wood		GMKW	Guy Wire Mark /Indic-Wood		SCDA	SCADA-Underground	*
CCAB	Control Cabinet-Underground	*	GYWS	Guy Wire-Steel		SCDW	SCADA-Wood	
COVR	Cover / Manhole-Underground	*	GYWW	Guy Wire-Wood		SHLS	Shield Wire / OPGW-Steel	
CRSL	Crossarm-Steel		GWSS	Auto Guy Wire Splice-Steel		SHLW	Shield Wire / OPGW-Wood	
CRST	Crossarm-Tower		GWSW	Auto Guy Wire Splice-Wood		SPAS	Spacer-Steel	
CRSW	Crossarm-Wood		HRDS	Hardware-Steel		SPAW	Spacer-Wood	
DAMS	Damper-Steel		HRDT	Hardware-Tower		SPLS	Splice-Steel	
DAMW	Damper-Wood		HARD	Hardware-Underground	*	SPLW	Splice-Wood	
DTSR	Distrib Temp Sensor-Undergroun	*	HRDD	Hardware-Wood		STRS	Structure-Steel	
EMGN	Emergency		INSU	Insulator		STRT	Structure-Tower	
EMRS	Emergency-Steel		INSS	Insulator-Steel		STRW	Structure-Wood	
EMRG	Emergency-Underground	*	INSL	Insulator-Underground	*	SWTC	Switch	
EMRW	Emergency-Wood		INSW	Insulator-Wood		SWBS	Switch Battery-Steel	
ENCL	Enclosure / Vault-Underground	*	IBWS	Insulator Bond Wire-Steel		SWBW	Switch Battery-Wood	
FABS	FAA Battery-Steel		IBWW	Insulator Bond Wire-Wood		SWIS	Switch-Steel	
FABW	FAA Battery-Wood		ISPP	Iso Surge Protector-Undergrou	*	SWIW	Switch-Wood	
FAAS	FAA Lighting-Steel		JUMS	Jumper-Steel		TIES	Tie Wire-Steel	
FAAW	FAA Lighting-Wood		JUMW	Jumper-Wood		TIED	Tie Wire-Wood	
FALS	Fault Indicator-Steel		LIGH	Lighting-Underground	*	VEGN	Vegetation	
FALW	Fault Indicator-Wood		LOCK	Lock-Underground	*	VEGT	Vegetation-Tower	
FEEP	Fee Property	**	MRKS	Marker (i.e. signs)-Steel		VEGE	Vegetation-Underground	*
FENC	Fence / Gate	**	MARK	Marker (i.e. signs)-Undergroun	*	WORK	WRO	**
FOND	Foundation/Concrete-Tower	**	MRKW	Marker (i.e. signs)-Wood				
GAS1	Gas System-Underground	*	LINE	Non-Routine Patrol	**			

* Underground Only
** Both Overhead and Underground

1.4.3 Damage Codes

At least one damage code must be assigned to defective elements found during inspections and patrols. These conditions are listed in Table 4. Damage Codes.

IF the QCR suspects facilities inspected or patrolled are idle and have no future plans for use, THEN the QCR should indicate on the FDA form, and reference internal standard TD-1003S, "Management of Idle Electric Transmission Line Facilities" to nominate for removal.

Table 4. Damage Codes

Damage	Damage Name		Damage	Damage Name		Damage	Damage Name	
ANTI	Anti-Climbing Guard		FIRE	Fire	**	NG	No Good / Out of Standard	**
BRSH	Brush Fuel	**	FLDD	Flooded	*	OTHR	Other	**
CLER	Clearance		GRAD	Grade Change	**	OVRG	Overgrown	**
CONT	Contaminated	**	IDLE	Idle		PANT	Paint / Coating	
COVD	Earth Covered Tower		INAD	Inadequate Pressure	*	RELY	Relay	**
DEBR	Debris / Nest / etc.	**	LEAK	Leak	*	ROTN	Rotten	
DIGN	Dig In	*	LOUT	Lock Out	**	RQST	Request	**
ENCR	Encroachment	**	MISS	Missing	**	STRM	Storm Related	**

* Underground Only
** Both Overhead and Underground

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1.4.4 Corrective Action Codes

The QCR must recommend the required action(s) to correct the identified abnormal condition(s). These actions are listed in Table 5. Corrective Action Codes.

1. IF more than one action is required,

THEN each must be identified.

2. IF "other" is identified as a required action,

THEN an explanation must be entered in the "Comments" field of the inspection datasheet or form.

Table 5. Corrective Action Codes

Action	Action Name		Action	Action Name		Action	Action Name	
ADJU	Adjust		INST	Install	**	STUB	Stub	
AGEN	Agencies (municipal, CalTrans…)	**	IRPT	Infrared Patrol	**	TRIM	Trim	**
AIRP	Air Patrol		OTHR	Other	**	WSHG	Ground Wash	
CCLR	Cage Clearing		PUMP	Pump	*	WSHH	Helicopter Wash	
CLEN	Clean	*	REMV	Remove	**	SWIT	Switching	**
CORR	To Be Corrected		REPA	Repair	**			
GRPT	Ground Patrol	**	REPL	Replace	**			

* Underground Only
** Both Overhead and Underground

1.4.5 Cause Codes

The QCR must record the suspected cause code associated with the abnormal condition on ETPM Form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead."

1. IF more than one cause code is applicable,

THEN each must be identified.

2. IF "other" is identified as the cause code,

THEN an explanation must be entered in the "Comments" field of the inspection datasheet or form.

Table 6. Cause Codes

Cause Code
☐ Animal (ANIM)
☐ Bird (BIRD)
☐ Fire (FIRE)
☐ Third Party (3RDP)
☐ Lightning (LITN)
☐ Tree Branch (TBRN)
☐ Tree Contact (VEGE)
☐ Tree Fell (TFLL)
☐ Other (OTHR)

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1.5 Assigning Priority Codes

1.5.1 Resolving Abnormal Conditions during Patrol or Inspection

The QCR must complete all possible repairs or replacements to correct abnormal conditions that can be performed safely during the inspection. For abnormal conditions **not** corrected during the inspection, the QCR must prepare a notification based on the inspection datasheets or forms.

In addition, reasonable and appropriate maintenance tasks may be performed by one or two QCRs during inspection.

1. IF the work performed takes **less than 15 minutes** per location for Overhead **OR** Underground transmission,

THEN note the completed maintenance tasks on the following forms:

- For Overhead, on form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet - Typical"
- For Underground, in the "Comments" section of the forms TD-1001M-F06 through TD-1001M-F11, depending on the inspection performed.
- **Do not** record the maintenance tasks in the SAP database. For accounting purposes, consider the work to be part of the inspection.

2. IF the work takes **longer than 15 minutes** per location for Overhead **OR** Underground transmission,

THEN consider the time as a separate maintenance PM notification, and record the completed maintenance tasks as follows:

- For Overhead:
  - On form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical."
  - On form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead."
  - **AND** record the completed maintenance tasks in the SAP database.
- For Underground:
  - On form TD-1001M-F12, "Corrective Work Form Electric Transmission Underground,"
  - In the "Comments" section of forms TD-1001M-F06 through TD-1001M-F11, depending on the inspection performed.
  - **AND** record the completed maintenance tasks in the SAP database.

1.5.2 Assessing Conditions

Evaluate the condition of the facilities at each location when performing patrols, inspections, or post-checking the completed work. Section 2. Inspections, identifies many of the field conditions that need to be evaluated.

Once identified, the QCR determines the severity of the condition, the risk factors, the appropriate priority level, and a reasonable time frame to plan, design, and complete any required corrective work. Recommendations of an appropriate priority/repair time frame by the QCR are based on experience and judgment.

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In addition, the QCR must consider the following risk factors and conditions encountered in the field when recommending priority/repair codes:

- The risk of exposure to the public, workers, or employees
- The abnormality encountered
- Risks if the condition continues to deteriorate
- Likelihood of facility failure
- Impact of the failure to system reliability, customers and service, and/or the potential for injury

Table 7, Priority Codes, lists the priority codes and the associated time frames for typical response/repair action.

Table 7. Priority Codes

Priority Code	Priority Description
A	The condition is urgent, and requires **immediate** response and continued action until the condition is repaired or no longer presents a potential hazard. SAP due date will be 30 days to allow time for post-construction processes and notification close-out.
B	Corrective action is required within **3 months** from the date the condition is identified. The condition must be reported to the transmission line supervisor as soon as practical.
E	Corrective action is required within **12 months** from the date the condition is identified.
F	Corrective action is recommended within **24 months** from the date the condition is identified, (due beyond 12 months, not to exceed 24 months).

1. QCRs must report immediately any "Priority Code A" abnormal condition to the transmission line supervisor and GCC.
2. In addition, QCRs must report any "Priority Code B" condition to the transmission line supervisor as soon as practical, to ensure that correction occurs within the appropriate time.

1.5.3 Notifications Extending Beyond Due Date

It is the Company's intent to correct identified abnormal conditions by the established due date. Due dates will not be changed or extended. Past due notifications must be completed as soon as practicable. Factors that can drive notifications to extend beyond the due date include, but are not limited to, the following items:

- Inability to obtain clearances, materials, equipment or access
- Environmental permitting restrictions
- Interference from weather
- Subsequent testing or reevaluation of the actual condition

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As a result of the above mentioned factors, notifications that go beyond the due date should be documented as to the factor(s) that led to the notification not being completed on time. Documentation may include, but is not limited to the following items:

- Clearance requests
- Clearance denials
- Event reports
- Storm reports
- Updated information on condition
- Access refusal letter from a property owner or regulatory agency
- Environmental, permitting and equipment issues that cannot be resolved prior to the due date

The documentation must support the reason for the notification going beyond the due date.

1.6 Creating and Closing Inspection/Patrol and Maintenance Records

All inspection and patrol records must be filled out completely and accurately and maintained in the appropriate files. Refer to TD1001M-JA01, "Patrol, Inspection and Closing Process", for directions on completing and reviewing the forms and the SAP closing process. Refer to Appendix E: Line Patrol File Guidelines for additional requirements on how to complete the forms and how to store the files. Section 1.6.1 Inspection/Patrol Records – Records and Deadlines provides specific timelines for QCRs, clerks, supervisors and/or SAP "gatekeepers" to enter all information into SAP.

1.6.1 Inspection/Patrol Records

Overhead Patrols: Use the overhead ETPM Form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," to document any abnormal conditions as they are encountered in the field. See 6.6Appendix C: Links to Forms and Flowcharts, for a list of and links to overhead inspection/patrol datasheets.

Overhead Inspections: Use the object list, TD-1001M-F05, "Object List - Typical" and the datasheet TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," to document inspections and to verify the assets. See 6.6Appendix C: Links to Forms and Flowcharts, for a list of and links to overhead inspection/patrol datasheets and object lists.

Underground: Use the underground transmission inspection sheets and forms TD-1001M-F06 through TD-1001M-F11, depending on the inspection performed, to document test results and any abnormal conditions encountered in the field. See Section 5.2 Underground Job Aid for Maintenance Procedures for typical maintenance procedures and corrective actions.

Records and Deadlines: After an inspection, completed overhead and underground inspection/patrol datasheets and inspection/patrol forms must be signed, dated, and submitted to the transmission line supervisor for review and approval. Notwithstanding extraordinary circumstances, such as a major emergency response, upon completion of the field patrol or inspection, QCRs are expected to submit all required paperwork to the local clerk within five (5) business days. SAP notifications should be given to the clerks as soon as possible to allow time to enter the information into SAP. The clerks enter notifications into SAP within 15 days of when the condition in the field is found. Supervisors review forms for accuracy, including completion of all fields, confirm the priority code and due date, confirm clearance requirements or hot work, ensure ink was used and confirm signature, date and LAN ID. The

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supervisor or other SAP "gatekeeper" is expected to approve or reject all SAP staging notifications within five (5) business days of their entry into SAP "gatekeeper" module.

Timeline Detail:

1. QCR finds abnormal condition during inspection/patrol on Day 00
2. QCR delivers completed forms and Corrective Work Form (FDA) to clerk by business Day 05
3. Clerk enters inspection and patrol information into the SAP system and FDA into SAP S-5 by business Day 15.
4. Gatekeeper reviews and rejects/modifies/approves S-5 to create new LC by business Day 20, thus establishes SAP notifications within 20 business days to facilitate proper work planning, scheduling, and to correct abnormal conditions by the required due dates.
5. Document the reason for non-routine and emergency patrols on the notification.

The overhead TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," and the underground transmission "Routine" and "Detailed" inspection forms (TD-1001M-F06 through TD-1001M-F11, depending on the inspection performed) **must** contain, but is not limited to, the following information:

- Name of the QCR
- Date of the inspection/patrol
- Name of the circuit inspected/patrolled
- Structure number/s
- FDA condition
  - Facility found abnormal
  - Damage indicated
  - Action, such as recommended maintenance activities and the priority of these recommendations
- Photos can be attached to the notification, depict surrounding area, abnormal findings, and structure number identification
- Significant comments regarding special work requirements, access notes, etc.

1.6.2 Maintenance Records

Record routine, non-routine, and emergency maintenance performed in the SAP database or on inspection/patrol datasheets. Maintain records in accordance with Section 1. General Inspection and Patrol Procedures, Section 1.1 Record Keeping and Section 1.5.1 Resolving Abnormal Conditions during Patrol or Inspection. These records **must** include, at a minimum, the person responsible for performing the maintenance, the date of the maintenance, the name of the circuit, the facility maintained, and a description of the maintenance performed.

Keep these records in the SAP database and field inspection and patrol files at the responsible transmission line supervisor's headquarters.

1.6.3 Asset Creation

As assets observed in the field differ from SAP object lists, drawings, schematics, or other formal references, they should be updated per the Electric Transmission Geographic Information System (ET GIS) asset creation or maintenance processes (ET GIS Process maps 1.1 through 1.16). These processes apply to overhead and underground assets. Following the

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ET GIS asset creation and maintenance processes will ensure the transmission asset registry and mapping systems are kept current with actual field conditions. New assets or removed assets must also be entered in ET GIS. Use TD-1001M-F13, "Request to Add Equipment Records to the Asset Registry" to add new equipment. Use TD-1001M-F14, "Request to Delete Equipment Records to WM SAP" to delete equipment in ET GIS. Refer to ET GIS SAP – Request for Work Job Aid – Creation for specific details.

1.7 Overhead Job Aid for Assigning Priority Codes

The inspector's primary responsibility in an overhead electric facility inspection or patrol is to examine and record the specific condition of the facilities. This requires a detailed evaluation (e.g., visual observation, and potentially, use of measuring devices, tools, or routine diagnostic test) to determine if there are any structural problems or hazards that will adversely impact safety, service reliability, or asset life, and to evaluate when each abnormal condition identified warrants corrective action. Do not create corrective maintenance notifications for abnormal conditions that do not require corrective action prior to the next scheduled inspection or patrol.

Use the guidelines in Table 8. Guide for Assigning Priority Codes, to grade abnormal conditions that will adversely impact safety, service reliability, or asset life, that, in the judgment of the inspector, require corrective action before the next scheduled inspection or patrols. Table does not provide a comprehensive list of conditions that can be encountered. The Priority Code levels are for typical adverse conditions and must be adjusted up or down based on the inspector's judgment of the actual condition observed. See the following examples:

Example 1:

A missing damper is identified during a routine aerial patrol.

- Table 3. Facility Codes, provides the facility code for "damper".
- Table 4. Damage Codes gives the damage code for "missing".
- Referring to Table , E is a typical Priority Code for a missing damper.
- The inspection datasheet is completed with the following information:
  - Facility Code: Damper DAMS or DAMW
  - Damage Code: Missing MISS
  - Action Code: Replace REPL

NOTE: If the inspector is aware that the transmission line with the missing damper has an aged conductor with a history of vibration-related problems, the inspector may, based on his knowledge of the line, assign a Priority Code B (3 months).

Example 2:

A loose "Danger High-Voltage" sign is identified during a routine ground patrol at a wood pole.

- Table 3. Facility Codes, gives the facility code for "markers".
- Table 4. Damage Codes gives the damage code for "loose".
- Table 8. Guide for Assigning Priority Codes, a typical Priority Code for a loose "Danger High-Voltage" sign would be E.
- The inspection datasheet is completed with the following information:
  - Facility Code: Structure Marker MRKW
  - Damage Code: No Good NG

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- Action Code: Repair REPA

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Table 8. Guide for Assigning Priority Codes

Component	Priority Code				
	A (Immediate)	B (3 months)	E (12 months)		F (24 months)
ANCS or ANCW Anchor **GYWS or GYWW Guy Wire**	Rust >50% material loss Worn >50% material loss Cracked >50%	Cracked 33 to 50% **Over tension >50%** Slack storm guy Broken Missing Clearance from energized conductors	Rust 30 - 50% material loss Worn 30 - 50% material loss **Cracked 5 to 33%** **Soil Movement/slide/ standing water**	Over tension 10 to 50% **Twisted**	**No 24 month tags**
CONS or CNDW Conductor **DAMS or DAMW Damper**	Rust >50% material loss Cracked >50% Gunshot >20% of strands broken Arcing	Cracked 33 to 50% Gunshot 15 to 20% of strands broken Corrosion (heavy) Conductor clearances Broken ground wire or tie wire Broken spacer or connector Loose connector, tie wire, or weight Twisted bundled conductor	Rust 10 - 50% material loss Broken damper Missing damper Bent damper **Out of position damper**	Cracked 5 to 33% Gunshot 5 to 15% of strands broken Corrosion (medium) **Vibrating**	**No 24 month tags**
Electrical clearances (GO-95)	Tree contacting line or showing signs of contact (burnt leaves or limbs)	Circuit-to-circuit Burnt Trees Clearance < G.O. 95	Ground Clearance < G.O. 95	Grade change (Ground Clearance < G.O. 95)	**No 24 month tags**

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Component	Priority Code				
	A (Immediate)	B (3 months)	E (12 months)		F (24 months)
FOND **Foundations**		**Rust (rebar exposed with >50% material loss)** Cracked (cracks >1/2") **Earth covered (covering steel member)** **Buckled** Soil movement (movement causing significant bowing of tower members)	**Not sealed** **Soil movement (Slide 10 to 15 feet)** Bent Exposed wood pile	**Rust 30 - 50% material loss** **Cracked (cracks > 1/16")** Earth covered Twisted Soil movement (movement causing some bowing of tower members)	**No 24 month tags**
INSU, INSS, INSL or INSW **Insulator** (Insulators with these conditions, see Table , Flashed Cracked Broken Gunshot Chipped >1½ inches)	Rust >50% material loss Worn >50% material loss Cracked >50% Contaminated (arcing)	Cracked 33 to 50% Contaminated (heavy) Tracking (heavy)	Rust 30 - 50% material loss Worn 30 - 50% material loss Contaminated (medium) Tracking (medium)	Cracked 5 to 33%	**No 24 month tags**
SWTC, SWIS or SWIW **Switches** (Switch insulators with these conditions, see Table , Flashed	Rust >50% material loss Cracked >50% Arcing Open (unlocked) Inoperable	Cracked 33 to 50% Corrosion (heavy) Contaminated (heavy) Tracking (heavy) Burnt **Hot** Loose Broken	Rust 30 - 50% material loss Contaminated (medium) Tracking (medium) Heating Bent/Bowed	**Cracked 5 to 33%** Corrosion (medium)	For optimization of permitting, estimating, and engineering criteria; as well as long-lead time materials and

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Component	Priority Code				
	A (Immediate)	B (3 months)	E (12 months)		F (24 months)
Cracked Broken Gunshot Chipped >1½ inches)		Out of adjustment Missing			environmental reviews
STRS or STRT Structure (Steel)	Rust >50% material loss Cracked >33% Worn >50% material loss Damage to main structural support members compromising structural integrity	Broken (member) Missing (member) Missing bolts	Rust 30 - 50% material loss Cracked 10 to 33% Worn 30 - 50% material loss Buckled/bent Out of plumb >3 feet	Vibrating members Twisted Out of plumb 1 to 3 feet Loose bolts, etc.	For optimization of permitting, estimating, and engineering criteria; as well as long-lead time materials and environmental reviews
MRKS, MARK or MRKW Markers	Facilities or structures which have a recent history of trespass or third-party unauthorized access	–	Cracked Broken Loose Missing	–	**No 24 month tags**
ROW1 or RWAY Right-of-Way	Tree contacting line or showing signs of contact (burnt leaves or limbs) Encroachments	Tree clearance < G.O. 95 Clearances < G.O. 95	–	Grade change (Ground Clearance < G.O. 95) Encroachment	Encroachments to be resolved via Land Management
ROAD Access Roads	If posing threat to facilities due to wash out or land motion				Access road repair or replacement

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Component	Priority Code				
	A (Immediate)	B (3 months)	E (12 months)		F (24 months)
BRDW **Boardwalk**			If required to access facility for next upcoming detailed inspection which is due within one year		Replace, repair, or install boardwalks.
SCDS, SCDA or SCDW **SCADA**		Repair SCADA			Replace or install SCADA
STRW **Structure (Wood)**	Burnt >50% material loss	Burnt 40-50% material loss Cracked >50% Broken Slide >15 feet Out of plumb >15 feet Soil Movement (Erosion > than 3 feet in the ground) Worn/woodpecker damage (severe)	Burnt 20-40% material loss Twisted (severe) Slide 10 to 15 feet Out of plumb 4 to 15 feet Erosion 3 to 4 feet in the ground Standing water	Cracked 10 to 50% Twisted (medium) Erosion >4 feet in the ground Worn/woodpecker damage (medium) Earth covered	For optimization of permitting, estimating, and engineering criteria; as well as long-lead time materials and environmental reviews
Idle Facilities (any facility type)	Removal of idle facilities posing an immediate threat to life, property or reliability	-	-	-	For planning optimization of removal of non-emergency idle facilities

Note: If, on performing the required visual inspection and hammer test, the QCR believes the pole to be suspect, the pole must be tested further in accordance with Utility Standard TD-2325S, "Wood Pole Inspection, Testing, and Maintenance," and Work ProcedureTD-2325P-01, "Wood Poles - Testing, Reinforcing and Reusing." After completing the pole inspection, the QCR must complete the TD-2325P-01-F01, "Attachment 1 - Pole Inspection/Test Report," and forward it to the supervisor. The supervisor will forward it to the estimating group for further evaluation and appropriate corrective action identification.

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1.8 Overhead Job Aid for Insulator Replacement and Priority Codes

1.8.1 Insulator Strength and Loading

Usually, dead-end insulators are loaded to a higher percentage of their design strength than are suspension insulators. Typically, suspension insulators are loaded 30% to 50% of the design strength of dead-end insulators.

Listed below are the criteria for replacing insulators during maintenance:

- Replace suspension and dead-end insulators if they exhibit signs of deterioration or corrosion, or have been subjected to some unusual loading condition. If insulators are in good condition, loading and unloading the insulator string during routine maintenance will not degrade the insulators.
- Replace all suspension or dead-end insulators that have been affected by shock loading (impact loads that exceed the normal loading and are generally associated with broken wire conditions on steel structures with normal sag tensions that exceed 3,000 pounds).
- All insulators not listed as approved for purchase or as a salvable substitute are obsolete and must not be used. Salvable substitute insulators more than 20 years old are not to be used and should be disposed of. Salvable substitute insulators less than 20 years old that have not been in service may be used.

1.8.2 Insulator Conditions

1.8.2.1 Broken Insulators

Broken insulators have one or more of the following conditions:

- Glass or porcelain is broken and only the hub is remaining.
- One or more skirts are broken and a piece is missing.
- The insulator is cracked.

1.8.2.2 Chipped Insulators

Chipped insulators generally have little effect on the reliability of the insulator and do not need to be addressed, unless one or more of the following conditions is present:

- A crack extends from the chip.
- The chip is larger than 2” in diameter.
- The chip is located next to a grouted fitting where it will trap water and could freeze.

If any of the above conditions exist, evaluate the insulator like it was a broken insulator. Use the proper Priority Code listed in Table 9.

1.8.2.3 Flashed Insulators

The priority for a flashed insulator depends on the type of insulator. The following information provides some direction for assigning priorities to the various types of insulators:

- **Porcelain** - Replace the entire insulator string or post insulator. Depending on the weather conditions, contamination present on the insulator, and the contamination area, assign Priority Code A, B, or E. If assigning a Priority Code B or E, the

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insulator must be washed or cleaned as soon as practical to prevent it from flashing over again before it is replaced.

- **Glass** - Glass insulators do not always need to be replaced when flashed. If the glass is intact, cleaning the insulator usually restores its electrical strength. However, if the glass is broken, replace the insulator(s) and assign the Priority Code using the criteria for broken insulators.
- **Non-Ceramic** - If the flashover damaged the insulator sheds or end fittings, assign Priority Code A and replace the insulator. If there is no visible damage to the insulator skirts or end fittings, the insulator does not need to be replaced and does not need a Priority Code.

1.8.2.4 Dirty/Contaminated Insulator Cleaning

Perform insulator washing based on local environmental conditions, operating experience, and the predetermined wash cycles established in SAP.

- Wash insulators in accordance with the TD-1257M, "Insulator Cleaning Manual". The TD-1257M, "Insulator Cleaning Manual" provides guidance on contamination assessment and insulator cleaning frequency.
- Maintenance plans must be created in SAP for circuits that require annual (or more frequent) insulator washing, as determined by the local transmission line maintenance supervisor, based on insulator contamination and performance.
- By agreement, maintenance plans must be created in SAP for Diablo Canyon Power Plant (DCPP) 500kV and 230kV transmission line circuits utilizing frequencies specified in Section 2.1.3 and Table 17. Specific wash instructions are provided for structures near DCPP and Morro Bay Power Plant in Section 6.6.

1.8.3 Assigning Insulator Priority Codes

Table 9. Guide for Replacing Damaged Insulators, provides guidance for assigning the proper Priority Code for broken insulator strings. Use this information for the various voltages, types of construction, and contamination districts to provide consistent responses and ensure system reliability.

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Table 9. Guide for Replacing Damaged Insulators

Voltage	Configuration	Contamination District	G.O. 95 Minimum Requirements		Design # of Units	Minimum # of Units	# of Broken Units	
							1	2 or more
			Dry Flashover *	# of Units			Priority Code	
500kV	Dead-end	AAA	1,190 kV	23	34	32	E	B
	Dead-end	B, C, D			28	26	E	B
	Vee String	AAA			36	34	E	B
	Vee String	B, C, D			28	26	E	B
	Suspension	AAA			34	32	E	B
	Suspension	B, C, D			25	23	E	B
230kV	Dead-end	AAA	582 kV	12	24	20	E	B
	Dead-end	A			22	18	E	B
	Dead-end	B, C, D			17	15	E	B
	Suspension	AAA			16	13	E	B
	Suspension	A, B, C, D			15	13	E	B
115kV	Dead-end	AAA	333 kV	6	12	10	E	B
	Dead-end	A			11	9	E	B
	Dead-end	B			10	8	E	B
	Dead-end	C, D			9	8	E	B
	Suspension	AAA			10	6	E	B
	Suspension	A, B			9	6	E	B
	Suspension	C, D			8	6	E	B
60/70kV	Dead-end	AAA	180 kV	3	7	5	E	B
	Dead-end	A, B			7	5	E	B
	Dead-end	C, D			6	5	E	B
	Suspension	AAA, A, B			5	3	E	B
	Suspension	C, D			4	3	E	B

* The dry flashover (FO) is based on ANSI C29.1 test procedures.

Notes:

1. This table is based on dry flashover insulator characteristics. If possible, replace insulators before the onset of wet weather.
2. Consider local conditions. Insulator strings near the coast, at Diablo Canyon, 500 kV, etc., may be more critical and replaced more urgently.
3. Adjust the Priority Code based on the various conditions that may exist, including
   - Priority Code A (fix immediately) for 2 or more insulators less than the G.O. 95 requirement
   - Priority Code B (fix within 3 months) for 1 insulator or less than the G.O. 95 requirement
   - Priority Code E (fix within 1 year) if less than design, but more than the G.O. 95 requirement
4. For barehand work, refer to the TD-1248M, "Barehand Work Procedures Manual" for the minimum number of insulators and clearance requirements.
5. If an insulator string has broken insulators and the remaining number of good insulators in the string exceeds the design number of units, assign Priority Code E.

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1.9 Overhead Job Aid for Transmission Line Steel Structures

1.9.1 General

Inspect transmission line towers on a regular basis. If abnormal conditions are found during this process, use ETPM Form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead," to record the physical condition of the structure. It is recommended to use digital pictures in conjunction with this form.

See Table 8. Guide for Assigning Priority Codes, for information about assigning notification priorities for the condition found.

1.9.2 Analysis of Condition by Engineering

See Section 1.16 Equipment Replacement Nominations,.

1.9.3 Detailed Description for Repairing Deteriorated Steel Structures

Table 10. Detailed Description for Repairing Deteriorated Steel Structures

Priority Code	Characteristics	Action	Notes
A: Immediate attention required.	Major corrosion (severe rusting on more than 50% of the structure steel and isolated pitting) and/or physical damage to main structural members, compromising structural integrity. Severely rusted legs, packed-rust at bolted joints, and/or internal corrosion of tubular members. Catastrophic failure of structure is an immediate possibility.	Replace the structure to avoid a catastrophic failure.	
B: Attention required within 3 months.	Members and/or bolts missing.	Repair as needed to restore structural integrity.	
E: Attention required within 12 months.	Rust 30-50% material loss. Moderate corrosion (surface rusting on more than 50% of the structures) and loss of galvanizing. Reddish brown rust of zinc-iron alloy with less than a mil of zinc left on the surface. Pack-rust at joints, crevices, or overlaps.	Repair as needed to restore structural integrity. Replace areas of isolated steel members with serious pack-rust, if possible. If pack-rust is present, contact transmission line civil engineering.	**CAUTION:** If pack-rust is significant and the area(s) cannot be replaced, replace the structure within 5 years.
	Physical damage on one or more easily replaceable members. Any coating, if previously applied over galvanizing, is more than 50% deteriorated, exposing surface rust. Vibrating or twisted members. Loose bolts.	Modify the structure according to civil engineering recommendations to eliminate vibrations. Replace twisted members.	

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Priority Code	Characteristics	Action	Notes
F: Attention required within 24 months.	No significant evidence of structural or surface deterioration or corrosion. Galvanizing still in good condition with a minimum of 2 mils zinc present. Any coating previously applied over galvanizing is in good condition with no significant deterioration.	Inspect at least every 5 years as a precaution.	Long lead time material required. Structure replacement. Environmental/permitting requirements. No Attention Required for at Least 5 Years.

1.10 Overhead Job Aid for 500 kV Climbing Inspections

1.10.1 General

Inspect 500 kV transmission towers on a regular basis. Use ETPM Form TD-1001M-F03, "500kV Climbing Inspection Form and Tower Diagrams," to record the physical condition of the structure. Digital pictures may be used in conjunction with this form. Enter the conditions found in the SAP system and submit the form to the transmission line asset management supervisor in accordance with the instructions on the form. TD1001M-JA02, "Detailed Climbing Inspection Job Aid" should be referenced for additional instructions to complete the forms.

1.10.2 500 kV Climbing Inspection Form and Tower Diagrams

TD-1001M-F03 provides a ready reference to ensure a thorough inspection. It is intended that the items on Page 2 of the form will be inspected during the climbing inspection. Page 3 of the form provides a reference to aid the inspector in recording other line-related component deficiencies that might be noticed during the inspection.

The "Tower Diagrams" part of TD-1001M-F03 provides a framework to record guy tensions.

1.11 Overhead Job Aid for Conductor Inspections

1.11.1 General

Patrol and inspect transmission lines and their associated conductors on a regular basis. If an abnormal condition is found during this process, use ETPM Form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead," to record the physical condition of the conductor. Refer to Table 8. Guide for Assigning Priority Codes for information about assigning Priority Codes.

1.11.2 Analysis of Condition by Engineering

If a conductor is not in immediate risk of failure, but is considered beyond economical repair, follow the process described in Section 1.16 Equipment Replacement Nominations,.

1.12 Overhead Job Aid for Switch Inspection

1.12.1 General

Transmission line switches must be inspected in accordance with circuit inspection cycles, and maintained in accordance with FDA Processes as per TD-1006P-02, "Switch Maintenance and

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Inspection Program for Electric Transmission" and TD-1006P-02-JA-01 "Electric Transmission Line Switch Inspection/Function Test Job Aid".

1.12.2 Overhead Switch Numbering

Transmission line switches must be numbered in accordance with TD-1006B-004 "Procedure for Marking Duplicate Transmission Switches".

1.12.3 Analysis of Condition by Engineering

If a switch is not in immediate risk of failure, but is considered beyond economical repair, follow the process described in Section 1.16 Equipment Replacement Nominations,.

1.13 Removal of Metal Fence Attachments

Third-party attachments of metal fences (cyclone, barbed wire, etc.) to steel towers, wood poles, and/or transmission down guys is not permitted. Remove all attachments and instruct the fence owner that this attachment or contact is not allowed.

1.14 Overloaded Transmission Line Poles

1.14.1 General

Over-stressed/overloaded wood poles can occur as a result of underbuilt distribution facilities, underbuilt third-party facilities, or as a result of reconductoring without an associated pole replacement.

1.14.2 Required Action

If there is any reason to believe or suspect that wood poles are overloaded or over stressed, record specific information about the situation and send it to the appropriate transmission line estimating office for further action. The information recorded must include, but is not limited to, the following items:

- Line name, structure number, and location
- Wire size, cable size, span length, attachment height
- Pole size and class
- Any additional information deemed necessary for identification or explanation

Complete the ETPM Form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead," using the FDA codes provided in Section 1.4. Overhead Methodology, Facility, Damage and Action Codes.

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1.15 PAL Nuts – Remedy for Loose or Missing Tower Bolts

1.15.1 General

An evaluation after a Type HVD 500 kV tower failed due to missing bolts determined the optimum locking device to use on tower bolts. Though a properly center-punched tower bolt will prevent a nut from backing off, it is difficult to determine when a standard bolt has been properly center-punched. Using a PAL nut over the standard tower nut to prevent the tower nut from backing off due to vibration is the preferred method.

1.15.2 Required Action

Install PAL nuts at the discretion of the supervisor when a tower has a history of loose or missing bolts, or at critical tower locations where the failure of the structure could have serious consequences.

Field experience has shown that PAL nuts are easier to install with a ratchet-type box-end wrench to prevent the wrench catching on the underlying standard nut. Install PAL nuts with the flat side toward the standard nut.

This requirement applies to towers of all voltages.

The code numbers for PAL nuts are as follows:

- 190774 for use with 1/2" bolts
- 190775 for use with 5/8" bolts
- 190776 for use with 3/4" bolts

1.16 Equipment Replacement Nominations

1.16.1 General

If a structure, foundation, conductor, or switch is not in immediate risk of failure, but is considered to be beyond economic repair, complete an LR notification with the information below. For FAA lighting that is not functioning properly and repairs are impractical or uneconomic, also complete an LR notification with the information below.

1. Start the **Problem Description** as a nomination for replacement of component (i.e., structure, foundation, conductor, or switch).
2. Under **LR Notification**, check Priority Code F.
3. Under **User Status**, check Nomination.
4. Under **Reference Info**, no crew information or labor hours are needed.
5. Under **Execution**, place 12/31/2999 for required end date.
6. Under **Long Text**, for each structure, FAA lighting installation, foundation, switch or section of conductor, describe why it is being nominated for replacement (e.g., ground subsidence, C leg deformed, tower rusted through, unable to adjust switch, switch undersized for load drop or switching, conductor annealed, xx twist sleeves in line, nonstandard conductor with no replacement parts, poor sag from x/x to y/y resulting in phase to phase contact).

New notifications created in SAP are reviewed quarterly by the transmission line asset strategy group. If a notification is determined to be for a valid replacement project, the QCR will be notified of its current priority ranking and likely construction dates. (The dates will be preliminary subject to funding allocations and additional project submittals.)

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An overall yearly review of notifications and planned projects is presented at a first quarter staff meeting of the electric planning, strategy and engineering group.

1.17 Overhead Job Aid for Conductor Clearances

1.17.1 General

Perform conductor clearance checks when conducting detailed inspections. Verify that clearances meet G.O. 95 and Company design requirements. Check the clearance at the mid-span of the conductor or where the clearance is at a minimum.

The minimum clearances shown in Table 11. Minimum Conductor-to-Ground Clearance Calculations and Table 12. Minimum Conductor-to-Conductor (Circuit-to-Circuit) Clearances, include a conductor sag buffer to account for variations in load and ambient conditions.

1.17.2 Conductor-to-Ground Clearance

Use Table 11. Minimum Conductor-to-Ground Clearance Calculations, to determine if the existing conductor- to-ground clearance meets the minimum requirements. See Engineering Drawing 064588, "Graphs for Ground Clearance Reduction Due to Ambient Air Temperature Rise for Overhead Line Conductors Light Loading Area" (Sheet 1 and Sheet 2), to help determine conductor sag for changes in ambient temperature and loading.

Conductor-to-ground clearance calculations are based upon G.O. 95 Rule 37 Table 1. If the appropriate clearance is not met, submit a corrective maintenance notification designated Priority Code E to correct the clearance infraction. To aid in evaluating the clearance problem, provide the ambient air temperature and wind condition, and the date and time the clearance measurement was taken.

If a QCR is uncertain whether current physical conductor-to-ground clearance conforms with Table 11, a measurement should be taken using one of the methods below and recorded in the Object list of the patrol.

1. Telescoping measuring disconnect tool (cleaned, tested, and date stamped)
2. Conductor Distance Meter (CDM) or Contour Range Finder

When either one of the options listed above cannot be applied, contact Land Management and arrange for land surveyors to verify field measurements or review annual LiDAR measurements.

Table 11. Minimum Conductor-to-Ground Clearance Calculations

Voltage	60, 70, 115 kV	60, 70, 115 kV (over railroad)	230 kV	230 kV (over railroad)	500 kV	500 kV (over railroad)
Minimum Clearance Requirement	30 feet [1]	34 feet [1]	30 feet [1]	34 feet [1]	35 feet [1]	39 feet [1]

Notes:

(1) If the measured conductor to ground clearance is less than shown on this table, consult transmission line engineering to determine the optimal conductor-to-ground clearance for the location in question and whether remediation is required.

(2) Clearances must be measured at the low point in the span. Across uneven terrain, this might not be at the mid-span. See Figure 1. Clearance Checks on Uneven Terrain.

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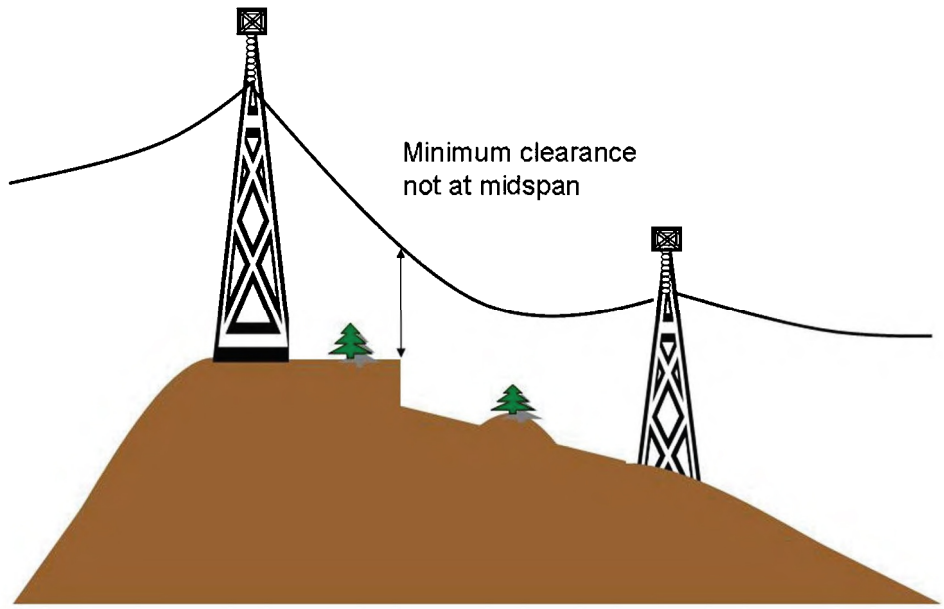

Figure 1. Clearance Checks on Uneven Terrain

1.17.3 Conductor-to-Conductor (Circuit-to-Circuit) Clearances

Use Table 12. Minimum Conductor-to-Conductor (Circuit-to-Circuit) Clearances, to determine conductor-to-conductor (circuit-to-circuit) clearances for transmission circuits with distribution underbuilt. For circuits attached on the same structure, measure clearances at mid-span, not at the support structure.

If there is a distribution pole interset under the transmission circuit, measure the circuit-to-circuit clearances at the location of the interset pole.

When less than the prescribed separation is suspected, verification of circuit-to-circuit separation as depicted in Table , will require one of the same techniques listed in 1.17.2 to accurately measure and record non-compliance of circuit-to-circuit separation.

If circuit-to-circuit distance is less than described in Table 12, create a corrective maintenance notification with a Priority B (3 Month Tag).

NOTE: It is the SAP gatekeeper's responsibility to determine if the work can be completed in the 3 month time frame," based on risk factors, location, or the need for engineering solutions that might require changing the impaired clearance into a 1 year notification.

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Table 12. Minimum Conductor-to-Conductor (Circuit-to-Circuit) Clearances

Voltage	60/70 kV	115 kV (Wood)	115 kV (Non Wood)
Minimum Separation for Circuits Supported on Same Structure	48 inches	84 inches	120 inches
Minimum Separation to Distribution on an Interset Pole	96 inches	120 inches	120 inches

1.18 Overhead Job Aid for Automatic Guy Strain Deadends and Splices

1.18.1 General

Guy wires are primarily installed to support mechanical strength in dead-ends, angles and spans where tensions run higher than adjacent spans. This connector can be subject to various types of exposure, such as dampness or soil disturbance due to construction or agriculture activities. Inspect and replace when necessary by means of utilizing a U-shape guy preform. Existing guy wire splices must be capable of supporting the intended strains.

1.18.2 Required Action

During detailed inspections, the QCR will inspect all guy wire assemblies, looking for any indication which may suggest the guy splice or automatic guy deadend has internal deterioration occurring. Create notifications to replace or repair deadends and splices.

- Coastal environment; visual indications of deterioration, Priority B, 3 months.
- All other areas; visual indications of deterioration, Priority E, 12 months.

Conditions driving preventive maintenance for an automatic deadend/splice installed in support of transmission facilities include the following:

- Loss of galvanizing on guy wire
- Internal corrosion “bleeding” down the guy wire
- External contact with supporting structure (car/pole)
- Any visible cracking or splitting in the body of the splice or automatic deadend
- Any visible markings indicating the gripping action is slipping outward (jaw marks)
- Visible outer body has lost its protective coating (rust occurring)
- Outer body has visible port holes located at the center of the splice and shows signs of contaminants embedded within the inner body.

If in doubt of whether the splice can support the intended strains, replace or repair regardless of the visual condition if warranted.

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1.18.3 Acceptable Repair/Reinforcement Options

Two reinforcement options for guy assemblies are currently allowable. Inspect the existing guy assembly to ensure all other components are in an acceptable condition and will not pose a hazard during either option for reinforcement.

1.18.3.1 Option 1

- Take two guy preforms sized for the existing wire size.
- Straighten-out by reshaping to appear as armor rod.
- Position the area of the preformed armor rod which is not formed over the guy splice and wrap both above and below the splice
- Apply the second set in the same manner as the first set.

Note: Care should be taken to minimize any slack over the splice.

1.18.3.2 Option 2

- Utilize the appropriate size hoist and grips. Leave adequate space between the grips to install one guy strain insulator and two guy preforms.
- After taking the strain, thus relaxing the guy splice, cut-out the suspect guy splice, THEN, install preforms and guy strain insulator. Utilize existing work practices for this application.
- Once installed, shunt-out the guy strain insulator by applying a short piece of guy wire to connect the ends by means of a U-bolt guy clamp, thereby creating a shunt by-passing the guy insulator.

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2. Inspections

These inspection procedures are a key element of the preventive maintenance program. The recommended actions reduce the potential for component failures and facility damage, and facilitate a proactive approach to repairing or replacing identified abnormal components and correcting circumstances that negatively impact safety, reliability, or asset life.

2.1 Detailed Overhead Inspections

Inspected facilities include overhead assets, rights-of-way, fiber-optic facilities, and vegetation. The overhead inspections include an external visual evaluation of the overhead facilities. See Section 5. Maintenance Procedures, for requirements that are part of the Company's overall maintenance program and are in addition to the visual inspection items identified in this section

A detailed ground, aerial, or climbing inspection of the asset looks for abnormalities or circumstances that will negatively impact safety, reliability, or asset life. Individual elements and components are examined carefully through visual and/or routine diagnostic tests, and each abnormal condition is graded and/or recorded.

Inspect overhead line facilities in accordance with the provisions in Section 1. General Inspection and Patrol Procedures. The inspections include detailed visual observations and physical testing as needed (wood pole hammer/bore test, guy tension, etc.) to identify abnormalities or circumstances that will negatively impact safety, reliability, or asset life. When performing the required visual inspection and hammer test on a wood pole, it might be determined that pole should be further evaluated by a bore test.

2.1.1 Procedures

The primary responsibility of a QCR performing an overhead facility inspection is to examine the facilities and record any abnormal conditions. This inspection requires an extensive evaluation (e.g., visual observation, which could include using measuring devices or tools) to detect any abnormal structural problems or hazards that will adversely impact safety, service reliability, or asset life, and to evaluate when each identified abnormal condition warrants maintenance.

Inspections require viewing all sides of the facilities (including line equipment). Evaluating line equipment requires a visual inspection of disconnect switches, control cabinets, switch platforms, lightning arrestors, etc. FAA obstruction lighting must be reviewed for obvious defects (e.g., damaged, misaligned, dirt/debris on solar panels) and must be verified operational. Abnormal conditions that will adversely impact safety, service reliability, or asset life, and are identified by the inspector as requiring maintenance before the next inspection cycle, must be graded based on the inspector's observation and judgment.

The ETPM Form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead," lists the conditions to consider during overhead inspections. To aid the inspector, this form contains lists of typical facilities used in the electric overhead system. However, the list of conditions on TD-1001M-F02 is not complete or all-inclusive.

QCRs must be thoroughly familiar with all of the facilities, equipment, safety rules, and procedures associated with the facilities and equipment.

To complete repairs during the inspection, the inspector must be equipped with the appropriate safety equipment, tools, and materials. (See 6.6Appendix B: Equipment, Tools, and Materials for a reference list of these items.) Guidance on the extent of repairs to be

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completed during inspections is provided in Section 1.5.1 Resolving Abnormal Conditions during Patrol or Inspection.

2.1.2 Substituting Aerial Inspections for Ground Inspections

It may not always be possible to perform ground inspections of lines or line sections due to access restrictions.

Using an aerial inspection to replace a ground inspection must be authorized by the transmission line superintendent on a case-by-case basis. If an air inspection is performed, the next detailed inspection must be a ground inspection.

Exception: If the original condition that prevented a detailed ground inspection still exists, a detailed aerial inspection is performed, but the QCR must be accompanied by the transmission line supervisor.

In addition, the reason for the aerial inspection must be recorded and kept on file as part of the inspection record.

2.1.3 Overhead Inspection Frequency

Inspect overhead transmission facilities per Table 13. Overhead Inspection Frequencies. Establish schedules such that inspection frequencies meet the SAP maintenance dates.

The schedules indicated in Table do not preclude assigning a more frequent inspection cycle to a circuit when warranted by sound business reasons. However, increasing inspection frequency requires appropriate justification and approval by the transmission line superintendent or designee. Inspections on less frequent cycles than those listed in Table are not allowed.

For circuits composed of both steel and wood structures, the inspection frequency is based on the cycle for the majority structure type (i.e., for a circuit with 51% or more steel structures, the inspection frequency is every 5 years). Light-duty steel poles are considered steel structures for these circuits. The transmission line maintenance supervisor may modify the inspection frequency to 2 years, based on local knowledge and exposure of the circuit.

Infrared inspections may be performed in conjunction with overhead inspections, but **must not** be considered as, or substituted for, an overhead inspection.

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Table 13. Overhead Inspection Frequencies

Voltage (kV)	Inspection Type	Structure Type	Inspection Frequency (years)
500	Detailed inspection (ground)	Steel	3
	* Climbing	Steel (non-critical)	12 (and as triggered)
	* Climbing	Steel (critical)	3 (and as triggered)
	Infrared	Steel	5 (and as triggered)
230	Detailed inspection (ground or aerial)	Steel	5
	Detailed climbing or aerial lift	Steel	As triggered
	Bay Waters Foundation Inspection	Steel	5
	Detailed inspection (ground or aerial)	Wood	2
	Climbing or aerial lift	Wood	As triggered
	Infrared	Steel or Wood	5 (and as triggered)
115	Detailed inspection (ground or aerial)	Steel	5
	Detailed climbing or aerial lift	Steel	As triggered
	Bay Waters Foundation Inspection	Steel	5
	Detailed inspection (ground or aerial)	Wood	2
	Climbing or aerial lift	Wood	As triggered
	Infrared	Steel or Wood	5 (and as triggered)
60/70	Detailed inspection (ground or aerial)	Steel	5
	Detailed climbing or aerial lift	Steel	As triggered
	Bay Waters Foundation Inspection	Steel	5
	Detailed inspection (ground or aerial)	Wood	2
	Climbing or aerial lift	Wood	As triggered
	Infrared	Steel or Wood	5 (and as triggered)

* **Note:** Detailed 500 KV climbing inspections must include information about guy tensions.

Triggers are specific conditions that require follow-up inspections and/or maintenance scheduled by the supervisor, independent of the routine schedule.

The following triggers can be applied to one unit of inspection or many units, either grouped or spread over a line section/area:

- Component defects identified by inspection
- Component failure (including failure in like components)
- Components proven defective by testing
- Wire/structure strike
- Burned area or high fire hazard
- Failures caused by natural disaster or storm
- Third-party observations and complaints
- Marginal capability components of a re-rated line section
- Known, recurring conditions that jeopardize line integrity
- Suspected vegetation clearances less than required or less than legal vegetation clearances, or concerns about fast growth of vegetation

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2.1.4 Inspection Documentation

ETPM forms TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," and TD-1001M-F05, "Object List - Typical" provide adequate, consistent, and auditable inspection records, and must be used to document the inspection.

The inspection documentation process, as described below, is the responsibility of the transmission supervisor, QCR, and the clerk.

1. Before starting an inspection, the QCR must obtain the following documents for the inspection area:
   - TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical,"
   - TD-1001M-F05, "Object List - Typical"
   - An SAP report of all open notifications for the lines to be inspected, with enough information provided to understand the nature of the problems.
2. Field reviews must be performed on any pending (open) notifications to address the following issues:
   - Did the condition of the facilities deteriorate faster than expected?
   - Has the work already been completed?
   - Is the required completion date still appropriate?
3. Use the ETPM Form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," to document any new abnormalities and minor or incidental work corrected at the time of inspection. Document the required information to support the creation of individual notifications detailing each abnormality as it was identified during the inspection. Attach digital photos to the inspection forms. For work requiring engineering and/or estimating, attaching a copy of the inspection map to the request is recommended. If FAA obstruction lighting is damaged or inoperable, refer to TD-1001P-03, "Obstruction Lighting Failure Notification Process" for procedure on notifying Federal Aviation Administration (FAA).
4. The applicable transmission line maintenance supervisor (or relief) must review and initial the QCR's inspection logs.
   - The clerk will input the notification into SAP as a staged notification and must record the corresponding notification number for each entry in the appropriate column on the TD-1001M-F01 form.
   - The applicable transmission line maintenance supervisor will review for approval and release the staged SAP notifications.
5. Inspection information must be entered into the SAP database and reviewed for approval and release the staged SAP notifications as soon as practical (not to exceed 20 business days from the end of the inspection and before January 31 of the following year). This ensures that SAP notifications will be established in time to facilitate the proper planning, scheduling, and work to correct abnormal conditions by the due dates.
6. If a piece of equipment has been identified as damaged or inoperative, the transmission supervisor or designee must notify the GCC of the equipment condition.
   - GCC personnel enter the equipment into the Integrated Logging Information System (ILIS) and assign a Critical Operating Equipment (COE) personal identification number (PIN).

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- The QCR must add the COE PIN to the notification's short text field in SAP and notify the GCC of the notification number associated with the PIN.

Inspection/patrol logs and notification forms are listed in 6.6Appendix C: Links to Forms and Flowcharts and are available in the Technical Information Library on the Company Intranet.

2.2 Climbing Inspections (Overhead)

A climbing inspection is a detailed, supporting-structure-based observation of the facilities installed to determine if there are any abnormal or hazardous conditions that adversely impact safety, service reliability, or asset life, and to evaluate when each identified abnormal condition warrants maintenance.

Perform routine, time-based 500 kV climbing inspections, focusing primarily on structural components, on all 500 kV structures, in accordance with the inspection frequencies listed in Section 2.1.3 Overhead Inspection Frequency. Climbing inspections extend from the ground line to the top of the tower. In addition to the documentation and recordkeeping requirements associated with other routine inspections, forward the results of 500 kV climbing inspections to the Transmission Tower Davis Headquarters for record retention.

Climbing inspections also might be required for specific structures or components to assess a condition that could not be adequately assessed when identified during a ground or aerial inspection or patrol. Such conditions trigger a follow-up inspection to assign the proper Priority Code. In some cases, this requires a climbing inspection.

See Section 0 All non-routine patrols will be completed under a **Priority B – 3 Month tag**. This will allow for sufficient timekeeping, receipt of miscellaneous charges (e.g., helicopter, natural causes (Fire, Snow) and collection of all necessary paperwork to complete the tag.

Overhead Non-Routine Patrol for triggers that might require a follow-up climbing inspection, and Table 7. Priority CodesTable 2, Inspection Best-View Position, for the best vantage points for inspections of specific items.

All inspection forms must be reviewed by the local tower supervisor or designee prior to being filed as specified on TD-1001M-F03, "500kV Climbing Inspection Form and Tower Diagrams" and TD-1001M-F04, "Steel Structure Detailed Climbing Inspection (Non-500kV Structures)". TD1001M-JA02, "Detailed Climbing Inspection Job Aid" should be referenced for additional instructions to complete the forms.

2.3 Underground Inspections

2.3.1 Underground Inspection Frequencies

See Table 14. Underground Inspection Frequencies for the underground inspection frequencies. Use the underground transmission inspection sheets and forms TD-1001M-F06 through TD-1001M-F11, depending on the inspection performed, to document test results and any abnormal conditions encountered in the field.

2.3.1.1 Detailed Inspection Frequencies

- XLPE - Perform detailed inspections once every 2 calendar years in accordance with Section 2.3.2 Detailed Inspections for XLPE Circuits.
- Pipe-type cable – Perform detailed inspections annually in accordance with Section 2.3.3 Detailed Inspections for Pipe-Type Circuits.

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- Submarine cable - Perform detailed inspections once every calendar year for the first 5 years of service in accordance with Section 2.3.2 Detailed Inspections for XLPE Circuits. After 5 years, adjust to every 2 calendar years if warranted.
- Land portion of the submarine cable – Perform same detailed inspection as for XLPE cable.

2.3.1.2 Routine Inspection Frequencies

- XLPE - Perform routine inspections every 3 months in accordance with Section 2.3.4 Routine Inspections for XLPE Circuits.
- Pipe-type cable – Perform routine inspections once each month in accordance with Section 2.3.5 Routine Inspections for Pipe-Type Circuits.
- Submarine cable - Perform routine inspections every 3 months in accordance with Section 2.3.4 Routine Inspections for XLPE Circuits.
- Land portion of the submarine cable – Perform same routine inspection as for XLPE cable.

2.3.1.3 Infrared (IR) Inspection

Perform IR inspections of underground riser terminations once every 2 years in accordance with Section 2.4.2 Infrared (IR) Inspections - Underground.

Table 14. Underground Inspection Frequencies

Voltage (kv)	Inspection Type	Cable Type	Inspection Frequency (years)
All	Detailed	Pipe-type	Once every calendar year
	Detailed	XLPE	Once every 2 calendar years
	Routine	Pipe-type	Once each month
	Routine	XLPE	Once every 3 months
	Infrared	Pipe-type	Every 2 calendar years on riser terminations
	Infrared	XLPE	Every 2 calendar years on riser terminations
	Detailed	Submarine	Once every for first 5 years, then adjust to every 2 calendar years, if warranted
	Routine	Submarine	Once every 3 months
	Marine Monitoring	Submarine	Various (under development)

2.3.1.4 Substitution of Inspections

- It is permissible to substitute a detailed inspection of XLPE or pipe-type cable circuits for a routine inspection.
- It is **not** permissible to substitute routine inspections of either XLPE or pipe-type cable circuits for detailed inspections.
- It is **not** permissible to substitute an infrared inspection for either a detailed or routine inspection. It is also **not** permissible to substitute a detailed or routine inspection for an infrared inspection.

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2.3.2 Detailed Inspections for XLPE Circuits

Perform detailed inspections on XLPE circuits and components as described below.

If a component is found to be suspect during an inspection, take proper action to correct the problem, assign a specific date to correct the problem, or follow up with additional inspections or testing of suspect components according to the established Priority Codes.

Note: The QCR must fill out a notification with the inspection form.

Detailed inspections include, but are not limited to, the following items:

- Cable racking - Inspect for corrosion or breakage.
- Cable clamps - Inspect for corrosion, breakage or looseness.
- Foundations - Inspect for failing, deteriorating, or damaged concrete.
- Grounds - Inspect for loose, missing, or broken connections.
- Link boxes - Inspect for deterioration, damage, missing bonding or ground wires. If suspect Sheath Voltage Limiters (SVLs) (i.e., conductor temperature increase of cable section), open box and test SVLs.
- Hardware - Inspect for broken or deteriorating components.
- Manholes and vaults - Inspect for failing, deteriorating, or damaged concrete; water leaks; cracked and/or damaged manhole covers; and deteriorating or damaged circuit markings.
- Splice covering - Inspect for damage and deterioration.
- Terminals - Inspect for oil or gas leaks, broken porcelain skirts, and insulator coating. Inspect coatings for discoloration, peeling, contamination, and aging.
- Structures - Inspect for missing, deteriorating, or damaged circuit markings or steel members, deteriorating protective coating, and missing or loose bolts. For concrete footings, inspect for failing, deteriorating, or damaged concrete.
- Communication cables - Inspect communication cables (hard wire or fiber) for damage where present in transmission manholes
- Rights-of-way - Inspect for encroachments and installation of other facilities that might have been installed without proper authority and that interfere with clear and passable access to the terminal structures and manholes.
- Access roads - Inspect access roads for damage or erosion.

2.3.3 Detailed Inspections for Pipe-Type Circuits

Perform detailed inspections on pipe-type circuits and components as described below.

If a component is found to be suspect during an inspection, take proper action to correct the problem, assign a specific date to correct the problem, or follow up with additional inspections or testing of suspect components according to the established Priority Codes.

Note: The QCR must fill out a notification with the inspection form.

Detailed inspections include, but are not limited to, the following items:

- Ducts and pipes - Inspect for damage to pipe coatings in manholes and terminal risers, corrosion of exposed metallic pipes, and system leaks.

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- Pipe-to-soil readings at manholes and terminal risers – For pipe-to-soil readings below 0.850 V, note and contact a transmission engineer and/or transmission specialist. Also, refer to the TD-2355M, "Electric Maintenance and Construction Manual".
- Pumping plants - Test and/or calibrate plant alarms, pump plant controls, relief valves, and/or other components per the manufacturer's recommendations. Perform trip checks. Inspect for oil leaks. Contain leaks and/or repair them. If a leak is contained but cannot be repaired at the time, schedule it for repair. Refer to the pumping plant manufacturer's operation manual. Follow Inspection Procedures TD-1001P-06 "Electric Underground Transmission Pump Plant Inspections for San Mateo-Martin 230kV High Pressure Fluid-Filled (HPFF)", TD-1001P-07 "Electric Underground Transmission Pump Plant Inspections for HZ-1 and HZ-2 230kV, and High Pressure, Fluid Filled (HPFF)", TD-1001P-08 "Electric Underground Transmission Pump Plant Inspections for Figarden Tap #1 and #2 230kV (HPFF)". Documents for Oakmont pumping plants are under development.
- Cable pressures - Calibrate and/or test alarms and pressure switches. Oil-filled cable pressures can vary from line to line. Refer to the manufacturer's operation manual. For gas-filled cables, low-low pressure alarms and trip switches typically are set at 140 psig. The low alarm is set at 185 psig.
- Isolation surge protectors (ISP) - Use pre-packaged diagnostic software to test all units. (The reference voltage should be 0.5 V to 2.25 V.)
- Foundations - Inspect for failing, deteriorating, or damaged concrete.
- Grounds - Inspect for loose, missing, or broken connections.
- Hardware - Inspect for broken or deteriorating components.
- Manholes and vaults - Inspect for failing, deteriorating, or damaged concrete; water leaks; cracked and/or damaged manhole covers; and deteriorating or damaged circuit markings.
- Splice casings - Inspect for oil or gas leaks, and the condition of cathodic protection coating.
- Terminals - Inspect for oil or gas leaks, broken porcelain skirts, and insulator coating. Inspect coatings for discoloration, peeling, contamination, and aging.
- Structures - Inspect for missing, deteriorating, or damaged circuit markings or steel members, deteriorating protective coating, and missing or loose bolts. For concrete footings, inspect for failing, deteriorating, or damaged concrete.
- Communication cables - Inspect communication cables (hard wire or fiber) for damage where present in transmission manholes.
- Rights-of-way - Inspect for encroachments and installation of other facilities that might have been installed without proper authority and that interfere with clear and passable access to the terminal structures and manholes.
- Access roads - Inspect access roads for damage or erosion.

2.3.4 Routine Inspections for XLPE Circuits

Perform routine inspections and operational readings on XLPE circuits and components as described below.

If, during the inspection, a component is found to be suspect, take proper action to correct the problem or assign a specific date to correct the problem according to the established Priority Codes.

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Note: The QCR must fill out a notification form with the inspection form.

- Terminals - Inspect for oil leaks, broken porcelain skirts, and damaged insulator coating. Inspect insulator and insulator coating for discoloration, peeling, and simple aging. Check for leaks at terminals. Contain the leaks and/or repair them. If a leak is contained but cannot be repaired at the time, schedule repairs as soon as possible.
- Structures - Inspect for missing, deteriorating, or damaged circuit markings or steel members, deteriorating protective coating, and missing or loose bolts. For concrete footings, inspect for failing, deteriorating, or damaged concrete.
- Rights-of-way - Inspect for encroachments and installation of other facilities that might have been installed without proper authority and that interfere with clear and passable access to the terminal structures and manholes.
- Access roads - Inspect access roads for damage or erosion.

2.3.5 Routine Inspections for Pipe-Type Circuits

Perform routine inspections and operational readings once a month for all underground pipe-type transmission circuits and components listed below.

If during the inspection, a component is found to be suspect, take proper action to correct the problem or assign a specific date to correct the problem according to the established Priority Codes.

Note: The QCR must fill out a notification form with the inspection form.

Routine inspections include, but are not limited to, the following items:

- Terminals - Inspect for oil or gas leaks, broken porcelain skirts, and damaged insulator coating. Inspect insulator and insulator coating for discoloration, peeling and aging. Check for leaks at terminals and pressure cabinet instruments. Contain the leaks and/or repair them. If a leak is contained but cannot be repaired at the time, schedule repairs as soon as possible.
- Pumping plants - Inspect for oil leaks. Contain the leaks and/or repair them. If a leak is contained but cannot be repaired at the time, schedule repairs as soon as possible.
- Fluid or gas leaks - Check for leaks at terminals and pressure cabinet instruments. Contain the leaks and/or repair them. If a leak is contained but cannot be repaired at the time, schedule repairs as soon as possible.
- Polarization cells - Inspect for plate discoloration, potassium hydroxide (KOH) level, loose connections, and reference voltage. (The reference voltage should be 0.5 V to 2.5 V.)
- Isolator surge protector (ISP) - Check the red indicator light (red light indicates unit malfunction) and the reference voltage. (The reference voltage should be 0.5 V to 2.5 V.)
- Rectifiers - Inspect for direct current (dc) output. On circuits with rectifiers, the dc output can vary, depending on the line being protected. If there is no dc output, check for alternating current (ac) voltage or a blown fuse.
- Rights-of-way - Inspect for encroachments and installation of other facilities that might have been installed without proper authority and that interfere with clear and passable access to the terminal structures and manholes.
- Access roads - Inspect access roads for damage or erosion.

Record operational readings for the following items:

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- Pumping plant oil and nitrogen pressures - Oil pressures can vary from line to line. Refer to the manufacturer's operations manual. Maintain the nitrogen pressure between 3 and 10 psig.
- Pumping plant oil volumes - Oil volume can vary from line to line. Refer to the manufacturer's operations manual for proper volumes.
- Cable nitrogen and oil pressures - Maintain gas at desirable pressures between 195 and 225 psig, not to exceed 250 psig. Oil pressures can vary from line to line. Refer to the manufacturer's operations manual for correct pressures.
- Cathodic protection reference voltages - The reference voltage should be 0.5 V to 2.5 V.

2.3.6 Detailed Inspections for Submarine Circuits

Submarine circuits are comprised of three interconnected, but different, subcomponents: subsea cable laid under water, transition points (manholes), and land-based XLPE-cabling. This section pertains to detailed inspection of the underwater portion and transition points.

If a component is found to be suspect during an inspection, take proper action to correct the problem, or follow the corrective maintenance notification creation process and assign a specific date to correct the problem.

Detailed inspections include, but are not limited to, the following items:

Subsea Portion – Submarine cabling is not subject to detailed physical inspections on a recurring basis. Real-time monitoring of submarine cable performance is provided via a Distributed Temperature Sensing (DTS) system station near the terminals.

- DTS – Record temperatures and cable ratings as shown on the display. If DTS unit is inoperable, arrange for repair by vendor.
- Cable alignment – Periodic survey of submarine cable alignments to record any movement of cables. Periodic diver inspections of cables at transition bore exits (cable landings) and locations of abnormalities as indicated by alignment surveys.

In Transition Manholes:

- Cable racking - Inspect for corrosion or breakage.
- Racking anodes - Inspect for depletion and loss of connections
- Cable clamps - Inspect for corrosion, breakage or looseness.
- Foundations - Inspect for failing, deteriorating, or damaged concrete.
- Grounds - Inspect for loose, missing, or broken connections.
- Link boxes - Inspect for deterioration, damage, missing bonding or ground wires. If suspect SVLs (i.e., conductor temperature increase of cable section), open box and test SVLs.
- Hardware - Inspect for broken or deteriorating components.
- Manholes structure - Inspect for failing, deteriorating, or damaged concrete; water leaks from link seals; cracked and/or damaged manhole covers; and deteriorating or damaged circuit markings.
- Transition splice - Inspect for damage, deterioration or movement out of position.
- Submarine cable anchors - Inspect for missing, deteriorating, or damaged cable armor, deteriorating anchor racking and anchor bolts.

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Land Cable Portion - See Section 2.3.2 Detailed Inspections for XLPE Circuits. Land cable items inside of transition vaults (i.e., racking grounds and link boxes) should be inspected at the same time as the submarine cable inspection.

2.3.7 Routine Inspections for Submarine Circuits

Perform routine inspections and operational readings on submarine circuits and components as described below.

If a component is found to be suspect during an inspection, take proper action to correct the problem, or follow the corrective maintenance notification creation process and assign a specific date to correct the problem.

Subsea Portion – Submarine cabling is not subject to routine physical inspections on a recurring basis. Real-time monitoring of submarine cable performance is provided via a DTS system station near the terminals.

- DTS – Record temperature and cable ratings as shown on the display. If DTS unit is inoperable, arrange for repair by vendor.

In Transition Manholes:

- Terminals - Inspect for oil leaks, broken porcelain skirts, and damaged insulator coating. Inspect insulator and insulator coatings for discoloration, peeling, and simple aging. Check for leaks at terminals. Contain the leaks and/or repair. If a leak is contained, but cannot be repaired at the time, schedule repairs as soon as possible.
- Structures - Inspect for missing, deteriorating, or damaged circuit markings or steel members, deteriorating protective coating, and missing or loose bolts. For concrete footings, inspect for failing, deteriorating, or damaged concrete.
- Rights-of-way - Inspect for encroachments and installation of other facilities that might have been installed without proper authority and that interfere with clear and passable access to the terminal structures and manholes.
- Access roads - Inspect access roads for damage or erosion.
- Transition manholes - Do a limited inspection of transition manholes via camera inspection. Note any unusual conditions or leaks and schedule a more detailed inspection, if needed.

Land Cable Portion - See Section 2.3.4 Routine Inspections for XLPE Circuits. Land cable items inside of transition vaults should be inspected at the same time as the submarine cable inspection.

2.4 Infrared (IR) Inspections

IR inspection is an effective tool in a preventive maintenance program. IR inspection reduces the potential for component failures and facility damage, and facilitates a proactive approach to identifying abnormal components for repair/or replacement. See Section 4. Infrared (IR) Inspection Procedures, for the procedures and requirements.

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2.4.1 Overhead

IR inspections are performed as required per TD-1004P-04, "Conductor Rerate Process for Overhead Transmission Circuits" or as triggered.

Typically, infrared inspections are performed on overhead transmission circuits on a 5 year cycle, with approximately 20% of the lines scheduled for an infrared inspection each year. However, for circuits with critical operational impact, maintenance plans must include periodic IR inspections, if recommended by the local transmission line maintenance supervisor. Lines that have at least one structure in a defined fire area will have an annual infrared inspection for the entire line. Local transmission line maintenance supervisors should also consider adding lines to the annual summer readiness IR patrol in their area for conditions such as listed below:

- High concentration of bolted connectors on dissimilar conductors (copper to aluminum).
- Line averages 1 sleeve failure every 3 to 5 years.
- Radial line where previous splices/sleeves have been replaced as normal maintenance with signs of deterioration.
- Line has experienced at least 2 or more tree contacts annually (high fault current), which could have caused stresses on sleeves/connectors.
- Age of line exceeds (70+ years) with original insulators, mechanical connectors, and hot end hardware showing signs of deterioration.

2.4.2 Underground

Perform IR inspections on underground transmission circuits once every 2 years. See Section 4. Infrared (IR) Inspection Procedures, for IR inspection procedures and requirements.

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3. Patrols

Patrol procedures are a key element of the preventive maintenance program. The recommended actions reduce the potential for component failures and facility damage, and facilitate a proactive approach to repairing or replacing identified, abnormal components.

A patrol supplements the detailed facility inspection. All overhead transmission line facilities are patrolled annually. Patrol schedules are measured in terms of calendar years. A detailed facility inspection may be considered as a patrol, but a patrol cannot be considered as, or substituted for, a detailed inspection.

An overhead patrol may be performed by walking, driving, or flying (helicopter only). All patrols must be conducted in a manner that will ensure the identification of the typical problems listed in Section 3.1.1 Typical Electric Overhead Transmission Problems. Proper documentation and superintendent approval are required to substitute an air patrol for a scheduled ground patrol.

3.1 Procedures

Before performing any patrol, the QCR must obtain from the SAP database all the pending notifications for the facilities to be patrolled. This prevents duplicating maintenance notifications in SAP.

The QCR's primary responsibility when conducting an overhead electric facility patrol is to observe the electric facilities visually, looking for obvious structural problems or hazards without using measuring devices, tools, or diagnostic tests, and to record that the facilities have been patrolled. Abnormal conditions that, in the opinion of the QCR, warrant maintenance before the next scheduled patrol or inspection, must be identified, assigned a Priority Code, and recorded. The following list gives examples of some typical problems, but is not complete or all-inclusive:

3.1.1 Typical Electric Overhead Transmission Problems

- Inadequate tree clearances
- Damaged or broken conductor
- Broken or leaning poles
- Missing or bent tower members
- Broken guys
- Broken crossarms/framing
- Broken or flashed insulators
- Inadequate conductor clearances
- Damaged line equipment
- Rights-of-way encroachments
- Bent, broken, or missing dampers
- Defective FAA obstruction lights (e.g., inoperable, damaged, misaligned) or dirt/debris on the solar panels

Assess and document any abnormal condition (other than those already documented in SAP) identified by the patrol in accordance with the requirements in Section 1. General Inspection and Patrol Procedures.

If a condition cannot be assessed properly during a patrol, a follow-up inspection must be conducted to assess the condition and assign a Priority Code.

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During the patrol, review pending notifications to:

- Confirm conditions still exist
- Determine if the work has already been completed

3.2 Patrol Documentation and Actions

Adequate, auditable records (inspection/patrol datasheets) must be kept to document all the facilities patrolled. Maintain the inspection/patrol datasheets in the same manner as specified for detailed inspections. Use SAP to schedule and track all patrols before the year they will be performed.

The patrol documentation process, as described below, is the responsibility of the transmission supervisor, QCR, and the clerk.

Before starting a patrol, the QCR must obtain the following documents for the patrol area:

- TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical,"
- An SAP report of all open notifications for the lines to be inspected, with enough information provided to understand the nature of the problems.

3.2.1 Patrol Recordkeeping and Closeout

Use the ETPM form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," to document any new abnormalities (and minor or incidental work corrected at the time of patrol) as they are encountered in the field.

Inspection/patrol logs and notification forms are listed in 6.6Appendix C: Links to Forms and Flowcharts, and are available in the Technical Information Library on the Company Intranet.

At the end of each day, document the required information to support the creation of individual notifications, detailing each abnormality as it was identified during the patrol.

The QCR must fill out completely each required field in the inspection/patrol log heading and record each abnormality encountered during the patrol. Use inspection/patrol logs in conjunction with the notifications to capture the information needed to document the necessary maintenance work or action(s).

The applicable supervisor (or a designee) must review and initial the QCR's patrol logs and sign the notification form **in ink** before the information is entered in the SAP database.

Use the ETPM form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet – Typical," to document any new abnormalities and minor or incidental work corrected at the time of inspection. Document the required information to support the creation of individual notifications, detailing each abnormality as it was identified during the inspection.

It is recommended to check the SAP database to ensure that duplicate notification data is not entered. For work requiring engineering and/or estimating, attaching a copy of the inspection map to the request is recommended.

Patrol information must be entered into the SAP database and reviewed for approval and release any SAP notifications as soon as practical (not to exceed 20 business days from the end of the patrol and before January 31 of the following year). This ensures that SAP notifications will be established in time to facilitate the proper planning, scheduling, and work to correct abnormal conditions by the due dates.

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3.2.2 Reporting Inoperative Equipment

If a piece of equipment has been identified as damaged or inoperative, the supervisor or designee must notify the GCC of the equipment condition.

GCC personnel enter the equipment into the Integrated Logging Information System (ILIS) and assign a Critical Operating Equipment (COE) personal identification number (PIN).

The QCR must add the COE PIN to the notification's short text field in SAP and notify the GCC of the notification number associated with the PIN.

3.3 Non-Routine Patrol

All non-routine patrols will be completed under a **Priority B – 3 Month tag**. This will allow for sufficient timekeeping, receipt of miscellaneous charges (e.g., helicopter, natural causes (Fire, Snow) and collection of all necessary paperwork to complete the tag.

3.3.1 Overhead Non-Routine Patrol

Specific conditions require **follow-up** inspections scheduled by the supervisor, independent of the routine schedule.

The following are examples of situations that could prompt a non-routine patrol:

- Component defects identified from a less-than-ideal vantage point.
- Component failure (failure in like components) or components proven defective by testing or documented on a Form 62-0113, "Material Problem Report" (MPR).
- Wire/structure strike.
- Burned area or high fire hazard.
- Failures caused by natural disaster or storm.
- Third-party observations and complaints.
- Marginal capability components of a re-rated line section.
- Known, recurring conditions that jeopardize line integrity or reliability performance.
- Suspected vegetation clearances less than required, less than legal vegetation clearances, or concerns about the fast-growth of vegetation.
- For all 60kV, 70kV and 115kV momentary outages, the line will be patrolled as soon as practical, but no later than the next business day. Examples:

(a) If the momentary outage occurs on Tuesday, the line will be patrolled as soon as practical, but no later than Wednesday.

(b) If the momentary outage occurs on Friday and cannot be patrolled on that day, then the patrol will be conducted on Monday (or the next scheduled regular business day).

- For all 230kV and 500kV momentary outages, the line will be patrolled as soon as practical, but no later than the next calendar day. Examples:

(a) If a momentary outage occurs early in the morning, and responsible protection engineer confirms target information and a location, then the line will be patrolled on the same day.

(b) If the momentary outage occurs late in the afternoon or early in the evening, and it is not practical to attempt a patrol immediately due to darkness, then the line will be patrolled the next day. This requirement is in effect regardless of whether or not the next day is a regular work day.

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3.3.2 Underground Non-Routine Patrol

Specific conditions require follow-up inspections scheduled by the supervisor, independent of the routine schedule.

The following are examples of situations that could prompt a non-routine patrol:

- Component failure (like components) or components proven defective by testing
- Failures caused by natural disaster or storm
- Third-party observations and complaints
- Known, recurring conditions that jeopardize line integrity or reliability performance
- Directional drilling or trenching in the vicinity of an underground transmission line not identified by Underground Service Alert (USA) locating and marking
- Encroachment of the underground easement by third parties affecting access to underground transmission line for inspection or repairs
- Public events, such as Super Bowl or Chinese New Year Parade.

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4. Infrared (IR) Inspection Procedures

IR inspection procedures are a key element of the preventive maintenance program. The recommended maintenance priorities reduce the potential for component failures and facility damage, and facilitate a proactive approach to repairing or replacing identified abnormal components.

Perform IR inspections when required by Utility Procedure TD-1004P-04, "Conductor Rerate Process for Overhead Transmission Circuits," or as triggered.

In addition, lines that have exceeded their emergency ratings for 30 minutes or more must be IR-inspected for possible component damage. Schedule this inspection as soon as possible or when conditions allow (line loading, weather, etc.).

It is the responsibility of the GCC to notify the local electric transmission supervisor that a condition as specified above has occurred.

Additional IR inspections might be required as triggered per Section 3.3 Non-Routine Patrol.

4.1 Detailed IR Procedures

Electric transmission system inspections and preventive maintenance programs use IR imaging and temperature-measuring systems to identify faulty components and initiate repairs or replacement proactively.

Based on industry specifications, connectors should experience lower operating temperatures than their respective conductors. This means that any time the temperature of a connector is greater than the temperature of its respective conductor, a higher-resistance connection exists and a failure can be expected, but not precisely predicted. It is probable that degradation will occur faster with an increase in load or temperature.

Conductor manufacturers recommend a usual maximum operating temperature for tensioned, bare conductor of 185°F.

Conductor manufacturers recommend the following maximum operating temperatures for insulated conductors:

- 167°F for high-molecular-weight polyethylene (HMWPE).
- 194°F for cross-linked polyethylene (XLPE).
- 194°F for ethylene-propylene rubber (EPR).

With insulated conductor systems, the temperature measured at the surface of an insulated conductor or component could be between 20% and 50% of the actual temperature of the targeted conductor or component (e.g., if the actual temperature of the component is 212ºF, the measured temperature could be between 68ºF and 122ºF, respectively).

IR imaging systems detect and record all of the heat being radiated in their fields of view. IR cameras use an image-scanning technique to identify heat radiated from a target and its background. IR imaging systems capture and store the heat images pictorially for immediate or future evaluation. By using IR imaging systems, the operator can pinpoint the precise location of the hottest spot on the target being observed.

The recommended maintenance is based on the measured operating temperature of both the target and its respective connectors or conductors, the temperature differentials between the target and its respective, adjacent components, or thermal image showing component hot, as well as the operational risk associated with each.

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4.1.1 Equipment

Video-imaging equipment used for IR inspections must meet the following minimum specifications:

- Image storage – Equipment must have the ability to store images for future analysis
- Lens interchangeability – The IR camera must have lens interchangeability, or personnel must have access to a camera with lens interchangeability, to enable inspections at varying distance to the object to be inspected.
- Wave length – The IR system must be "Long Wave," responding to wave lengths of 8 to 14 microns.
- Camera lens – A 3x to 10x telescopic lens is required for accurate IR measurements at a safe distance.
- Palette – IR system must have color palette with unique and easily distinguishable colors for over-temperature conditions in order to locate hot spots and to verify that the image is not saturated. A gray-scale palette with a color-distinguishing minimum and maximum saturation threshold is preferred.
- Camera mount – For helicopter IR inspections, a gimbal or gyro-stabilized remote-controlled camera mount attached to the exterior of helicopter is preferred to dampen vibration.
- Calibration – IR cameras that provide temperature readings must have been factory-calibrated within 1 year before the patrol. IR cameras or systems that do not provide temperature readings do not require calibration within 1 year before the patrol. Hand held IR cameras used for **overhead only** must have been factory-calibrated within 2 years (due to the minimal use of camera).
- Recording media –The system must be capable of recording IR or color video of the entire inspection scan for special requests, along with color and IR still photos of each anomaly found.
- Audio input - For helicopter IR inspections, the system must be capable of recording audio input from the helicopter intercommunication system.

Systems used for aerial (helicopter) IR inspections by contractors must be used in accordance with the manufacturer's requirements. The equipment used for aerial IR inspections must meet all requirements above.

4.1.2 Setting Up the IR Camera

Establishing the proper IR-imaging system setup parameters for emissivity and background temperature is critical to obtaining accurate measurements with IR cameras. The other system-setup parameters are used primarily to record and assist initial or future evaluations of heat radiated from a target and its background.

Setting the emissivity value at 1.0 eliminates the need to set the background temperature. The target, in this case, is considered to be a blackbody, totally reflective and non-transmissive. With highly emissive targets, the actual reflected energy is so small with respect to the emitted energy that the temperature measurement is well within reason for predictive maintenance applications.

As the emissivity value of the target decreases, the influence of background radiation increases, and consequently, so does the potential for errors based on background temperature settings. If the emissivity value is set at less than 1.0 and the background

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temperature setting is adjusted inaccurately, the resulting temperature measurement of the target could have more error than it would if the emissivity value were set at 1.0.

For example, with an emissivity setting less than 1.0, if the background temperature setting is higher than the actual background temperature, the target's temperature measurement will be less than it should be. If the background temperature setting is lower than the actual background temperature, then the target's temperature measurement will be higher than it should be. The measurement deviation compounds as the emissivity setting decreases from 1.0.

Setting the emissivity value at 1.0 eliminates the need to determine exact emissivity and background temperature values, simplifies the system operation, and results in reasonably accurate measurements. For example, when IR measurements are taken on overhead systems where the ceiling (sky) is unlimited, an accurate background temperature is nearly impossible to determine. Furthermore, most targets have dark surfaces and therefore will have emittance values very close to 1.0.

4.1.3 Infrared (IR) Scanning Technique

4.1.3.1 Overhead

1. Center the targeted component in the viewer or sight of the IR scanning device, and observe the temperature(s) measured.
2. Scan 1 to 2 feet of the conductor or cable entering and/or leaving the targeted image, and observe the temperature(s) measured.
3. Center the respective, adjacent components in the viewer or sight of the IR scanning device, and observe the temperature(s) measured.
4. Repeat Step 2 for each respective, adjacent component.
5. IF the temperature of the targeted component is greater than those listed in Table 15. Determining Maintenance Priorities, OR shows hot with IR system that does not provide temperature readings,

THEN record the information requested in Section 4.3 IR Inspection Documentation, using the TD-1001M-F15, "Transmission Line Infrared Data Sheet." Attach the datasheet to the notification created for abnormal finding.

4.1.3.2 Underground – Cable Terminals

1. Center the targeted component (terminal—composite or porcelain) in the viewer or sight of the IR scanning device, and observe the temperature(s) measured. See Figure 2. Pipe-Type and XLPE Terminals.
2. Center the respective, adjacent components (terminal ferrule or aerial connector stub) in the viewer or sight of the IR scanning device, and observe the temperature(s) measured.
3. Scan 1 to 2 feet of the conductor connected to the terminal ferrule or aerial connector stub and observe the temperature(s) measured.
4. Repeat Step 2 for each respective, adjacent component.
5. IF the temperature of the targeted component is greater than those listed in Table 15. Determining Maintenance Priorities, OR shows hot with IR system that does not provide temperature readings,

THEN record the information requested in Section 4.3 IR Inspection Documentation, using the TD-1001M-F15, "Transmission Line Infrared Data Sheet." Attach the datasheet to the notification created for abnormal finding.

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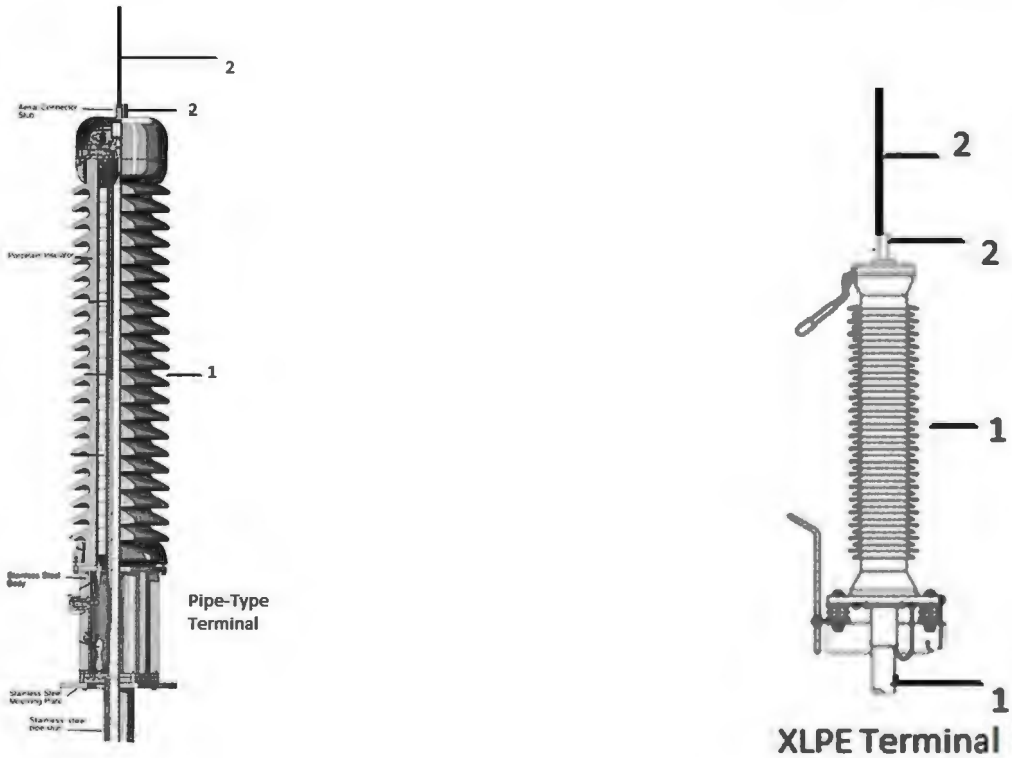

Figure 2. Pipe-Type and XLPE Terminals

4.1.4 Determining the Maintenance Priority

To assess and prioritize the relative severity of the conditions found during the IR inspection, as based on the measured temperatures and/or temperature rise, refer to Table 15. Determining Maintenance Priorities. (If IR system does not provide temperature readings, and there are no obvious visual signs of deterioration, then make a Priority B tag and complete as soon as possible.)

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4.1.5 Determining Maintenance Priorities

Table 15. Determining Maintenance Priorities

Transmission Facilities	Temperature Differential (ΔT)	Priority/Remarks
Overhead & Underground Direct heat (See Notes)	>100°F	Priority A: Notify supervisor and repair, replace, or make component safe immediately.
	25 °F to 99°F	Priority B: Repair or replace component within 3 months.
Underground Indirect heat (See Notes)	20°F and over	Notify supervisor. Contact Underground Engineering to determine mitigation

Notes:

1. If excessively high operating temperatures (>100°F) are found, or obvious physical damage is observed, immediate action must be taken (Priority A).
2. B priority tags should be given a high priority. B tags should be corrected as soon as possible, preferably within 60 days, but not to exceed a period of 3 months.
3. Underground – Upon completion of repair or replacement, perform another IR inspection to verify that the abnormal condition was corrected and is operating under normal condition.
4. Temperature taken at underground cable terminals illustrated in Figure 2. Pipe-Type and XLPE Terminals.: Location 1 is an indirect reading; Location 2 is a direct reading.

4.2 IR Inspection Requirements

It is generally necessary for lines, or segments of lines, to be loaded to 40% or greater of the operating ratings in order to perform a meaningful IR inspection. IR inspections are less likely to yield useful results if the lines are not heavily loaded. On single-source generation lines and some tap lines, loads often cannot be switched to achieve the load needed to perform a meaningful IR inspection. When practical, IR inspections should be performed on lines loaded to at least 40% of the operating ratings. An IR inspection cannot be substituted for an aerial inspection.

4.2.1 Weather Considerations

Weather conditions can have an adverse effect on IR inspection results. Do **not** perform IR inspections under the following conditions:

- Winds in excess of 25 miles per hour (mph)
- Steady rain in progress

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4.3 IR Inspection Documentation

The QCR or thermographer must document abnormal findings, record the information listed below in form TD-1001M-F15, "Transmission Line Infrared Data Sheet," and attach the form to the IR finding notification. This form is generated by SAP.

- Name of the employee performing the inspection (thermographer)
- Time and date of the inspection
- Circuit SAP number
- Identification of the "hot item" type and phase location (e.g., connector, jumper, etc.).
- Weather conditions
- Disk (or file name) and photo numbers
- Load amperes

QCRs using IR cameras with the capacity to provide temperature readings should record the following information as well:

- Background (or ambient) temperature setting
- Emissivity setting
- Fault temperature
- Reference temperature.(like piece of equipment)
- Temperature rise
- Temperature-differential grade

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5. Maintenance Procedures

Before scheduling clearances for maintenance work, identify all maintenance work on a transmission line by using object lists, notifications, and other sources to minimize the number of clearances required on any given circuit.

Inspectors must complete all repairs of abnormal conditions that can be done safely by an individual at the time of inspection. Section 5.1.1 Minor/Incidental Maintenance provides a guide for the types of maintenance that can be performed at the time of inspection.

5.1 Overhead

The following exhibits contain procedures and flowcharts that provide required, step-by-step processes for performing maintenance to correct abnormal conditions identified during routine inspections:

- Exhibit 1, "Notification Initiation Flowchart"
- Exhibit 2, "Notification/Completed Patrol Review"

5.1.1 Minor/Incidental Maintenance

Minor / incidental work is completed by the inspector at the time of the inspection and recorded on an ETPM form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet - Typical."

To facilitate completing repairs during the inspection, the inspector must be equipped with the appropriate safety equipment, tools, and materials to perform required maintenance.

For a list of common safety equipment, tools, and maintenance materials, refer to the tables listed in 6.6Appendix B: Equipment, Tools, and Materials:

- Table 20. Safety Equipment List
- Table 21. Tool List
- Table 22. Materials List

5.2 Underground Job Aid for Maintenance Procedures

5.2.1 Requirements

Appropriate maintenance activity is determined based on inspection results, historical operation of the facilities, utility best practices, sound engineering, and economic judgment. Refer to Section 2. Inspections for inspection procedures.

Schedule the frequency of maintenance as stated in Section 2.3 Underground Inspections. Also, maintenance can be condition-based, triggered by specific events, or as identified during emergency, routine, and/or detailed field inspections. Conditions requiring maintenance are assigned a Priority Code on a notification, and repairs must be performed within the period determined by the Priority Code.

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5.2.2 Terminals

- For oil and gas leaks, tighten connections, replace O-rings and gaskets, and check torque values, per the manufacturer's recommendations.
- Consult with the transmission engineering group to determine corrective action for the following:
  - Broken porcelain
  - Broken standoff insulator and deteriorated riser coating
  - Loose, missing, or broken connections and grounds

5.2.3 Pumping Plants

- Calibrate and/or test alarms, Supervisory Control and Data Acquisition (SCADA), pump plant controls, relief valves, pressure switches, and/or any other component, per the manufacturer's or the transmission engineering group's recommendations.
- Repair or replace defective components to maintain fluid pressures. Consult with the supervisor to determine corrective action.

5.2.4 Manhole and Vault Integrity

- Covers – Replace broken covers.
- Circuit markings – Re-mark as needed.
- Deteriorating or damaged concrete – Consult with the transmission engineering group to determine corrective action.
- Splice casings – Replace coating as needed.
- Manholes – Repair water leaks; and replace ladders rigging eyes and racking, as needed.
- Racking – Replace corroded racking components. If protected by anodes, check for depletion of anodes and replace if needed.

5.2.5 Fluid and Gas Pressures/Alarms

- Calibrate and/or test alarms, pressure switches, and SCADA.
- Add fluid or gas to the system when pressures or storage volumes fall below the recommended normal operating levels.

5.2.6 Cathodic Protection

- Polarization cells – Replace potassium hydroxide (KOH) solution as needed. Consult with the transmission engineering group to determine corrective action.
- Rectifiers – Replace if there is no voltage or current output.
- Pipe-to-soil – If the profile falls below 0.850 V, check the rectifier and anode output, and check the connections. Check for foreign contact in manholes or where pipes are exposed at construction sites, and verify that the bypass switch is open at the polar cells/ISP cabinet.
- Replace or paint cabinets as needed. Consult with the transmission engineering group to determine corrective action.
- Repair or replace pipe-wrap in manholes and riser pipe as needed.
- Isolator surge protector (ISP) – Refer to the manufacturer's operating guidelines.

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5.2.7 Valve Replacement

Repair and/or replace valve components within the period determined by the Priority Code.

5.2.8 Chart Motors

Repair and/or replace chart motor components.

5.2.9 Silicone Terminal Coating

Repair and/or replace terminal coating. Consult with the transmission engineering group to determine corrective action.

5.2.10 Anodes

Replace or add anode components if there is no current output. Consult with the transmission engineering group/PG&E corrosion engineer to determine corrective action.

5.2.11 Link Boxes

Inspect for deterioration, damage, missing bonding or ground wires. If suspect SVLs (i.e., conductor temperature increase of cable section), open box and test SVLs.

5.2.12 Structures

- Circuit markings – Re-mark as needed.
- Deteriorating foundations or damaged concrete – Consult with the transmission engineering group to determine corrective action.
- Damaged hardware – Consult with the transmission engineering group to determine corrective action.
- Damaged steel members – Consult with the transmission engineering group to determine corrective action.
- Protective coating – Replace as needed. Consult with the supervisor to determine corrective action.

5.2.13 Right-of-Way

Clear obstructions and consult with the transmission engineering group to determine corrective action. If there is an encroachment on the Right-of-Way, refer to Section 1.3.8, Reporting Nonconformance With Trespass or Encroachment, using the Facility Code RWAY.

5.2.14 Access Roads

If there is an issue with the access road, address any immediate issue, such as clearing drainage obstructions. If more work is needed, refer to Section 1.3.5, Reporting Nonconformance With Access Roads and Gates, using the Facility Code ROAD.

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6. Enhanced Inspection and Maintenance Requirements for Diablo Canyon and Morro Bay Power Plants Overhead Transmission Facilities

The enhanced inspection and maintenance requirements contained within Section 6 apply to the 230kV and 500kV circuits listed in Table 16.

Table 16. Diablo Canyon PP and Morro Bay PP Enhanced Inspection Circuits

230kV	500kV
Morro Bay-Diablo 230kV *	Diablo Unit #1 500kV **
Morro Bay-Mesa 230kV *	Diablo Unit #2 500kV **
Diablo PP Stand-By Supply 230kV **	Diablo-Gates #1 500kV *
Diablo-Mesa 230kV *	Diablo-Midway #2 500kV *
	Diablo-Midway #3 500kV *

* Transmission Line Maintenance Supervisor, Pismo Beach responsibility
** DCPP Switchyard Supervisor responsibility

6.1 Detailed Overhead Inspection

Inspected facilities include overhead assets, rights-of-way, fiber-optic facilities, and vegetation. The overhead inspections include an external visual evaluation of the overhead facilities. See Section 5. Maintenance Procedures for requirements that are part of the Company's overall maintenance program and are in addition to the visual inspection items identified in this section

A detailed ground, aerial, or climbing inspection of the asset looks for abnormalities or circumstances that will negatively impact safety, reliability, or asset life. Individual elements and components are examined carefully through visual and/or routine diagnostic tests, and each abnormal condition is graded and/or recorded.

Inspect overhead line facilities in accordance with the provisions in Section 1. General Inspection and Patrol Procedures. The inspections include detailed visual observations and physical testing as needed (wood pole hammer/bore test, guy tension, etc.) to identify abnormalities or circumstances that will negatively impact safety, reliability, or asset life.

6.2 Overhead Inspection Frequency

Inspect overhead transmission facilities per Table 17. Overhead Inspection Frequencies-DCPP and Morro Bay PP Transmission Line Facilities. Establish schedules such that inspection frequencies meet the SAP maintenance dates.

The schedules indicated in Table 17 do not preclude assigning a more frequent inspection cycle to a circuit when warranted by sound business reasons. However, increasing inspection frequency requires appropriate justification and approval by the transmission line superintendent or designee. Inspections on less frequent cycles than those listed in Table 17 are not allowed.

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Infrared inspections may be performed in conjunction with overhead inspections, but must not be considered as, or substituted for, an overhead inspection.

Table 17. Overhead Inspection Frequencies-DCPP and Morro Bay PP Transmission Lines

Voltage (kV)	Inspection Type	Structure Type	Inspection Frequency
500	Detailed inspection (ground)	Steel	Annually
	Climbing *	Steel	3 years (and as triggered)
	Patrol **	Steel	Quarterly
	Infrared/Corona	Steel	Annually (and as triggered)
230	Detailed inspection (ground or aerial)	Steel	Annually
	Climbing or aerial lift	Steel	As triggered
	Patrol **	Steel	Quarterly
	Structure Inspection ***	Steel	3 years (and as triggered)
	Infrared/Corona	Steel	Annually (and as triggered)

* **Note:** Detailed 500 KV climbing inspections must include information about guy tensions.

** **Note:** This patrol is only performed during the quarters when a Detailed Inspection is not completed.

*** **Note:** Structure inspections are to only be performed on DCPP Structures 0/1A and 0/1B of the Diablo PP Stand-By Supply 230kV overhead transmission line.

Triggers are specific conditions that require follow-up inspections and/or maintenance scheduled by the supervisor, independent of the routine schedule.

The following triggers can be applied to one unit of inspection or many units, either grouped or spread over a line section/area:

- Component defects identified by inspection
- Component failure (including failure in like components)
- Components proven defective by testing
- Wire/structure strike
- Burned area or high fire hazard
- Failures caused by natural disaster or storm
- Third-party observations and complaints
- Marginal capability components of a re-rated line section
- Known, recurring conditions that jeopardize line integrity
- Suspected vegetation clearances less than required or less than legal vegetation clearances, or concerns about fast growth of vegetation

6.3 Climbing/Structure Inspections

A climbing inspection is a detailed, supporting-structure-based observation of the facilities installed to determine if there are any abnormal or hazardous conditions that adversely impact safety,

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service reliability, or asset life, and to evaluate when each identified abnormal condition warrants maintenance.

A structure inspection is a detailed ground or aerial lift based observation of the facilities installed to determine if there are any abnormal or hazardous conditions that adversely impact safety, service reliability, or asset life, and to evaluate when each identified abnormal condition warrants maintenance.

Perform routine, time-based 500 kV climbing inspections, focusing primarily on structural components, on all 500 kV structures, in accordance with the inspection frequencies listed in Section 6.2 Overhead Inspection Frequency. Climbing inspections extend from the ground line to the top of the tower. In addition to the documentation and recordkeeping requirements associated with other routine inspections, forward the results of 500 kV climbing inspections to the Transmission Tower Davis Headquarters for record retention.

Climbing inspections also might be required for specific structures or components to assess a condition that could not be adequately assessed when identified during a ground or aerial inspection or patrol. Such conditions trigger a follow-up inspection to assign the proper Priority Code. In some cases, this requires a climbing inspection.

See Section 3.3.1 Overhead Non-Routine Patrol, for triggers that might require a follow-up climbing inspection, and Section 1. General Inspection and Patrol Procedures, Table 2, Inspection Best-View Position for the best vantage points for inspections of specific items.

Perform routine, time-based 230kV structure inspections; focusing primarily on structural components, on the specified 230kV structures, in accordance with the inspection frequencies listed in Section 6.2 Overhead Inspection Frequency. In addition to the documentation and recordkeeping requirements associated with other routine inspections, forward the results of 230 kV structure inspections to the Transmission Tower Davis Headquarters for record retention.

All inspection forms must be reviewed by the local tower supervisor or designee prior to being filed as specified on TD-1001M-F03, "500kV Climbing Inspection Form and Tower Diagrams" and TD-1001M-F04, "Steel Structure Detailed Climbing Inspection (Non-500kV Structures)". TD1001M-JA02, "Detailed Climbing Inspection Job Aid" should be referenced for additional instructions to complete the forms.

6.4 Patrols

Overhead patrol procedures are a key element of the preventive maintenance program. The recommended actions reduce the potential for component failures and facility damage, and facilitate a proactive approach to repairing or replacing identified, abnormal components.
A "patrol" supplements the detailed facility inspection. Patrol frequencies on those facilities listed in Table 16 shall be in accordance with the schedule listed in Table 17. A detailed facility inspection may be considered as a patrol, but a patrol cannot be considered as, or substituted for, a detailed inspection.
An overhead patrol may be performed by walking, driving, or flying (helicopter only). All patrols must be conducted in a manner that will ensure the identification of the typical problems listed in Section 3.1.1 Typical Electric Overhead Transmission Problems. Proper documentation and superintendent approval are required to substitute an air patrol for a scheduled ground patrol.

6.5 Infrared (IR)/Corona Inspections

IR and corona inspection are effective tools in a preventive maintenance program. IR and corona inspection reduces the potential for component failures and facility damage, and facilitates a

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proactive approach to identifying abnormal components for repair/or replacement. See Section 4. Infrared (IR) Inspection Procedures, for the procedures and requirements.

Infrared and corona inspections on DCPP and Morro Bay PP 500kV and 230kV transmission line facilities listed in Table 16 are performed on a specified schedule as listed in Table 17, due to their critical operational impact. Maintenance plans for the listed circuits must include periodic IR and corona inspections at intervals listed in Table 17.

6.6 Dirty/Contaminated Insulator Cleaning

Perform insulator washing based on local environmental conditions, operating experience, and the predetermined wash cycles established in SAP. Wash insulators in accordance with the TD-1257M, "Insulator Cleaning Manual", Section 3, "Program." Maintenance plans must be created in SAP for the circuits (or portions of circuits) listed in Table 16 that require quarterly insulator washing.

For the Diablo PP Stand-By Supply 230kV circuit, de-energized insulator washing will be performed during scheduled plant outages. For all other circuits in Table 16, hot washing of insulators will be performed on a quarterly basis for structures within one mile of DCPP and for structures within two miles of Morro Bay PP. It may be possible to defer a scheduled wash for these facilities to coordinate with scheduled plant outages. These deferrals would only be considered for a specific exception, and not on a routine basis. If a deferral is requested, the facilities should be assessed for contamination levels. Use Equivalent Salt Deposit Density (ESDD) samples to assess the amount of contamination.

The supervisor responsible for the circuits will decide if a schedule wash should be considered for deferral. The supervisor will arrange for the wipe samples to be taken per Attachment 1, "ESDD Wipe Sample Procedure" and send to ATS for processing. ATS will process the wipe samples and send the results to the requesting supervisor and save the results in the ATS records. The contamination grade listed in Table 18. ESDD Contamination Grades will be used to determine the ability to defer a scheduled wash. The supervisor will review the results and, if necessary, make a recommendation (including the ESDD results) via EDRS for approval of the deferral. For circuits that are under the DCPP responsibility, the Transmission Line Maintenance and Construction Director will concur and the DCPP Switchyard Supervisor will approve in EDRS based on the results of the DCPP PM deferral process. For circuits that are under the transmission line responsibility, the DCPP Switchyard Supervisor will concur and the Transmission Line Maintenance and Construction Director will approve in EDRS. As noted in Table 18, the maximum deferral will be 90 days.

Table 18. ESDD Contamination Grades

Contamination Grade*	ESDD (mg/cm^2)	Washing Schedule
Light	0.03 – 0.08	Wash may be deferred to scheduled outage, not to exceed 90 days without an additional wipe test
Medium	0.08 – 0.25	Wash may be deferred, but not more than 60 days without an additional wipe test
Heavy	0.25 – 0.60	Wash may not be deferred
Extra Heavy	> 0.60	Wash must be done immediately

* From IEEE C57.19.100-2012

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Appendix A: Acronyms and Definition of Terms

The following definitions of terminology are used in this manual, Sections 1 through 5.

Table 19. Acronyms and Definition of Terms

Terms	Definitions
Abnormal Condition	A condition that adversely impacts or has the potential to adversely impact safety, service reliability, or asset life.
Ambient Temperature	The prevailing temperature in the immediate vicinity of the object or target, i.e., the temperature of the target's environment.
Apparatus	Temperature (or "Fault" Temperature): The temperature of the targeted surface that the thermographer is evaluating.
Auditable Records	Documentation, written and electronic, that shows the results of an inspection (as defined in this section), the facility condition assessment, and the subsequent maintenance and/or repair activity.
Bay Waters	Saltwater environments located in the nine counties of the San Francisco Bay area.
CAISO	California Independent System Operator.
Calendar Year	January 1 through December 31 of any year. For maintenance interval purposes, for example, if a task is performed on June 17, 2009 and is on a "1 calendar year interval," the task is required to be performed again on or before December 31, 2010
Component	A specific item of a unit of inspection, e.g., structure, terminal, right-of-way, pumping plant, manhole, insulator, etc.
Corrective Maintenance	Maintenance activities that restore facilities that have failed or contributed to an unacceptable operation condition, typically following an unusual and unforeseen incident. These may include inspection, assessment, repair, and replacement activities associated with restoring the facility.
Critical 500 kV Towers	The 2% most critical 500 kilovolt (kV) towers, as identified in the Pacific Gas and Electric Company (Company) "500 kV Emergency Restoration Study" (1993), based upon an equal weighting of the "susceptibility to failure" and "benchmark restoration time" factors.
Decayed Wood	Wood that has lost its strength due to insect infestation or decomposition caused by fungi.
Electric Transmission Asset	Rights-of-way (R/Ws), fee property, fences, buildings, conductors, structures, and associated hardware and equipment that operate at voltages above 50,000 volts (V).
Emergency Patrol	A patrol performed as a result of a momentary or sustained outage caused by an unknown condition on an overhead or underground transmission line. It is a visual check made either by ground or air to look for the specific condition that caused the outage. An emergency patrol must not be considered as, or substituted for, an inspection of electric transmission facilities.
Emissivity	The relative ability of a surface to emit heat by radiation. Emissivity is the ratio of the heat emitted by a surface compared to that emitted by a blackbody.
Emittance Value	The ratio of the intensity of thermal radiation, at a given wavelength or spectral waveband, from a target to the thermal radiation emitted by a blackbody of the same temperature as the target.

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Terms	Definitions
Field of View	The size of the scene surrounding the target, as observed by the infrared scanner and expressed as the ratio between the size of the scene surrounding the target and the distance between the target and the scanner.
Hot Item	An apparatus, device, or equipment found to have excessive apparatus ("fault") temperature.
Identified Maintenance Condition	Abnormal conditions that require corrective action before the next inspection cycle.
Infrared (IR) Inspection	A diagnostic test using IR thermography technology to identify abnormal conditions.
Infrared (IR) Radiation	IR radiation (or energy) is a part of the electromagnetic spectrum lying outside of the visible spectrum on the red end. Visible light and IR have similar behavior; the main difference is wavelength. IR has a wavelength between 2 and 1,000 micrometers. Visible light has a wavelength of between 0.4 and 0.75 micrometers.
Inspection/Patrol Datasheet or Form	A datasheet or form used to document the inspection and/or patrol of a facility, and to identify abnormalities that require corrective action or follow-up inspection; for example, the ETPM form TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet - Typical," and the underground inspection datasheets shown in the ETPM forms: TD-1001M-F06, "Monthly Pipe-Type Routine Inspection - Typical" and TD-1001M-F07, "Detailed Pipe-Type Inspection – Typical."
Inspection	A detailed ground, aerial, or climbing observation of the asset installed, looking for abnormalities or circumstances that will negatively impact safety, reliability, or asset life. Individual elements and components are examined carefully through visual and/or routine diagnostic tests, and the abnormal conditions of each are graded and/or recorded.
Interval	A specified, maximum time period between inspections of overhead and underground electric transmission facilities.
Line Section	A group of structures and conductor, terminal-to-terminal, excluding line breakers and associated disconnect switches.
Long Wave	The portion of the electromagnetic spectrum that ranges from 8 to 14 microns.
Maintenance	Preventive or corrective actions to ensure the safety and reliability of electric transmission facilities. It includes capital and expense expenditures for tasks associated with the inspection, repair, refurbishment, and possible replacement of existing electric transmission facilities to ensure safe and reliable operation.
Material Problem Report (MPR)	A report written to document damage resulting from faulty materials or workmanship, impacts from sources other than the asset or its intended use, sabotage, criminal acts, negligence, etc.
Micron	A unit of length equal to one millionth of a meter, which is used to describe the wavelength of infrared radiation. "Micron" is the popular name for "micrometer."
Minor/Incidental Work	Work that can safely be accomplished at the site by a QCR during a detailed and/or routine inspection.
Missing	Used to describe a component that is required, but not present. It is not intended to describe components that are not required to be present (i.e., dampers or high-voltage signs that are not required are not considered to be "missing").
Nomination Notification	Nomination to repair or replace equipment that is not in immediate risk of failure. A nomination to replace the equipment is made if it can no longer be maintained in a cost-effective manner.

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Terms	Definitions
Notification	A document identifying an abnormality that requires corrective action, follow-up inspection, or referral to other departments or entities. Notifications generated in the field by QCRs at the time the abnormal condition is observed must be entered into the Systems Application and Products in Data Processing (SAP) program.
Notification Form	A recorded document identifying a specific facility condition that requires corrective action, follow-up inspection, or referral to other departments or entities. (See ETPM Form TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead," for typical overhead notifications and TD-1001M-F11, "Electric Pumping Plant Annual Calibration Sheet - Typical," for an example of an underground notification form.)
Object List	An SAP-generated form that lists (by circuit) structure numbers, SAP equipment numbers, structure framing and description; Geographic Information System (GIS) coordinates, and access information. The object list is used as a daily inspection log and to verify overhead assets. The "Note" section is used for recording access information only.
PAM	Pole Asset Management.
Patrol	A brief, visual inspection of applicable utility facilities (equipment and structures) that is designed to identify obvious structural problems and hazards. Patrols may be carried out in the course of other Company business, provided certain requirements are met. An emergency patrol, which is usually precipitated by an unusual system incident, must not be considered as, or substituted for, a regularly scheduled inspection or patrol of electric transmission line facilities.
Preventive Maintenance (PM)	Activities that ensure facilities and their associated components will continue to perform within accepted parameters. These activities may include inspection, assessment, maintenance, and replacement activities that occur before an abnormal condition exists.
Qualified Company Representative (QCR)	A Company representative, who, by knowledge, required training, and/or work experience, is able and allowed to perform a specific job. For the purposes of this manual, QCR refers to an employee qualified to prepare an accurate and complete assessment of electric transmission facilities.
Radiate	To emit. When an object radiates, it emits or sends out electromagnetic waves.
Reference Temperature	The temperature of a like piece of equipment at the same location as that registering the apparatus ("fault") temperature.
Reflective	The ability of a target to reflect or send back rays. A mirror has a reflective surface with respect to visible light.
Reflectivity (also known as reflectance)	The amount of radiation that is reflected from a surface. Reflected radiation is not absorbed or transmitted. The reflectivity of a surface equals 1 - (emittance + transmittance).
Reinforcement	Mechanical technique(s) that restores the strength of a wood pole, decayed at or near the ground line, to serviceable condition.
Restoration	Mechanical techniques(s) that restores the shell or the heart of a wood pole, decayed or damaged above the ground line, to serviceable condition.
SAP	Systems Application and Products in Data Processing. An information system used to record, schedule, and manage work activities such as inspection maintenance.
Short Wave	In the context of thermal imaging, the portion of the electromagnetic spectrum that spans from 2.0 to 5.6 microns.
Stub	Usually a short length of steel truss or wood pole, driven or set into the ground and attached to the existing pole by suitable and adequate fastenings. A stub provides the support originally afforded by the pole butt.

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Terms	Definitions
Subject Pole	A pole that is "non-exempt" per the *Power Line Fire Prevention Field Guide*.
System	One or more line sections that perform the same defined function.
Temperature Rise (or Temperature Differential)	The difference in temperature between the apparatus ("fault") temperature and the reference temperature.
Testing	A method or process used to conduct an examination or trial to obtain a positive indicator, along with recording data from the event.
Thermographer	A person who performs an IR inspection to obtain information concerning a target, object, structure, system, or process.
Thermography	Any photographic, videotaped, computer-generated, or graphic record of information derived from an IR inspection.
Transmission Control Agreement (TCA)	An inspection and maintenance agreement filed with the CAISO that outlines the Company's Electric Transmission Inspection and Maintenance Program.
Transmission Facilities	Conductors, structures, and/or associated equipment that are constructed to transport electric power of 50,000 V and above, from one point to another.
Transmissive	The ability of a medium to allow electromagnetic radiation to pass through it without being reflected or absorbed (to send or transmit rays from one point to another). Glass is highly transmissive to visual light.
Transmissivity (also known as transmittance)	The amount of radiation that is transmitted through a surface. Transmitted radiation is not reflected or absorbed. The transmissivity of a surface equals 1 - (emittance + reflectance).
Trigger (Non-Routine Patrol)	A condition that may require follow-up inspection and/or maintenance of facilities at a frequency different than the intervals determined by line prioritization or condition assessment.
Underground Transmission Facilities	Any conductors and associated equipment that are constructed at or below ground level for the purpose of transporting electric power of 50,000 V and above, from one point to another.
Unit of Inspection	A portion of a line section identified as a structure and its "ahead" span.
Vegetation Management (VM)	The inspection, trimming, and removal of trees and brush within the vicinity of electric facilities to ensure safe and reliable transmission service. The acronym VM also is used to refer to the Company's Vegetation Management Department.

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Appendix B: Equipment, Tools, and Materials

The tables below list items an employee or QCR may need to perform inspections and minor maintenance activities. The tables are intended as a reference resource and include safety equipment to ensure worker and public safety, and tools and materials that enable inspectors to perform minor/incidental maintenance work. The material codes are listed to assist with procuring these items when establishing the contents of vehicles used during the inspection process.

Table 20. Safety Equipment List

Description	Information Source	Code
Barricade Frame, Manhole	*Code of Safe Practices*, Section 7, Rule 708	M205092
Barrier Tape, 3 Inches Wide	*Work Area Protection Guide* (623151)	E620421
Cones, Traffic, 18 Inches High	*Work Area Protection Guide* (623151)	E206240
Cones, Traffic, 28 Inches High	*Work Area Protection Guide* (623151)	M206391
Flag, Red	*Work Area Protection Guide* (623151)	E206369
Hard Hat, Cap Style	*Code of Safe Practices*, Section 1, Rule 3	E207761
Hard Hat, Standard Style	*Code of Safe Practices*, Section 1, Rule 3	M206153
Safety Glasses, Black Frame	*Code of Safe Practices*, Section 1, Rule 17	M201375
Stand, for Sign and Flag	*Work Area Protection Guide* (623151)	E030512
Vest, Traffic, Size Large	*Work Area Protection Guide* (623151)	E206316
Vest, Traffic, Size X Large	*Work Area Protection Guide* (623151)	E206317

Note: "M"-coded items indicate PG&E Material Codes; "E"-coded items are purchased thru Ebuy.

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Table 21. Tool List

Description	Code	Description	Code
Air Blower SVF-15ACAN	NA	Hook, Switch Fuse, With QC	M205668
Air Monitor, Personal	M231805	Kit, First Aid	E622724
Binoculars	870000	Knife, Dexter	E203012
Bit, 9/16-Inch x 18-Inch, Shaper Auger	E200038	Knife, Putty, 1¼-Inch	E200510
Blades, for Hacksaw	M200886	Ladder, 10-Foot	M203122
Broom, House	M209004	Level, Aluminum, 24-Inch	E200515
Brush, Wire	M209013	Line, Hand	NA
Camera, Polaroid	870000	Machete, 24" Blade	E200523
Case, Carrying, for Extension Stick	M205548	Manhole Lifting Tool	E202439
Chasers, Thread, Set ¼-Inch to 1-Inch	E202022	Meter, Volt, Fluke #77	M244287
Computers, Hammerhead With GPS/GIS	NA	Pigtail, With Pulling Eye	M205447
Cutters, Bolt, 18-Inch Handles	E202974	Pin, Clothes, Clamp, Plastic	E206187
Cutters, Cable, HK Ptr. #8690	E201989	Press, MD6	E202239
Cutters, Cable, T&B #364	M201553	Press, XMJ, Nicopress #53	M201009
Die, WBG	M202848	Pump, Water, Hand	M202565
Die, W249	M203039	Rope, Hot, ½-Inch Diameter, 100-Foot	E102020
Drill, Hand, Brace	M200053	Saw, Chain, 14-Inch (Optional)	870000
Drill, Rechargeable, ½-Inch Drive	E210248	Saw, Hack	M201110
Driver, Screw, 6-Inch, Philips	E203201	Saw, Tree, Hand, Fanno #7	E200986
Driver, Screw, 6-Inch, Standard	M200598	Saw, Tree, With Pruner	E201946
Driver, Screw, 10-Inch, Standard	M200600	Scabbard, for Fanno #7 Saw	M200987
Extinguisher, Indian Backpack	E481006	Shears, Pruning	870000
Eye, Guy-Pulling	M201114	Shotgun, 6-Foot	M205395
Flashlight Rechargeable Mag.	M200306	Shovel, Flat	M200609
Fault-Indicator Reset Tool	M202248	Shovel, Round	M200608
Gun, Caulking	M203088	Socket, Penthead	M202233
Gun, Infrared, 3M	870000	Stick, SL Catalog #2596, 1¼-Inch Diameter, 8-Foot	M205565
Hammer, Claw, 22-Ounce	M200432	Tape, Measuring, 100-Foot	E201877
Handle, Speed	M201800	Tool, Combination, for Pad-Mounted Equipment	M208094
Hardhat Light	E204958	Weed Eater	870000
Hook, Manhole, Flexible Type	E200479	Switch Lock, 2 ¼ inch long shank SEECO	M170030
Hook, Manhole, Ridged Type	E200480	New Switch Locks	TBD

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Table 22. Materials List

Description	Code	Description	Code
Bolt, Penthead, ⅜-Inch x 1¼-Inch	192831	Nut, With Spring, ½-Inch, 13 NC Thread (P1010) (Old Penthead Cast in Frame)	580143
Bolt, Penthead, ⅜-Inch x 2-Inch	192896	Nut, With Spring, ½-Inch, 13 NC Thread (P4010) (Horizontal With Wood Enclosure)	580152
Bolt, Penthead, ½-Inch x 1-Inch	192081	Paint, for Pad-Mounted Equipment, Green, Aerosol Can	130458
Bolt, Penthead, ½-Inch x 1¾-Inch	192832	Paint, Zinc Rich Primer for Pad-Mounted equipment, Aerosol Can	130479
Bolt, Penthead, ½-Inch x 2-Inch	192834	Plug, Set Screw, Bus Bar, CMC	019683
Bolt, Penthead, ½-Inch x 2½-Inch	192853	Plug, Set Screw, Bus Bar, Homac	019684
Bolt, Penthead, ½-Inch x 3½-Inch	017488	Plug, Wooden Dowel, ⅝-Inch	128042
Bolt, Penthead, ½-Inch x 4½-Inch	017489	Screw, 5/16-Inch, Allen, Flat Head, SS, ½-Inch x ¾-Inch (# Plate Holders)	193391
Bolt, Penthead, Coil Thread, ½-Inch x 1¾-Inch	190068	Splice, Auto Guy, 7/32-Inch	186150
Bolt, Penthead, Coil Thread, ½-Inch x 2-7/16-Inch	031412	Splice, Auto Guy, 5/16-Inch	186128
Caulking, Sealant	495228	Splice, Auto Guy, ⅜-Inch	186129
Ground Molding, Plastic U-Shape, 1½-Inch Diameter	360008	Splice, Auto Guy, 7/16-Inch	186130
Ground Molding, PVC Conduit, ½-Inch Diameter	360368	Tag, High Voltage/Clearance Label for Pad-Mounted Equipment	621599
Guy Guard, Cattle	186186	Tag, High Voltage/PG&E Nameplate for Underground Enclosures	015543
Guy Marker, Plastic	186045	Tags, Phase and Voltage	See Note
Guy Marker, Steel	186176	Tag, High Voltage/Clearance Label for Pad-Mounted Equipment	621599
Guy, Preform, 7/32-Inch	186149	Tags, Red Plastic, Write-On	031811
Guy, Preform, 5/16-Inch	186118	Tags, Yellow Plastic, Write-On	031809
Guy, Preform, ⅜-Inch	186119	Visibility Strip, Barrier Post	374440
Lock, Corporation	016583	Visibility Strip, Guy	373278
Lock, Equipment Safety, 1-Inch	170115	Visibility Strip, Pole	373271
Lock, Equipment Safety, 2-Inch	170116	Wire, Six-Strand, Copper, Hand Coil	290072
Molding, Hardwood	149005	Wire, Four-Strand, Copper, Hand Coil	290180
Nut, With Spring, ⅜-Inch, 16 NC Thread (Old Penthead Cast in Frame)	580142	Wire, Two-Strand, Copper, Hand Coil	290181
Nut, With Spring, ½-Inch, 13 NC Thread (AS-100) (Covers Before 1986)	580211	-	-

Note: See Numbered Document 033582, "Tags for Identifying Underground Cables and Equipment," Table 1 on Page 5.

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Appendix C: Links to Forms and Flowcharts

Table 23. Forms Index

Forms Index
Overhead Inspection Forms
TD-1001M-F01, "Transmission Line Inspection/Patrol Datasheet - Typical"
TD-1001M-F02, "Corrective Work Form Electric Transmission Line Overhead"
TD-1001M-F03, "500kV Climbing Inspection Form and Tower Diagrams"
TD-1001M-F04, "Steel Structure Detailed Climbing Inspection (Non-500kV Structures)"
TD-1001M-F05, "Object List - Typical"
TD-1001M-F16, "Pile Foundation Inspection Form"
Underground Inspection Forms
TD-1001M-F06, "Monthly Pipe-Type Routine Inspection - Typical"
TD-1001M-F07, "Detailed Pipe-Type Inspection - Typical"
TD-1001M-F08, "Quarterly XLPE Routine Inspection - Typical"
TD-1001M-F09, "Detailed XLPE Inspection - Typical"
TD-1001M-F10, "Alarms/SCADA Annual Test Sheet - Typical"
TD-1001M-F11, "Electric Pumping Plant Annual Calibration Sheet - Typical"
TD-1001M-F12, "Corrective Work Form Electric Transmission Underground"
Equipment Record Forms
TD-1001M-F13, "Request to Add Equipment Records to the Asset Registry"
TD-1001M-F14, "Request to Delete Equipment Records to WM SAP"
Infrared Forms
TD-1001M-F15, "Transmission Line Infrared Data Sheet" (Excel)
Material Forms
Form 62-0113, "Material Problem Report" (MPR)
TD-1957P-01-F01, "Component Testing Information Sheet."
Flowcharts
These flowcharts illustrate typical processes for overhead electric transmission maintenance procedures: Exhibit 1, "Notification Initiation Flowchart" Exhibit 2, "Notification/Completed Patrol Review" Exhibit 4, "Transmission Vegetation Management Notifications – Steel Structure Clearing" Exhibit 5, "Transmission Vegetation Management Notifications – Wood Pole Clearing" Exhibit 6, "Transmission Vegetation Management Notifications – VM Compliance Work" Exhibit 7, "Transmission Vegetation Management Notifications – Access Work"

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Appendix D: Summary of Links to Related Documents

The following table contains a summary of the links contained in this manual, with the exception of those already listed in Appendix C: Links to Forms and Flowcharts.

Table 24. Links to Related Documents

TD-1248M, "Barehand Work Procedures Manual"
Electric Maintenance and Construction Manual
Engineering Document 033582, "Tags for Identifying Underground Cables and Equipment,"
ET GIS SAP – Request for Work Job Aid – Creation
General Order (G.O.) 95, "Rules for Overhead Electric Line Construction"
General Order (G.O.) 128, "Rules for Construction of Underground Electric Supply and Communication Systems"
General Order (G.O.) 165 "Inspection Requirements for Electric Distribution and Transmission Facilities"
TD-1257M, "Insulator Cleaning Manual"
Power Line Fire Prevention Field Guide
SCM-2106P-01, "Material Problem Report Procedure."
TD1001M-JA01, "Patrol, Inspection and Closing Process"
TD1001M-JA02, "Detailed Climbing Inspection Job Aid"
TD-1001P-03, "Obstruction Lighting Failure Notification Process"
TD-1001P-06, "Electric Underground Transmission Pump Plant Inspections for San Mateo-Martin 230kV High Pressure Fluid-Filled (HPFF)"
TD-1001P-07, "Electric Underground Transmission Pump Plant Inspections for HZ-1 and HZ-2 230kV, High Pressure, Fluid Filled (HPFF)"
TD-1001P-08, "Electric Underground Transmission Pump Plant Inspections for Figarden Tap #1 and #2 230kV (HPFF)"
TD-1001S, "Electric Transmission Line Inspection and Preventive Maintenance Program"
TD-1003S, "Management of Idle Electric Transmission Line Facilities"
TD-1004P-04, "Conductor Rerate Process for Overhead Transmission Circuits"
TD-1005P-03, "Evaluating Uses of Company Transmission Line Easements by Others"
TD-1005S, "Right-of-Way and Encroachments"
TD-1006P-02, "Switch Maintenance and Inspection Program for Electric Transmission"
TD-1006P-02-JA-01, "Electric Transmission Line Switch Inspection/Function Test Job Aid."
TD-1006B-004, "Procedure for Marking Duplicate Transmission Switches"

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TD-1957P-01, "Electric Transmission Line Equipment Failure Analysis Procedure"
TD-2325P-01, "Wood Poles - Testing, Reinforcing and Reusing"
TD-2325P-01-F01, "Attachment 1 - Pole Inspection/Test Report"
TD-2325S, "Wood Pole Inspection, Testing, and Maintenance"

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Appendix E: Line Patrol File Guidelines

The following lists contain a summary of what should be included in the folders that are in the transmission line maintenance supervisor's office. Annually for each circuit, two folders should be created. There will be one folder for Annual Patrols and one folder for the Line Files. Print the appropriate forms and include in the specific folder for each circuit.

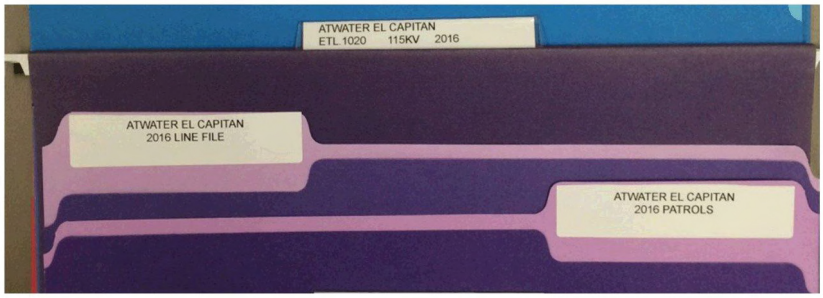

Figure 3. Line Folder Examples

<u>Folder 1- Annual Patrols (Line Name, Year, Patrols)</u>

1) Detailed Inspections
   a) Operational Control Ticket (9010)
   b) Transmission Line Inspection Datasheet (9970)
      i) Datasheets must be filled out completely. QCR must complete top of datasheet, sign and date the body of the datasheet.
      ii) One notification must be created for each finding, except for minor maintenance work (less than 15 minutes) that has been completed. The datasheets should include each finding with the notification number AND any minor maintenance completed in the field.
      iii) List on the datasheet if no findings were found.
      iv) Supervisors must sign and date.
      v) Scan completed datasheet and attach to the order.
   c) Transmission Line Object List (9971)
      i) Each page should have QCR's name and inspection date listed at the top.
      ii) Check only one box.
      iii) Include changes in directions, combination lock codes, LIDAR measurements (one location/mile with height, temperature, date and time), etc.
      iv) Any changes on the object list must be scanned and an RW created.
   d) List of existing notifications (IW28) from SAP
   e) Map of line with species (Fresno, Midway & Victor only)

2) Air and Ground Patrols
   a) Operation Control Ticket (9010)
   b) Transmission Line Inspection Datasheet (9970)
      i) Datasheet must be filled out completely. QCR must complete top of datasheet, sign and date the body of the datasheet.
      ii) One notification must be created for each finding. The datasheets should include each finding with the notification number.
      iii) List on the datasheet if no findings were found
      iv) Supervisors must sign and date.
      v) Scan completed datasheet and attach to the order.
   c) Transmission Line Object List Coversheet (9971 or 9972, either form is appropriate)
      i) For 9971:

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(1) Each page should have QCR's name and inspection date listed at the top
(2) Check only one box
(3) Include changes in directions, combination lock codes, LIDAR measurements (one location/mile with height, temperature, date and time), etc.
(4) Any changes on the object list must be scanned and a RW created

ii) For 9972:
(1) Sign and date with the structures completed, e.g., 1/1 through 20/155

d) List of existing notifications (IW28 from SAP)

Folder 2-Line File (Line Name, Year, Line File)

Within the Line File Folder, file the non-routine patrols, original notifications, completed notifications, deleted notifications and miscellaneous information.

1) Non-Routine Patrols
   a) Original notification for non-routine patrol
   b) Emergency/Non-Routine Patrol Inspection/Patrol Datasheet (Pink Sheet).
      i) Datasheet must be filled out completely, including:
         (1) Number of miles inspected
         (2) Number of structures inspected
         (3) Reason for patrol (e.g., car pole, relay, lockout)
      ii) One notification must be created for each finding, except for minor maintenance work (less than 15 minutes) that has been completed. The datasheets should include each finding with the notification number AND any minor maintenance completed in the field.
      iii) QCR must complete and sign *Identified by and completed by* with appropriate dates.
      iv) QCR must sign and date below the last finding.
      v) Supervisor reviews and signs
   c) Completed Notification and Pink Sheet must be scanned and attached to notification in SAP.

2) Original Notifications
   a) Original notifications are to remain in the year in which it was identified
   b) Notification can be either hand written or electronically generated by the QCR
   c) Fill out completely.
   d) Supervisor must approve, sign and date
   e) Clerk will create an SAP notification and note the number on the notification
   f) Scan the notification and attach to the SAP notification with supporting pictures and documentation
   g) Original notification should NOT leave the file. Do not send the original notification to the field to complete.

3) Completed Notifications
   a) Only print notification (computer generated SAP notification) when ready to work thus including the most updated information.
   b) Completed notifications must include what work was completed, the date completed and the signature and LAN ID of the person who completed the work.
   c) Each notification should have a Construction Completion Standard Checklist (CCSC) attached. If the location has underbuild, there must be a Distribution CCSC form attached also.
   d) If notification is noted as found in field completed, then the notification should be set for deletion. If the notification is linked to a capital order, the notification should be de-linked before deleting and notify engineering to cancel the order. If the notification is linked to an expense order, notify the asset/maintenance planner to cancel the order.

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e) If the crew finds a problem at an adjacent location and corrects the problem while working a notification, then:
   i) Foreman completes the notification, signs and dates
   ii) Supervisor reviews and signs
   iii) Clerk creates SAP notification
f) Once information is noted on the notification and it is completed in SAP, the notification does NOT need to be reprinted and attached to the signed copy. Do NOT remove the original notification from the Year folder and attach to the completed notification.

THERE SHOULD BE NO PENDING FILE OR WORKING FILE IN YOUR LINE FILES.

4) Deleted Notification and Miscellaneous Information
   a) Deleted Notifications
      i) Notifications to be deleted will be de-linked from the PM prior to deleting
      ii) Notification should be noted with the justification explaining why the notification is deleted
   b) Miscellaneous Information
      i) Miscellaneous notifications should be kept to a minimum
      ii) Important information should be scanned and attached to the notification. Do not copy unnecessary information into the body of a notification (e.g., emails).
      iii) Information unrelated to notifications should be kept to a minimum

DO NOT COPY UNNECESSARY INFORMATION INTO THE BODY OF A NOTIFICATION i.e., EMAILS. ANYTHING NOTED ON A NOTIFICATION CAN BE VIEWED BY AUDITORS. ATTACHMENTS ARE FOR INTERNAL VIEWING.

Note--- Capital notifications should not be filed in the capital jobs or in the line files. All notifications need to be filed in the files as listed above. Capital notifications should be in a file by line name for pending jobs. Completed capital jobs should be filed in a completed capital file by line name also by year.

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CAMP-0535

Attachment L

March 6, 2019 Letter from Meredith Allen of PG&E to Lee Palmer of the CPUC

Pacific Gas and Electric Company

Meredith E. Allen
Senior Director
Regulatory Relations

[redacted]

Mailing Address
Pacific Gas and Electric Company
[redacted]

Tel.: [redacted]
Meredith.Allen@pge.com

March 6, 2019

Lee Palmer
Deputy Director, Office of Utility Safety
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Dear Mr. Palmer:

I write in follow up to our February 22, 2019 meeting in which we discussed priority "A" conditions identified on the Caribou-Palermo 115 kV Transmission Line on or after November 8, 2018.

In response to your request, PG&E is producing 29 priority "A" maintenance notifications resulting from the enhanced inspections of the Caribou-Palermo 115 kV Transmission Line that occurred on or after November 8, 2018. *See* PGE-CAMP-CPUC-0000004144–4448. These include climbing inspections of the line prior to the launch of the Wildfire Safety Inspection Program ("WSIP") and additional visual and drone inspections of the line under that program. The "Long Text" field of each notification recounts its complete history, including any changes over time to the prioritization of the condition described in the notification. PG&E is also producing the attachments to each notification, including hardcopy records, photographs, and spreadsheets that reflect reprioritization decisions.[1]

PG&E is also producing one priority "A" notification (Line Corrective ("LC") Notification 115609316) resulting from a WSIP inspection for which the work was completed under another notification (LC Notification 115346175). Because the work was completed under LC Notification 115346175, the notation on LC Notification 115609316 states: "THIS WORKED [sic] WAS COMPLETED UNDER LC 115346175, AND CONFIRMED BY [redacted]

[1] Please note that an attachment to the notifications includes a "privileged and confidential" notation. We have determined that the document is neither privileged nor subject to attorney work product protection; in producing this document, we do not intend to waive any valid claim of privilege and/or work product protection. As always, please let us know if you have any questions.

PLEASE DELETE FLAG TAG." We are producing both LC notifications. *See* PGE-CAMP-CPUC-0000004449–4454.

PG&E will be making additional productions of maintenance notifications for the Caribou-Palermo 115 kV Transmission Line, including notifications for priority "B", "E" or "F" conditions.

Please note that there are preliminary maintenance notifications that were created on or after November 8, 2018, and that are awaiting WSIP reviews as to the priorities assigned to those notifications. PG&E intends to produce such notifications after such reviews are completed. Please further note that as a result of these ongoing reviews, additional priority "A" conditions on the Caribou-Palermo 115 kV Transmission Line may be identified.

PG&E's review and the collection of records are ongoing and these responses are based on information that is currently available. PG&E may need to supplement these responses if additional information, whether of the type identified in the previous paragraph or otherwise, is identified.

PG&E remains committed to providing the Safety and Enforcement Division with timely and accurate information and to fully cooperating with the investigations of CAL FIRE and the CPUC.

If you have any questions, please do not hesitate to call.

Sincerely,

Meredith E. Allen
Senior Director - Regulatory Relations

cc: Charlotte Terkeurst

Attachment M

March 20, 2019 Letter from Erik Jacobson of PG&E to Lee Palmer of the CPUC

Pacific Gas and Electric Company

Erik B. Jacobson
Director
Regulatory Relations

[redacted]

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Tel.: [redacted]
E-mail : Erik.Jacobson@pge.com

March 20, 2019

Leslie Palmer
Deputy Director, Office of Utility Safety
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Dear Mr. Palmer,

I write in follow up to your February 22, 2019 meeting with Meredith Allen during which you discussed priority "A" conditions identified on the Caribou-Palermo 115 kV Transmission Line on or after November 8, 2018.

On March 6, 2019, PG&E produced 29 completed and open priority "A" Line Corrective ("LC") Notifications resulting from the enhanced inspections of the Caribou-Palermo 115 kV Transmission Line that occurred on or after November 8, 2018, as well as attachments to each notification, including scans of hardcopy records, photographs, and spreadsheets that reflect reprioritization decisions as of February 27, 2019. *See* PGE-CAMP-CPUC-0000004144–4448. The notifications arose from climbing inspections of the line prior to the launch of the Wildfire Safety Inspection Program ("WSIP"), as well as climbing and drone inspections performed under that program (collectively, "the enhanced inspections").

Today's production includes an additional 500 maintenance notifications for the Caribou-Palermo 115 kV Transmission Line. Specifically, PG&E is producing 495 completed and open priority "B," "E," and "F" notifications for the Caribou-Palermo 115 kV Transmission Line that have been generated as a result of the enhanced inspections that occurred on or after November 8, 2018, together with attachments.[1] *See* PGE-CAMP-CPUC-0000007663–10125. This production includes LC notifications reviewed and processed as of March 15, 2019. As with PG&E's production of the 29 priority "A" maintenance notifications, the "Long Text" field of each LC notification recounts the history of the notification, including any changes over time to the prioritization of the condition described in the notification.[2]

[1] Please note that an attachment to certain notifications includes a "privileged and confidential" notation. We have determined that the document is neither privileged nor subject to attorney work product protection; accordingly, in producing this document, we do not intend to waive any valid claim of privilege and/or work product protection. As always, please let us know if you have any questions.

[2] Eight jpeg images attached to LC Notifications 115677676, 115680395, 115680396, 115680396, 115680401, 115754583, 115760352 and 115770635 are not included in this production because of technical issues accessing the images and extracting them for production. PG&E is working to rectify the issue and will provide any images that can be extracted in a future production.

In addition to the 495 completed and open priority "B," "E," and "F" notifications, we are also producing three notifications (corresponding to LC Notifications 115659550, 115659707 and 116309739) for which the condition identified in the notification was addressed in other notifications. Because the conditions are addressed in other notifications, these three notifications were identified as duplicative and, as such, were assigned a notification status of "deleted" in PG&E's system. We are producing both the notifications in which the condition is addressed and the notifications identified as duplicative. *See* PGE-CAMP-CPUC-0000007955–56, PGE-CAMP-CPUC-0000008457–60; PGE-CAMP-CPUC-0000007957–58, PGE-CAMP-CPUC-0000008891–93; PGE-CAMP-CPUC-0000007969–73, PGE-CAMP-CPUC-0000008826–29. We are also producing two notifications, corresponding to LC Notifications 115343081 and 115761014, that were created in error because there was no condition requiring corrective action. PGE-CAMP-CPUC-0000007953–54, PGE-CAMP-CPUC-0000007959–68.

Please note that there are preliminary maintenance notifications that were created on or after November 8, 2018 that are awaiting Centralized Inspection Review Team ("CIRT") reviews as to the priorities assigned to those notifications or were canceled as a result of CIRT review before becoming a final notification. As a result of these ongoing reviews, as well as ongoing enhanced inspections, additional LC notifications on the Caribou-Palermo 115 kV Transmission Line, including additional LC notifications relating to priority "A" conditions on that line, may be identified. We will produce additional notifications when the CIRT reviews are complete.

Sincerely,

Erik B. Jacobson
Director, Regulatory Relations

Attachment N

Exponent Report on PG&E Caribou-Palermo Asset Condition Investigation

November 1, 2019

Exponent®

PG&E Caribou-Palermo Asset Condition Investigation

November 1, 2019

CAMP-0543

PG&E Caribou-Palermo Asset Condition Investigation

Prepared for

Pacific Gas and Electric Company
77 Beale Street
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California Public Utilities Commission
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Prepared by

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149 Commonwealth Drive
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November 1, 2019

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Executive Summary

Following the November 2018 Camp Fire, Pacific Gas and Electric (PG&E) conducted enhanced inspections of its electric transmission lines within higher wildfire risk areas. The bulk of these enhanced inspections were conducted as part of PG&E's Wildfire Safety Inspection Program (WSIP). These inspections indicated that the Caribou-Palermo line, reportedly associated with the Camp Fire, exhibited a relatively high number of high-priority corrective work orders, denoted "tags", compared to other PG&E transmission lines examined. Exponent was retained by PG&E and the California Public Utilities Commission (CPUC) to conduct an independent analysis of the cause of the reportedly high numbers of high-priority tags on Caribou-Palermo compared with other, similar lines.

Exponent examined comparison lines, selected based on voltage, tower design, location, elevation, presence of guest circuits, and age criteria. To help compare the number of high-priority corrective action issues between Caribou-Palermo and the comparison lines, Exponent reviewed the following: condition assessments and corrective action work orders from PG&E's post–Camp Fire inspections, asset information (GIS data), historical construction records, historical wind and weather data, maintenance/inspection records, historical corrective action work orders, outage data, and available drone inspection images for select lines. Exponent also conducted multiple interviews with PG&E subject matter experts (SMEs).

Based on our analysis, we have reached the following conclusions:

1. The Caribou-Palermo line was confirmed to have greater post–Camp Fire high-priority ("A" + "B") repair tag counts than all selected comparison lines, as well as an increased per-structure high-priority tag rate when normalized for the number of steel lattice towers.

2. Other lines adjacent to Caribou-Palermo such as Bucks Creek–Rock Creek–Cresta (BCRC), Cresta–Rio Oso (CRO), and Paradise–Table Mountain (PTM) had the second, fourth, and fifth highest post–Camp Fire high-priority tag counts, respectively, when normalized for steel lattice towers. Pit #4 Tap (P4T) had the third highest normalized high-priority tag count, but is not near Caribou-Palermo.

3. Cold-end insulator hardware-related issues were responsible for the highest number of "A" priority post–Camp Fire tags on Caribou-Palermo, and the second highest number of "B" priority tags. Foundation-related issues accounted for the greatest number of "B" tags.

4. Wear was the most commonly observed post–Camp Fire damage mechanism for Caribou-Palermo "A" tags and second most commonly observed damage mechanism for "B" tags. Nearly all Caribou-Palermo wear-related tags were associated with cold-end hardware. Cold-end hardware wear issues were likely caused by repeated conductor and insulator movement over time.

5. Caribou-Palermo, BCRC, and CRO lines, each located within the North Fork Feather River Canyon, exhibited high-priority cold-end hardware wear tag counts more than three times higher than the next highest comparison line when normalized for steel lattice towers.

6. Link connections were observed only on the southern portion of Caribou-Palermo and accounted for approximately 40-percent of cold-end hardware wear tags on the entire line. All of the Caribou-Palermo South wear tags were associated with link connections.

7. Roughly one-sixth of drone-imaged Caribou-Palermo North towers contained insulated jumpers. However, over 60-percent of the post–Camp Fire high-priority cold-end hardware wear tags on Caribou-Palermo North were associated with structures that contained insulated jumpers. Additionally, over half of all cold-end hardware wear tags on BCRC and CRO were on towers with insulated jumpers.

8. Caribou-Palermo North and other North Fork Feather River Canyon comparison lines contained an increased number of insulated jumpers (and insulated jumper wear tags) compared to similar lines. These Caribou-Palermo and other North Fork Feather River Canyon structures with insulated jumpers exhibited a higher incidence of cold-end hardware wear than standard suspension structures.

9. Caribou-Palermo North experiences higher annual average wind speeds than non-adjacent comparison lines. Lines analyzed within the North Fork Feather River Canyon may have increased wear tag rates associated with longer-duration high-wind conditions. No apparent correlation between wear tags and temperature, precipitation, or peak wind speed (50-year return) was observed.

10. From 2001 to November 2018, the Caribou-Palermo line was subjected to similar ground inspection and patrol frequencies as comparison lines. These inspections and patrols yielded comparable normalized high-priority tag counts between Caribou-Palermo and comparison lines.

11. Historical ground and patrol inspection forms did not specify cold-end hardware assessment. Pre-Camp Fire climbing inspection forms did contain assessment fields for structural components such as insulator hardware. However, climbing inspections were not routinely performed on lines less than 500kV.

12. Although climbing inspections were not routinely performed on lines less than 500 kV, 79 Caribou-Palermo towers were subjected to climbing inspections in the months prior to the Camp Fire. The tower reportedly associated with the Camp Fire was not inspected. PG&E's post–Camp Fire enhanced inspection procedures, including CIRT or DIRT reviews, have led to substantial improvements in identifying progressive or wear-related insulator hardware damage.

13. The Caribou-Palermo line had more normalized equipment-based outages between 2007 and 2018 than approximately 80 percent of the other WSIP transmission lines.

14. Caribou-Palermo and other North Fork Feather River Canyon lines appear to have a unique set of factors that contributed to increased rates of high-priority cold-end hardware tags relative to other comparison lines. Factors such as design (link connectors and a relatively large number of non-tensioned insulated conductors), long-duration exposure to higher winds, age, and historical inspection methodologies likely all contributed to these cold-end hardware wear issues.

Note that this Executive Summary does not contain all of Exponent's technical evaluations, analyses, conclusions, and recommendations. Hence, the main body of this report is at all times the controlling document.

Limitations

At the request of PG&E and the CPUC, Exponent, Inc. (Exponent) has reviewed information related to the Caribou-Palermo electric transmission line and selected comparison lines. Documents and information reviewed included condition assessments, corrective action work orders, GIS data, historical construction records, wind and weather data, maintenance/inspection records and procedures, outage data, and available drone inspection images. When possible, the timing associated with these data is provided in this report. Data outside the time ranges considered have not been evaluated. We have relied on PG&E to help select representative comparison lines and structures, as well as with regards to the quality and completeness of these data.

The scope of services performed during this investigation may not adequately address the needs of other users of this report, and any reuse of this report or its findings, conclusions, or recommendations presented herein is at the sole risk of the user. The opinions and comments formulated during this assessment are based on observations and information available at the time of the investigation. No guarantee or warranty as to future life or performance of any reviewed condition is expressed or implied.

The findings presented herein are made to a reasonable degree of engineering certainty. We have made every effort to accurately and completely investigate all areas of concern identified during our investigation. If new data become available or there are perceived omissions or misstatements in this report regarding any aspect of those conditions, we ask that they be brought to our attention as soon as possible so we may have the opportunity to fully address them.

Scope and Background

The purpose of our work was to investigate the reported high number of high-priority ("A" and "B") corrective work orders found on the Caribou-Palermo line during enhanced inspections following the November 2018 Camp Fire. These enhanced inspections were primarily associated with PG&E's Wildfire Safety Inspection Program (WSIP). Exponent has examined post–Camp Fire repair tag counts on Caribou-Palermo and selected comparison lines, and has assessed the frequency, locations, severity, components, and damage mechanisms associated with repair tags. Exponent has also compared historical weather conditions, maintenance and tag/corrective action history, and outage rates between Caribou-Palermo and comparison lines. Our analysis is based on information and documents provided by PG&E through September 2019. A list of documents and information provided to us is detailed below.

PG&E Enhanced Inspection and Repair Tag Process

Following the Camp Fire, PG&E conducted inspections to help assess the structural integrity of transmission line structures and components within wildfire-sensitive areas. As part of this enhanced inspection program, corrective work orders, "tags," are generated to address specific corrective actions found in PG&E's electrical transmission system. These tags are assigned a priority (A, B, E, or F) depending on the severity. These tags are then reviewed by PG&E's Centralized Inspection Review Team (CIRT) or Drone Inspection Review Team (DIRT) to help calibrate and normalize corrective action priority. The priority assignments determine how quickly corrective action must be performed according to Table 1.

Table 1. Description of work tag priorities.

Tag Priority	Description
A	Perform corrective action immediately.
B	Perform corrective action within 3 months.
E	Perform corrective action within 12 months.
F	Perform corrective action in > 1 year.

Post–Camp Fire enhanced inspection transmission structures are typically visually inspected and documented during a climbing or aerial drone inspection. All electrical, structural, and general safety components are inspected to determine whether corrective action / repair is required. If an issue is observed, the inspector may create a preliminary "S5" work tag to address the problem. The "S5" designation indicates that this tag is in the "staging" process and requires further review by CIRT (or DIRT) before corrective action can begin. The results of these inspections, including photos of the structure and any inspector notes, are recorded digitally on "Pronto" forms, and are later reviewed by CIRT to make final corrective action priority decisions. CIRT review is prioritized based on incoming tag priority, i.e., priority "A" tags are reviewed first.

Once CIRT has approved an S5 notification, it gains the "LC" designation to indicate it is an official work tag and corrective action can begin.

During PG&E's enhanced inspection/ WSIP process, qualitatively higher rates of high-priority, "A" and "B" tags were reportedly noted on the Caribou-Palermo line, compared to other similar lines. Because of this, Exponent was asked to (1) evaluate whether the Caribou-Palermo line did in fact exhibit a greater number of high-priority tags compared to other, similar lines, and (2) help determine the cause of any increased high-priority tag rates. The methodology used to select comparison lines, assess tagged component frequencies, assess damage mechanisms, and examine environmental, design, maintenance/inspection history, and outage data are provided below.

Documents Reviewed

Exponent reviewed the following data, and relies on its accuracy for the purpose of this analysis:

- All post–Camp Fire high-priority corrective action work orders generated on Caribou-Palermo and comparison lines. This includes any S5 "staging" tags, closed LC tags where work was completed, and open LC tags that were not yet addressed at the time of the data pull, June 19, 2019.
    - All post–Camp Fire "E" and "F" priority tags on Caribou-Palermo were also analyzed.
- All pre–Camp Fire high-priority tags from February 1, 2000, to March 8, 2019, on Caribou-Palermo.
- Enhanced inspection Pronto forms, including both detailed climbing and nonclimbing inspections.
- Available drone inspection images as of May 3, 2019, for Caribou-Palermo and select lines, including Cresta–Rio Oso, Drum-Higgins, Drum–Rio Oso, Paradise–Table Mountain, and Bucks Creek–Rock Creek–Cresta.
- Asset information obtained from GIS data, including steel lattice tower designations, locations of towers, and conductor type and size.
- Detailed climbing inspection forms used in the inspections carried out prior to the Camp Fire in September through November 2018.
- Design books for towers on Caribou-Palermo and several comparison lines.
- Historical wind and weather data obtained from both PG&E records and public records.
    - NREL Wind Database: https://www.nrel.gov/grid/wind-toolkit.html
    - PG&E Document "Extreme Wind Speed Estimates Along PG&E Transmission Line Corridors"
- Historical maintenance and inspection records from 2001 to 2018.

- Equipment-based outages from 2007 to 2018.
- PG&E Electric Transmission Preventive Maintenance Manual (ETPM).
- Interview with PG&E subject matter experts regarding comparison line selection and general terminology.
- CalFire Camp Fire investigation photographs.
- Transmission Line Reference Book: *Wind Induced Conductor Motion*, EPRI, 1979

Methodology

Exponent conducted an analysis of the post–Camp Fire Caribou-Palermo corrective action / repair tags and compared them with other, similar lines. In particular, normalized (based on number of steel lattice structures) repair tag counts and damage mechanisms were compared. Potential contributing factors such as environment, age, maintenance/inspection practices, and design were investigated. Methodologies used for our analyses are described below.

Choice of Comparison Lines

Part of the scope of work was to compare the repair tag rates between Caribou-Palermo and other similar lines. These comparison lines were selected based on PG&E subject matter expert (SME) discussions and the following criteria:

- 115 or 230 kV lines only
- Elevations greater than 1,000 feet
- Single-circuit steel lattice towers
- Tier 2 or Tier 3 fire zones

Based on our discussions and the above criteria, a total of 43 comparison lines, including Caribou-Palermo (dual lines with #1 and #2 designations were grouped together), were selected. Of these 43 lines, 15 had fewer than 30 steel lattice towers and were not included in our analysis. Of the remaining 28 lines, nine lines are 115 kV (including Caribou-Palermo) and 19 are 230 kV. The complete list is given in Table 2 and mapped in Figure 1.

Of these 28 lines (including Caribou-Palermo), a subset of 6 lines were selected for further analysis: Caribou-Palermo (CP), Bucks Creek–Rock Creek–Cresta (BCRC), Cresta–Rio Oso (CRO), Drum–Rio Oso #1 and #2 (DRO), Drum-Higgins (DH), and Paradise–Table Mountain (PTM). These lines contain transposition towers with jumper arms installed prior to the 1950s, similar to the Caribou-Palermo incident tower reportedly involved in the Camp Fire. The subset of six lines underwent a systematic assessment, including tag analysis, component identification, geographic considerations for terrain and wind exposure, structure type/design, and cold-end hardware analysis. An additional line was added for detailed assessment: Pit#1-Cottonwood (P1C). P1C does not contain transposition towers with jumper arms; however, because it is a relatively long (>500 steel lattice towers) 230 kV line that contains significant portions in mountainous areas (>300 steel lattice towers over 1,000 feet), and was installed

around the same time as Caribou-Palermo, it was included in portions of the subset analysis. The remainder of this section outlines more specific details on the scope of the subset analysis and methodologies employed to identify the most prominent issues.

Table 2. Transmission lines considered and their steel lattice tower count. Lines selected for the analysis were given letter identifiers.

Voltage Rating	Comparison Lines	Identifier	SLT Count	SLT Count Over 1,000 ft	Approximate Install Date§
115 kV	Balch-Sanger	BS	175	85	1927
	Bell-Placer	-	22	-	-
	Bridgeville-Cottonwood	BC	195	192	1952
	Butte Valley-Caribou	BVC	49	49	1958
	Caribou-Palermo*	CP	423	294	1908
	Crag View-Cascade	-	12	-	-
	Drum-Higgins (DH)*	DH	152	152	1942
	Drum-Rio Oso #1 &2*	DRO	409	298	1913
	Drum-Summit #1 & 2	-	10	-	-
	Humboldt-Bridgeville	HB	37	34	-
	Humboldt-Trinity	-	8	-	-
	Kings River-Sanger-Reedley	-	15	-	-
	Paradise-Table Mtn*	PTM	63	39	1921
	Salt Springs-Tiger Creek	SSTC	128	128	1930
230 kV	Black Tap	-	3	-	-
	Bottle Rock Tap D.W.R.	-	6	-	-
	Bucks Creek-Rock Creek-Cresta*	BCRC	79	79	1928
	Carberry SW STA-Round Mtn	CRM	106	106	1924
	Caribou-Table Mtn	CTM	321	280	1958
	Cresta-Rio Oso*	CRO	179	164	1928
	Electra-Bellota	EB	197	65	1930
	Geysers #12-Fulton	G12F	94	52	1980
	Geysers #16 Tap	-	7	-	-
	Geysers #17-Fulton	-	7	-	-
	Geysers #18 Tap	-	3	-	-
	Haas-Mccall	HM	216	102	1958
	Helms-Gregg #1 &2	HG	433	299	1982
	Middle Fork-Gold Hill	MFGH	59	29	1966
	Pit #1-Cottonwood*	P1C	524	331	1924
	Pit #3-Carberry SW STA	P3C	85	85	1924
	Pit #3-Pit #1	P3P1	180	180	1924
	Pit #4 Tap	P4T	50	50	1954
	Pit #5-Round Mtn #1 & 2	P5RM	39	39	1943
	Pit #6 Jct-Round Mtn	-	13	-	-
	Pit #6 Tap	-	3	-	-
	Pit #7 Tap	-	8	-	-
	Poe-Rio Oso	PRO	352	72	1949
	Rock Creek-Poe	RCP	171	171	1949
	Round Mtn-Cottonwood #2 & 3	RMC	546	207	1924
	Santa Fe Geothermal Tap	-	7	-	-
	SPI (Burney) Tap	-	1	-	-
	Tiger Creek-Electra	TCE	101	99	1930
	Tiger Creek-Valley Springs	TCVS	131	131	1930

* Subset of lines included in the detailed analysis section.

§ Installation years listed typically do not apply to the entire present-day line and do not include structures that have been moved or replaced since their initial installation. The oldest date was chosen for lines that were installed at different times.

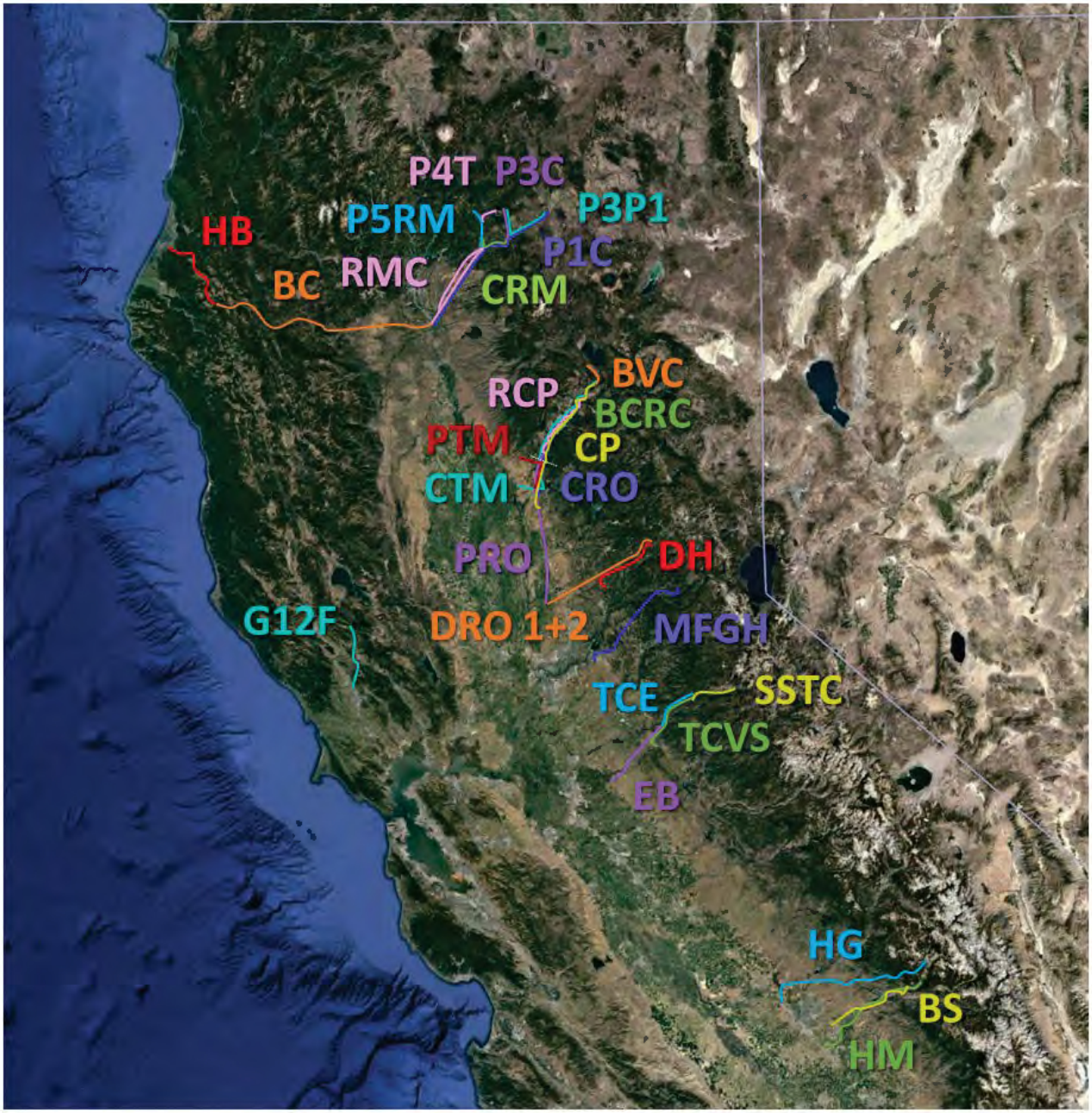


Figure 1. Line mapping overview of Caribou-Palermo and comparison lines utilized for the analysis detailed in this report.

Corrective Action Tag Review

All “LC” tags (issued after November 8, 2018, and prior to June 19, 2019) were compiled for the Caribou-Palermo and comparison lines. Using the inspector’s text regarding the inspected structure, the high-priority “A” and “B” tags were binned into categories based on the component responsible for the corrective tag and the damage mode. The number of tags associated with each component and damage mechanism was then identified, plotted, and compared for each line. The lower priority “E” and “F” tags were binned for Caribou-Palermo, and were associated with relatively minor corrective actions such as missing signage, loose bolts, or bent secondary members of the steel frame. Comparison line “E” and “F” tags were tallied but not binned, as our analysis was focused on higher priority / risk issues associated with “A” and “B” tags.

Line Comparison and Normalization Methodology

To best compare lines of different lengths with different numbers of structures, tag counts were normalized by the number of steel lattice towers based on approximations from PG&E’s GIS data. This eliminated the majority of wood poles, steel poles, and other structure types, and made comparison between lines of different lengths more accurate. To further refine the comparison, steel lattice towers over 1,000 feet were used as an approximation of the transition from double- to single-circuit towers. This differentiation allowed a more accurate comparison between Caribou-Palermo north and south sections, as well as with other similar tower constructions.

Caribou-Palermo North and South Designations

For elevations greater than approximately 1,000 feet, PG&E transmission lines typically change from a double-circuit vertical configuration to a single-circuit horizontal configuration (snow towers). The intent of the snow tower configuration is to help minimize the risk of contact between phases during snow loading events. An example of each tower type is shown in Figure 2. For Caribou-Palermo, this transition takes place near the Big Bend substation just north of Lake Oroville (at approximately 1,250 feet), indicated by the dividing line on the map in Figure 3. The north and south portions of this demarcation are designated as Caribou-Palermo North and South throughout the remainder of this report. Historically, these two portions of Caribou-Palermo were two separate lines built at different times and to different specifications. Because the single-circuit snow towers are constructed differently than the standard double-circuit towers, and because the reported Camp Fire incident tower is located on Caribou-Palermo North, specific attention is given to this line section in our analysis. A similar dividing line is made on all comparison lines at the 1,000-foot elevation.

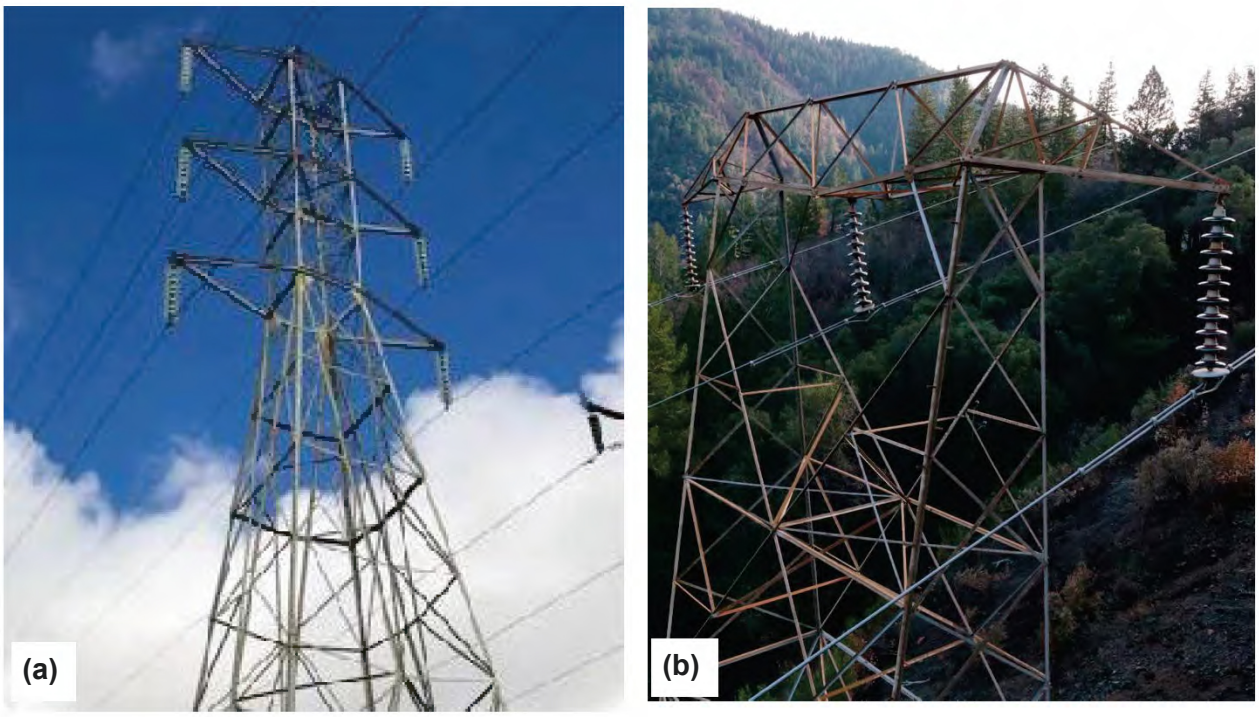


Figure 2. Examples of (a) a double-circuit vertical configuration tower used at elevations below approximately 1,000 feet and (b) a single-circuit horizontal configuration tower used at elevations greater than 1,000 feet.

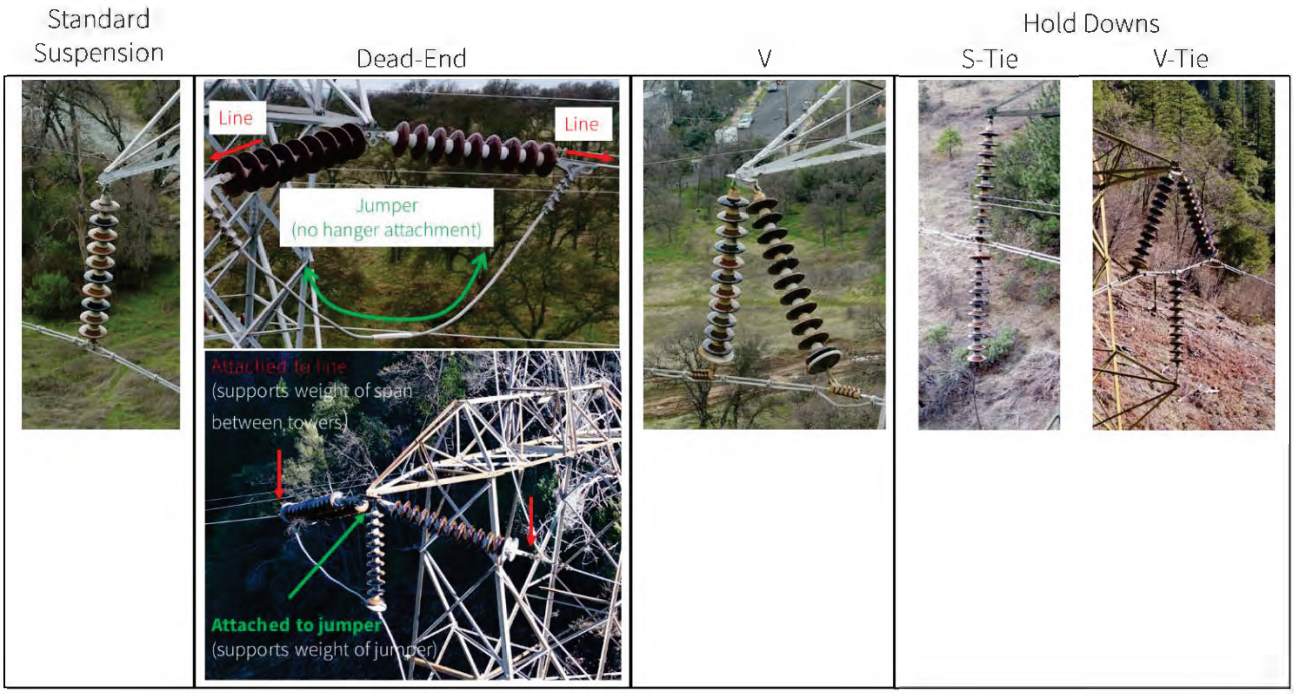
Figure 3. Map of all structures in Caribou-Palermo, with the dividing line between north and south sections indicated.

Hardware Binning

Part of our analysis focused on examining cold-end hardware types and performance on Caribou-Palermo and comparison lines. A variety of cold-end insulator hardware is used to attach insulators to the numerous different tower types. To better understand the specific connection types associated with wear tags, and to compare these to the hardware used on other lines, available drone images from Caribou-Palermo and selected comparison lines (BCRC, CRO, DRO, DH, and PTM) were analyzed. Each insulator-to-tower attachment point was binned into the following categories:

- Insulator configuration (standard suspension, dead-end, V, V-tie, and S-tie)
- Insulator connector type (C-hook, Y-clevis, link, yoke, eye-bolt, or cable)
- Main line or jumper connection
- Tower connection type (hanger plate eye, a shackle, or directly to the tower)
- Tower connection orientation with respect to the conductor (parallel or perpendicular)
- Insulator color and material: porcelain (brown), porcelain (white), polymer, or glass
- Whether the tower is a transposition tower (yes or no)

Examples of the various insulator-tower attachments are shown in Figure 4.



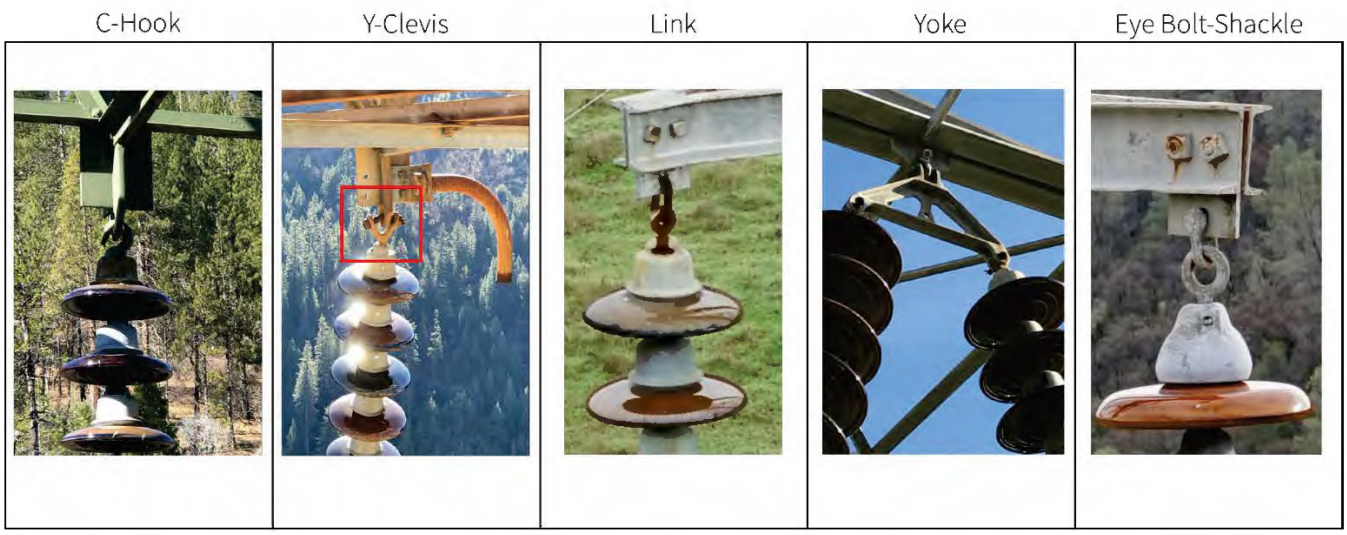


Figure 4. Representative images of insulator configuration (top) and connector type (bottom).

Review of Hardware Specifications and Other Relevant Documentation

Exponent also reviewed line hardware specifications and drawings to help determine whether the Caribou-Palermo and comparison lines had different original design features. Design books from the following lines were included in this investigation:

- Caribou-Golden Gate: 165 kV and 230 kV
- Caribou–Sycamore Creek: 115 kV
- Drum–Rio Oso: 115 kV
- Palermo–Rio Oso: 115 kV

Tower design information from 1916 through the 1980s, including bills of materials, component designs, and geographic line placement, was reviewed. These design books contain information on portions of modern-day Caribou-Palermo and other comparison lines. However, due to hardware replacements, tower relocations, line name changes, and other changes to these lines over time, the extent to which current and specific Caribou-Palermo and comparison towers contain the hardware mentioned in these documents is unknown.

Geographic Considerations for Terrain and Wind

For comparison line mapping, geographic information system (GIS) data of each tower was implemented in Google Earth Pro to generate maps and overlays. Information derived from such

maps for towers includes but is not limited to local terrain, slope, elevation,[1] distance between towers, and mapping references for weather-related data.

For environmental considerations, the National Renewable Energy Laboratory (NREL) Wind Resource database,[2] which combines measured wind data with topographic/meteorological indicators to report wind speed and direction across the United States in one-hour time increments, was utilized. The year 2010 was selected as representative for the hour-by-hour behavior of each tower throughout an entire year, as well as the yearly average.

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[1] Some elevations were obtained through GPS Visualizer, https://www.gpsvisualizer.com/elevation, which sources elevation data from the U.S. Geological Survey's National Elevation Dataset.

[2] NREL Wind Database: https://www.nrel.gov/grid/wind-toolkit.html.

Observations and Analysis

Post-Camp Fire Caribou-Palermo Tag Analysis

Post–Camp Fire Caribou-Palermo LC steel lattice tower tags were reviewed and binned by component type and damage mode. Each tag was binned into one of 15 component-type categories:

- *Cold-End Hardware*: Components used to attach the nonconductor end of the insulator (cold-end) to the tower. Both the tower and the insulator attachment components are considered cold-end hardware.
- *Foundation*: Components associated with the footings at the tower base.
- *Bolts*: Fasteners within a structure, typically in the steel frame.
- *Conductor*: The components associated with conducting electricity, including the conductor itself, as well as splices and jumpers.
- *Steel Frame*: The structural steel members of a lattice tower.
- *Insulator*: The insulating components associated with attaching a conductor to a structure, typically strings of porcelain, glass, or plastic discs. For our purposes, the insulator does not include the hardware used to attach insulator strings to a conductor or to a tower.
- *Cotter Pin*: Pinned fasteners, typically in the shoe that connects a suspended conductor to an insulator string.
- *Shoe*: The component used to attach an insulator string to a suspended conductor.
- *Guy*: Guy lines, including guy anchors and strain insulators.
- *Corona Ring*: Rings used to prevent corona discharge at insulators.
- *Clamps*: Attachments to a conductor or hold-down hardware.
- *Signage*: Signage on a tower, including tower number signs, high-voltage signs, and anticlimbing guards.
- *Turnbuckle*: Tensioning apparatus typically in guy line or hold-down cable attachments.
- *Armor Rod*: Hardware that protects conductors from bending, compression, or abrasion.

- *Unclear*: For some tags, information recorded in the tag data was insufficient to determine the associated component type; these tags were binned as "Unclear."

The number of post–Camp Fire Caribou-Palermo "A" and "B" tags associated with each of the 15 component type categories is shown in Figure 5(a). Cold-end hardware accounted for the highest number of "A" tags, as well as the second highest number of "B" tags. Tower foundations were associated with the highest number of "B" tags but no "A" tags. Notably, these two component types combined account for nearly four times the number of high-priority tags of the next most tagged component, and approximately half of all high-priority tags. In Figure 5(b), the distribution of component type categories is shown only for high-priority tags from steel lattice towers on Caribou-Palermo North.

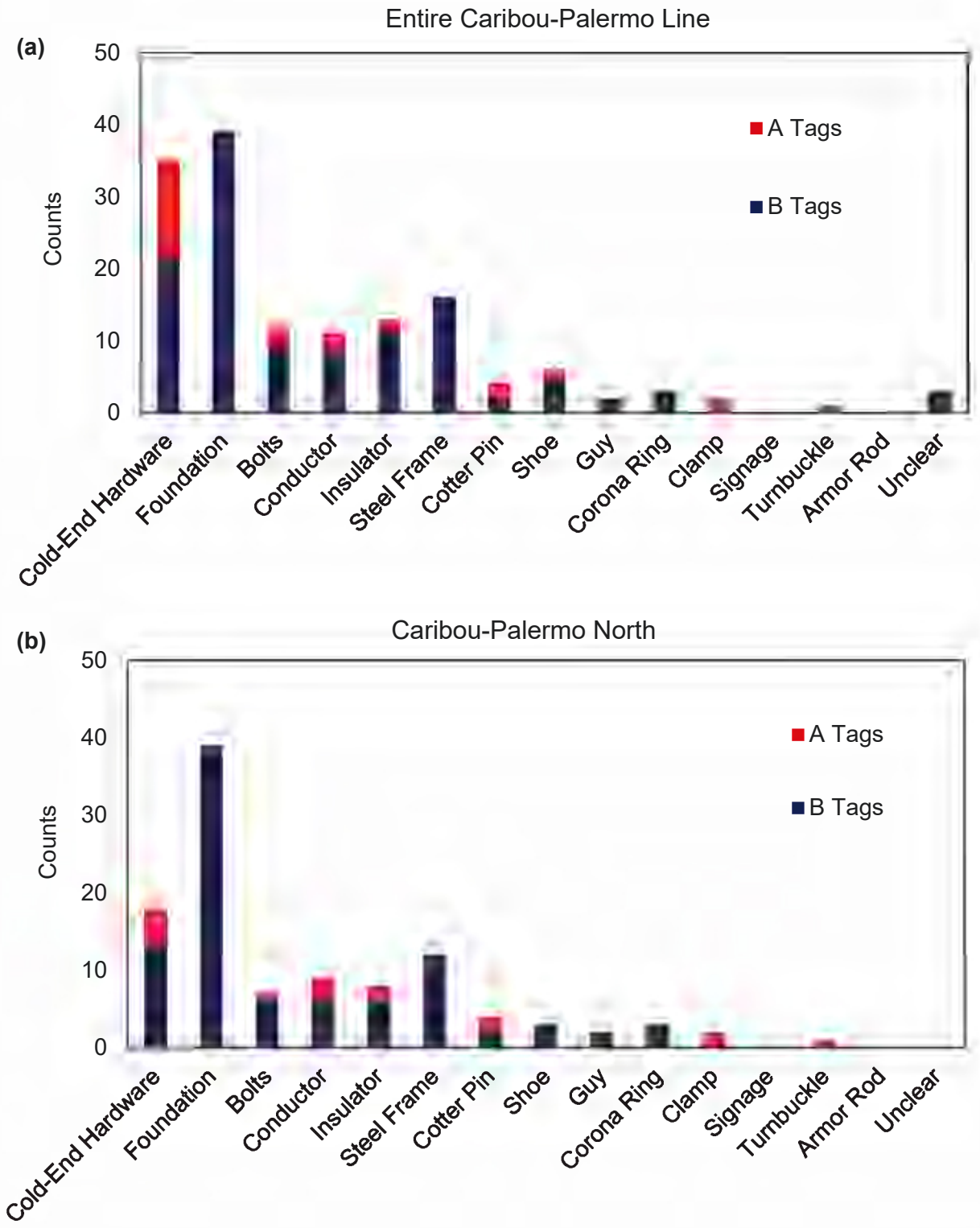


Figure 5. Breakdown of post–Camp Fire high-priority ("A" and "B") tags with respect to component type on (a) entire Caribou-Palermo line and (b) Caribou-Palermo North. (Tags are associated with single-circuit structures north of Tower 016/130.)

Analysis of High-Priority Tag Damage Mode

In addition to binning of tags by component (described above), each tag was also binned into one of 16 damage mode categories:

- *Wear*: Tags associated with worn components. This category includes material loss due to friction between moving components as well as material loss from tower footings.
- *Soil Movement*: Tags associated with burial or exposure of structure components due to soil movement, typically related to tower footings or guy anchors. Further inspection may be required to assess if soil movement has resulted in a damage condition.
- *Bent*: Tags associated with bent or warped components.
- *Missing*: Tags associated with missing components, most commonly fasteners such as bolts and cotter pins.
- *Loose*: Tags associated with loose components, most commonly fasteners such as bolts and cotter pins.
- *Corrosion*: Tags associated with corrosion of metal components.
- *Broken*: Tags associated with fractured components.
- *Non-Standard*: Tags associated with components that may be in good physical condition but are improperly installed or are otherwise not compliant with standards. For example, tags associated with guy lines installed without strain insulators or splices installed less than the required 10 feet from a tower were included in this category.
- *Wire Birdcaging*: Tags associated with unraveling of the strands of a conductor.
- *Gunshot Damage*: Tags associated with components likely damaged by gunshots.
- *Electrical Damage*: Tags associated with electrical damage to components, including arcing or tracking damage on insulators, as well as lightning strikes.
- *Vegetation*: Tags associated with vegetation that poses risk to a structure, including branches on or near conductors and excessive vegetation around the base of a tower.
- *Fire Damage*: Tags associated with components damaged by fire.
- *Contaminated*: Tags associated with contamination on a component, such as paint or bird droppings on an insulator.
- *Animal*: Tags associated with damage or risk to a structure related to animals, such as bird nests or woodpecker holes.

- *Unclear*: For some tags, information recorded in the tag data was insufficient to determine the associate damage mode; these tags were binned as "Unclear."

The number of "A" and "B" tags from Caribou-Palermo associated with each of the 16 damage mode categories is shown in Figure 6(a). The distribution of high-priority tags among damage mode categories closely parallels their distribution among component types. Wear tags are primarily associated with cold-end hardware, and soil movement is associated with foundations. These two damage modes represent the highest numbers of "A" and "B" tags, respectively, and, combined, account for more than four times the number of high-priority tags of any other damage mechanism. Tagged component breakdowns on Caribou-Palermo North are shown in Figure 6(b).

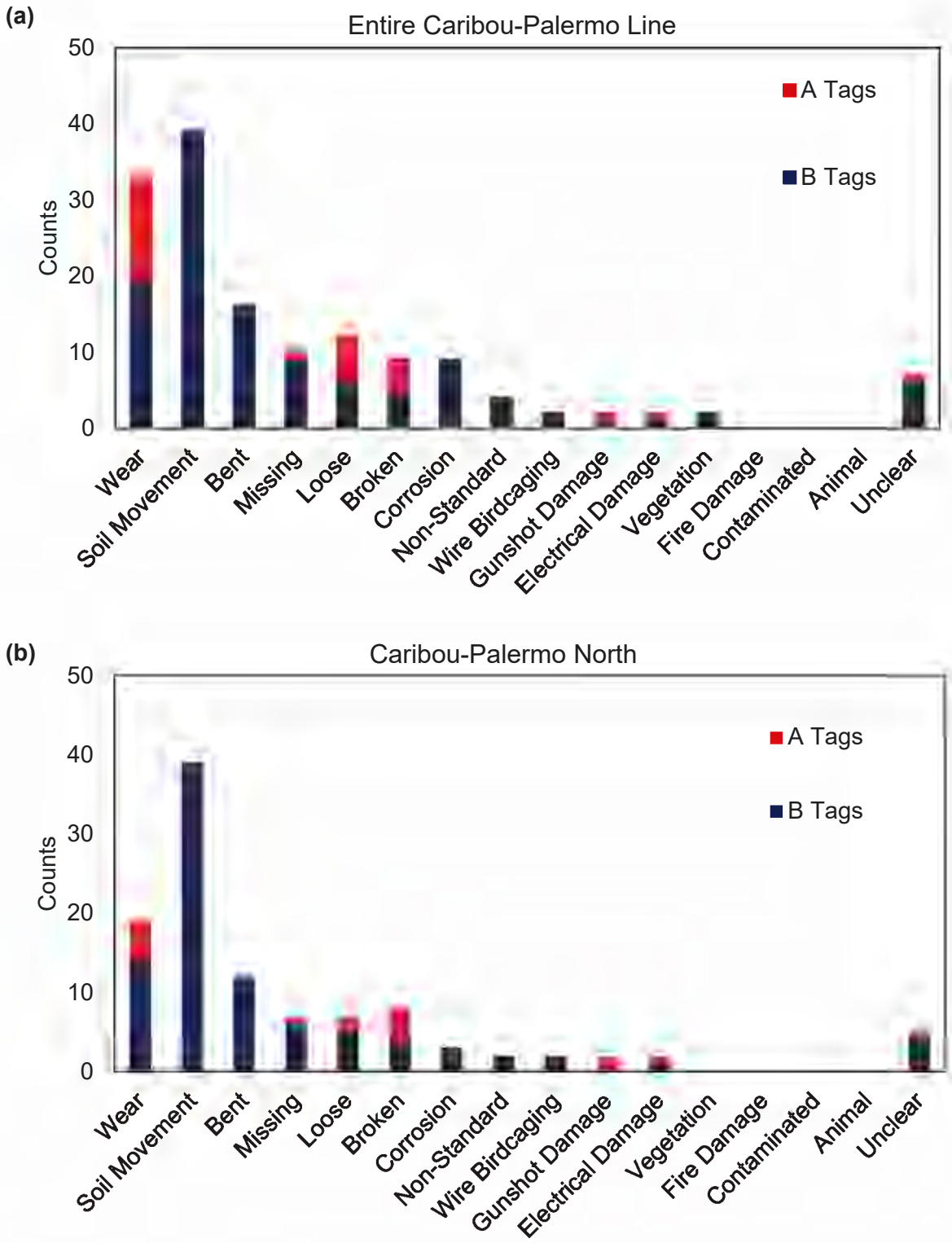


Figure 6. Breakdown of post–Camp Fire high-priority ("A" and "B") tags with respect to damage mode on (a) entire Caribou-Palermo line and (b) Caribou-Palermo North. (Tags are associated with single-circuit structures north of tower 016/130.)

A breakdown of the damage modes associated with selected component types, Figure 7, indicates that cold-end hardware tags were almost exclusively associated with wear. Similarly, all foundation tags were associated with soil movement. We note that while soil movement may pose risk to the structural integrity of tower foundations, further inspection is required to assess whether soil movement actually resulted in damage to any components. A closer examination of both cold-end hardware / wear tags and foundation/soil movement tags is provided in the following section.

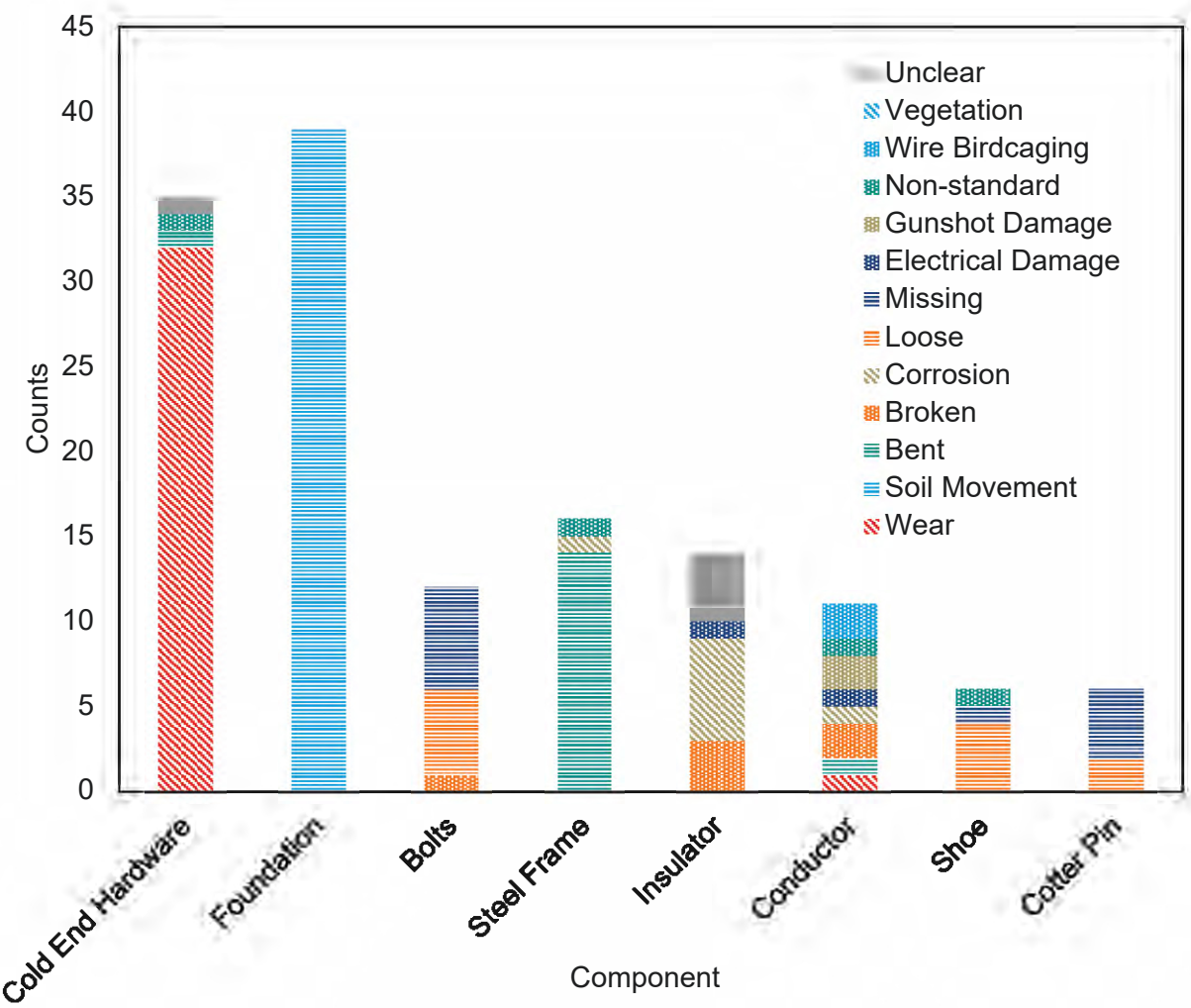


Figure 7. Breakdown of post–Camp Fire Caribou-Palermo high-priority tags by component type and damage mode.

Cold-End Hardware and Foundation Tags

"Cold-end hardware" in this report refers both to the connector (e.g., link, c-hook, y-clevis, etc.) attached to an insulator string and to the hanger plate or shackle on the tower to which the connector attaches. Repeated relative motion between the connector and the eye of the hanger plate (or shackle) gradually wears away material from both. Photographs of cold-end hardware wear are shown in Figure 8, evidenced by the elongation of initially circular hanger-plate eyes. Over time, reduced thickness of the connector and hanger-plate from cumulative wear can result in strength reduction of both components.

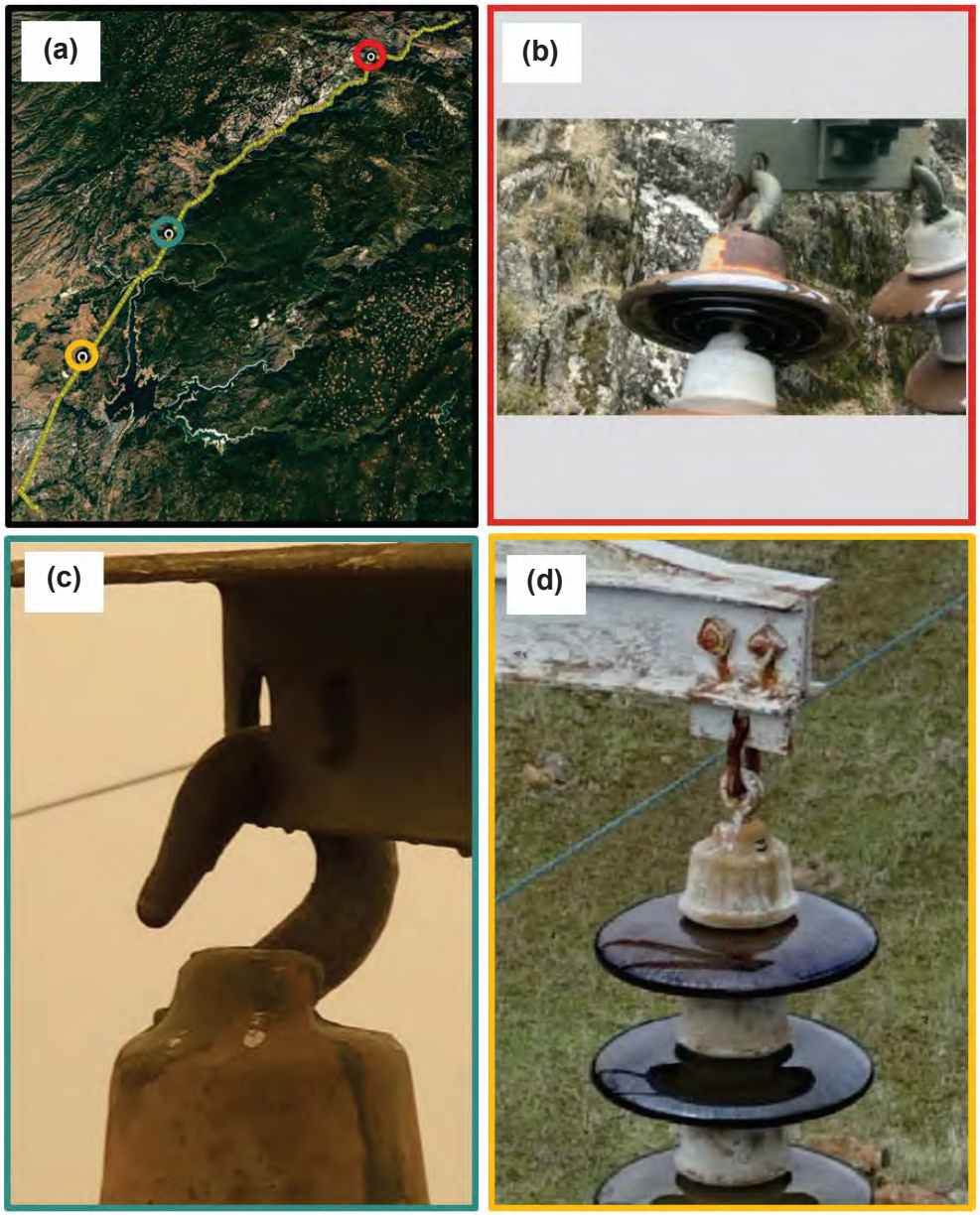


Figure 8. Representative photographs of cold-end hardware wear associated with high-priority tags at the locations marked in (a), for (b) northern segment of the Caribou-Palermo line (SAP# 40910322), (c) middle of the line (SAP# 40591574), and (d) the southern region of the line (SAP# 40689950).

Representative photographs of soil movement around tower foundations that led to post–Camp Fire high-priority "B" tags on Caribou-Palermo are shown in Figure 9. For the three examples shown, tags were generated due to burial of the tower footings or steel lattice members. This type of soil coverage can increase the risk of corrosion of buried steel components. However, unlike wear, soil movement does not necessarily represent tower damage. Further assessment would be required to determine if soil movement associated with high-priority tags resulted in damage.

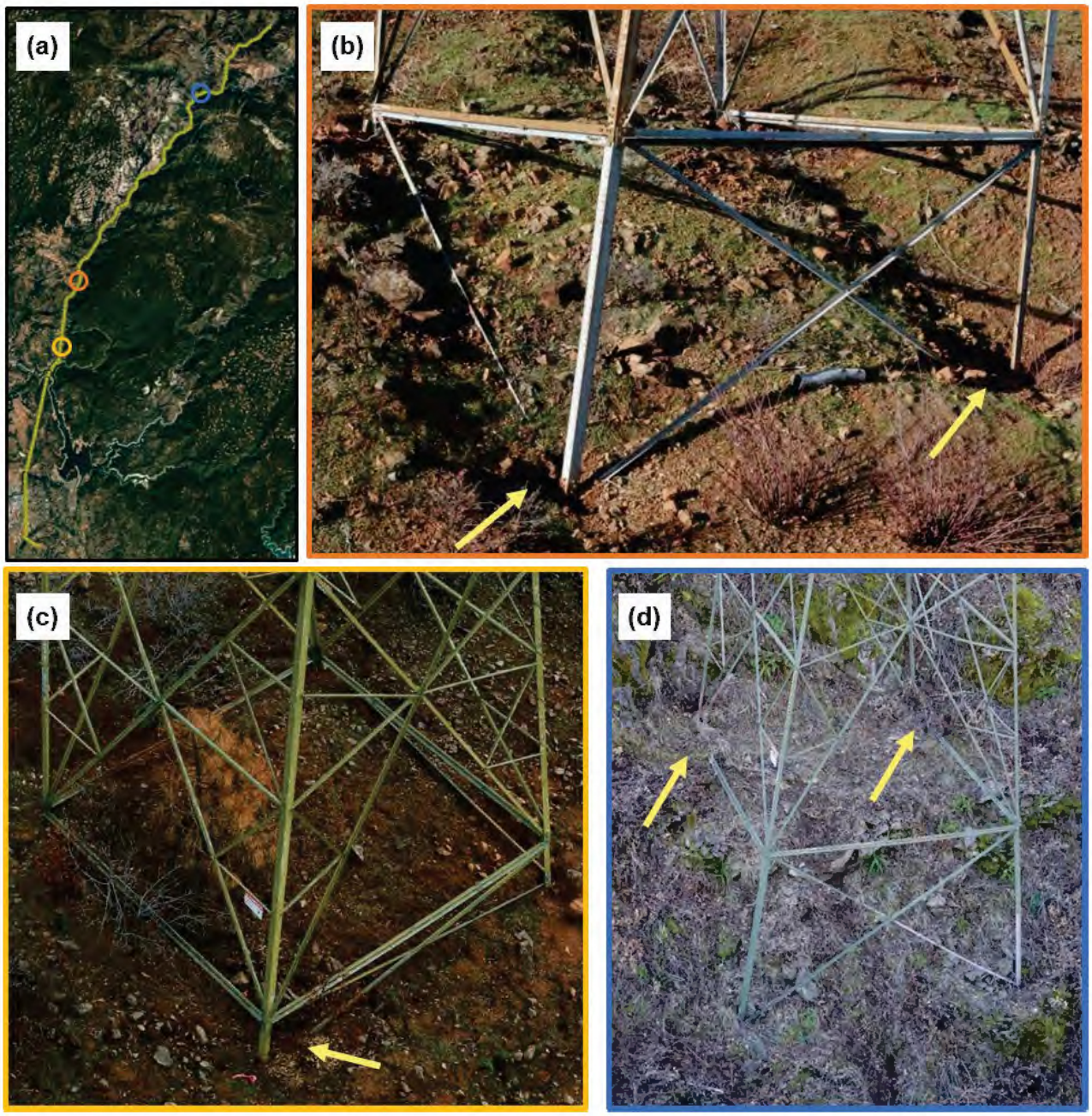


Figure 9. Representative photographs of soil movement around tower foundations associated with high-priority tags on Caribou-Palermo at the locations marked in (a), for (b) SAP# 40770937, (c) SAP# 40599306, and (d) SAP# 40910316.

No apparent correlation was found between cold-end hardware and foundation tags. The locations of high-priority tags associated with cold-end hardware / wear or foundation/soil movement are mapped in Figure 10. The majority of the foundation/soil movement tags were clustered just north of Lake Oroville. Cold-end hardware / wear tags were distributed along the length of Caribou-Palermo, both north and south of Lake Oroville.

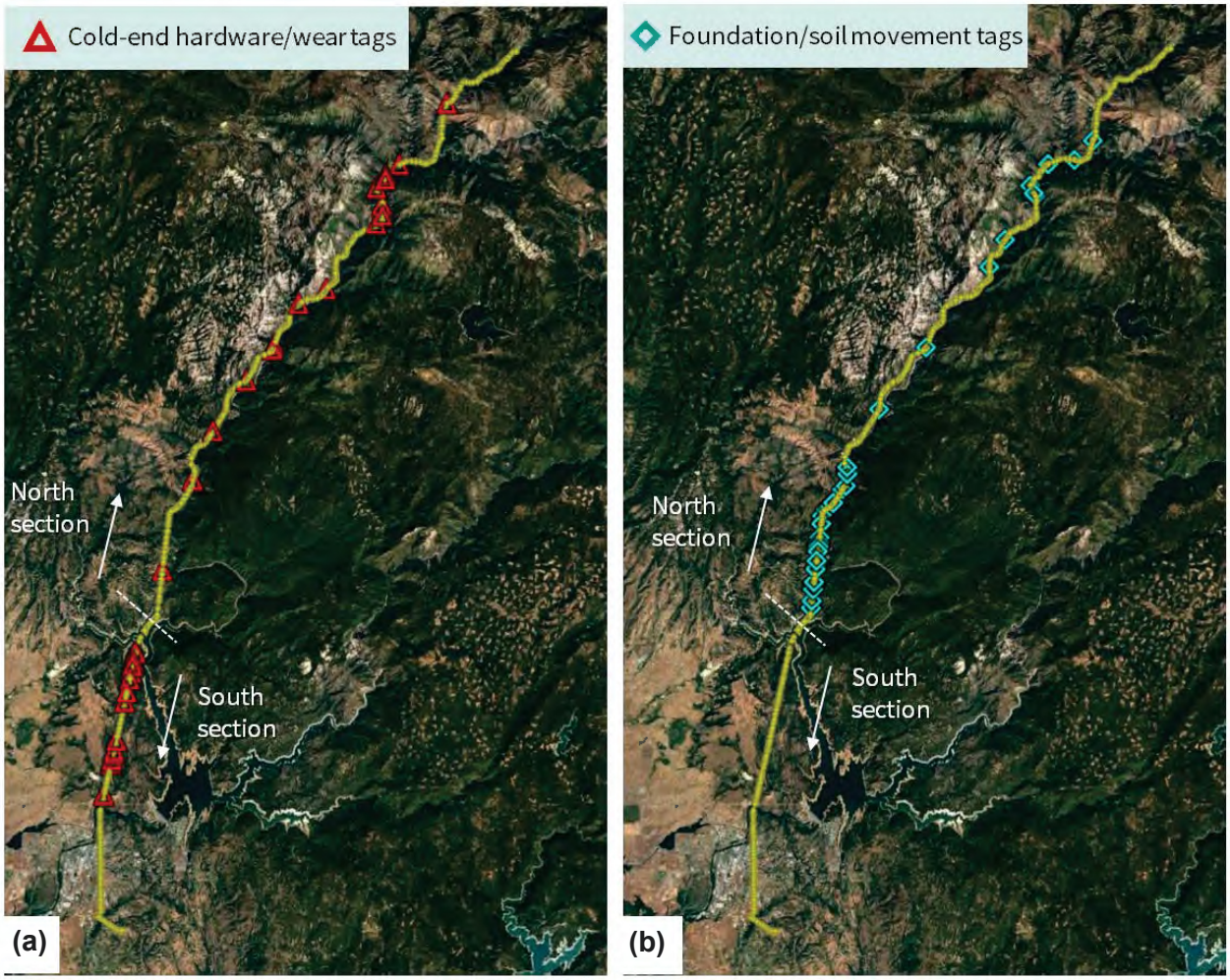


Figure 10. Maps of post–Camp Fire high-priority (a) cold-end hardware / wear tags and (b) foundation/soil movement tags on Caribou-Palermo.

Comparison Line Post-Camp Fire Tag Analysis

A similar tag binning analysis was conducted on the full set of 28 comparison lines. All WSIP "A" and "B" tags from November 9, 2018, to June 19, 2019, were reviewed and binned into the component and damage mode categories described above.

Figure 11(a) compares the overall high-priority tag count between Caribou-Palermo and the comparison lines. The Caribou-Palermo line had substantially more high-priority tags than any other comparison line; however, Caribou-Palermo also contained an above-average number of steel lattice towers, and steel lattice towers over 1,000 feet. The overall number of steel lattice towers and steel lattice towers over 1,000 feet (obtained from Google Earth) are shown in Figure 12. The normalized tag count at each priority level for Caribou-Palermo and the other comparison lines is shown in Figure 13.

The Caribou-Palermo line exhibited a higher normalized high-priority ("A" + "B") post–Camp Fire tag count than all other comparison lines, as shown in Figure 13. Furthermore, three of the four lines with the next highest normalized tag counts are located adjacent to Caribou-Palermo in (or near) the North Fork Feather River Canyon: Bucks Creek–Rock Creek–Cresta (BCRC), Paradise–Table Mountain (PTM), and Cresta–Rio Oso (CRO).

The portion of the PTM line which extends southward from the Big Bend substation (just north of Lake Oroville) was originally part of the Caribou-Valona line. This line was installed in 1921 and contains similar towers to Caribou-Palermo North with respect to design, vintage, and conductor type. Although this portion of PTM contains similar towers to Caribou-Palermo North, fewer high-priority tags were created, as shown in Figure 11. Upon normalizing by the number of steel lattice towers, the number of high-priority tags on PTM is closer to the Caribou-Palermo count, though still lower, as shown in Figure 13. The smaller number of high-priority tags may be due to the fact that this portion of PTM is at lower elevation with lower wind speeds compared to Caribou-Palermo North, as shown in the Environmental Conditions section of this report.

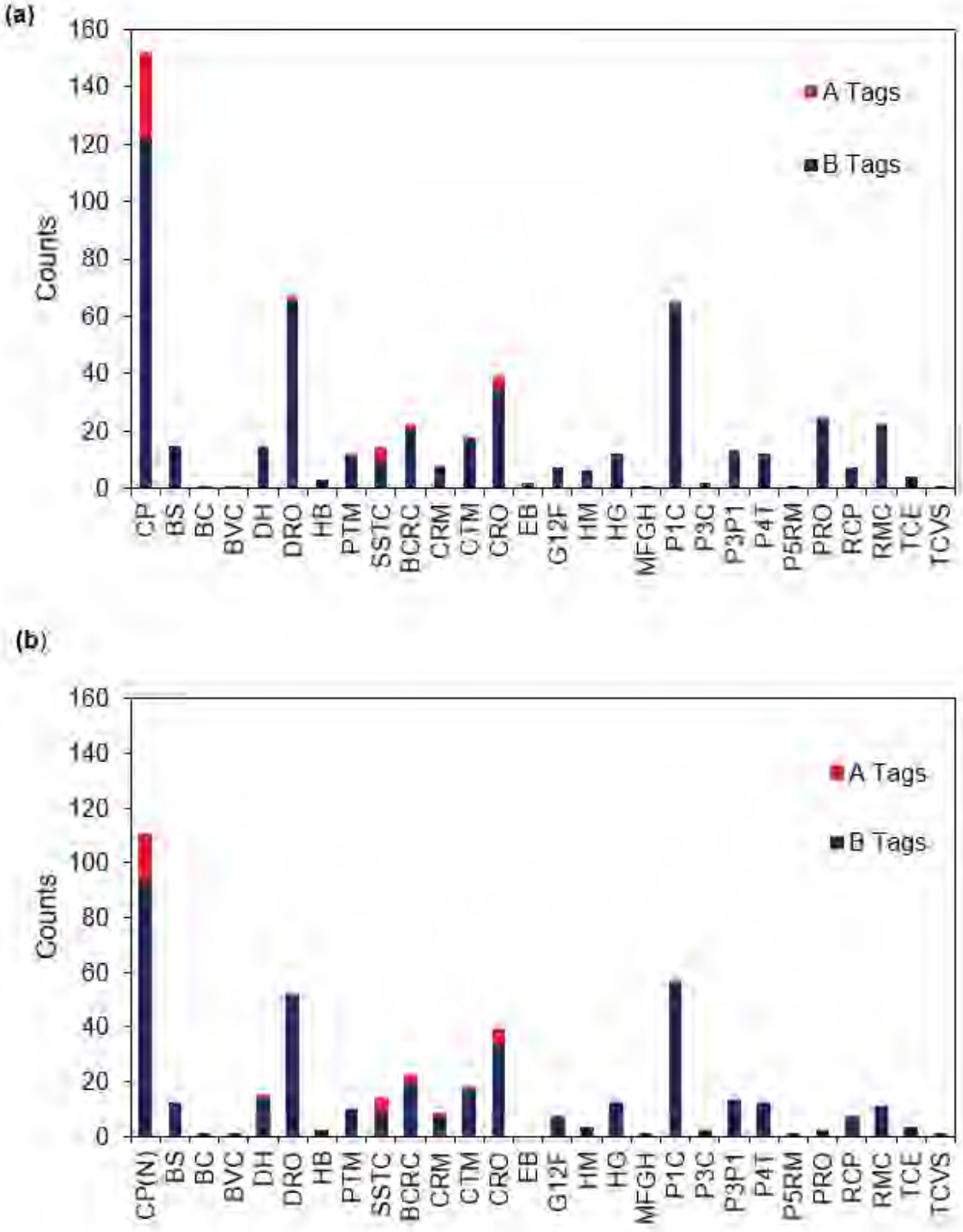


Figure 11. Total post–Camp Fire tag count for Caribou-Palermo and comparison lines on (a) all steel lattice towers, and (b) all steel lattice towers above 1,000 feet.

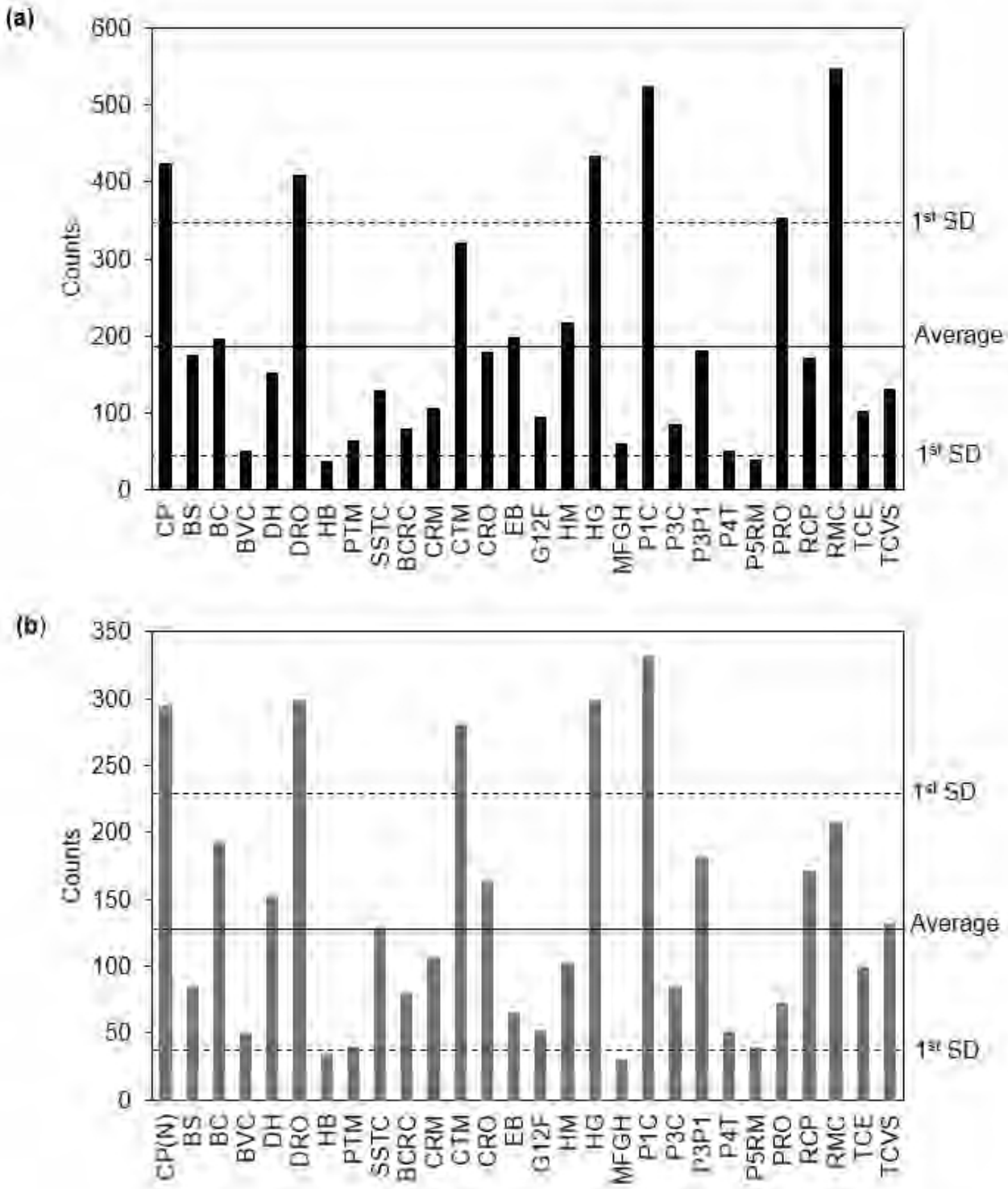


Figure 12. Total counts of (a) all steel lattice towers and (b) all steel lattice towers over 1,000 feet on Caribou-Palermo and comparison lines. The double-to-single circuit transition is estimated at 1,000 feet for all lines except Caribou-Palermo. SD is standard deviation.

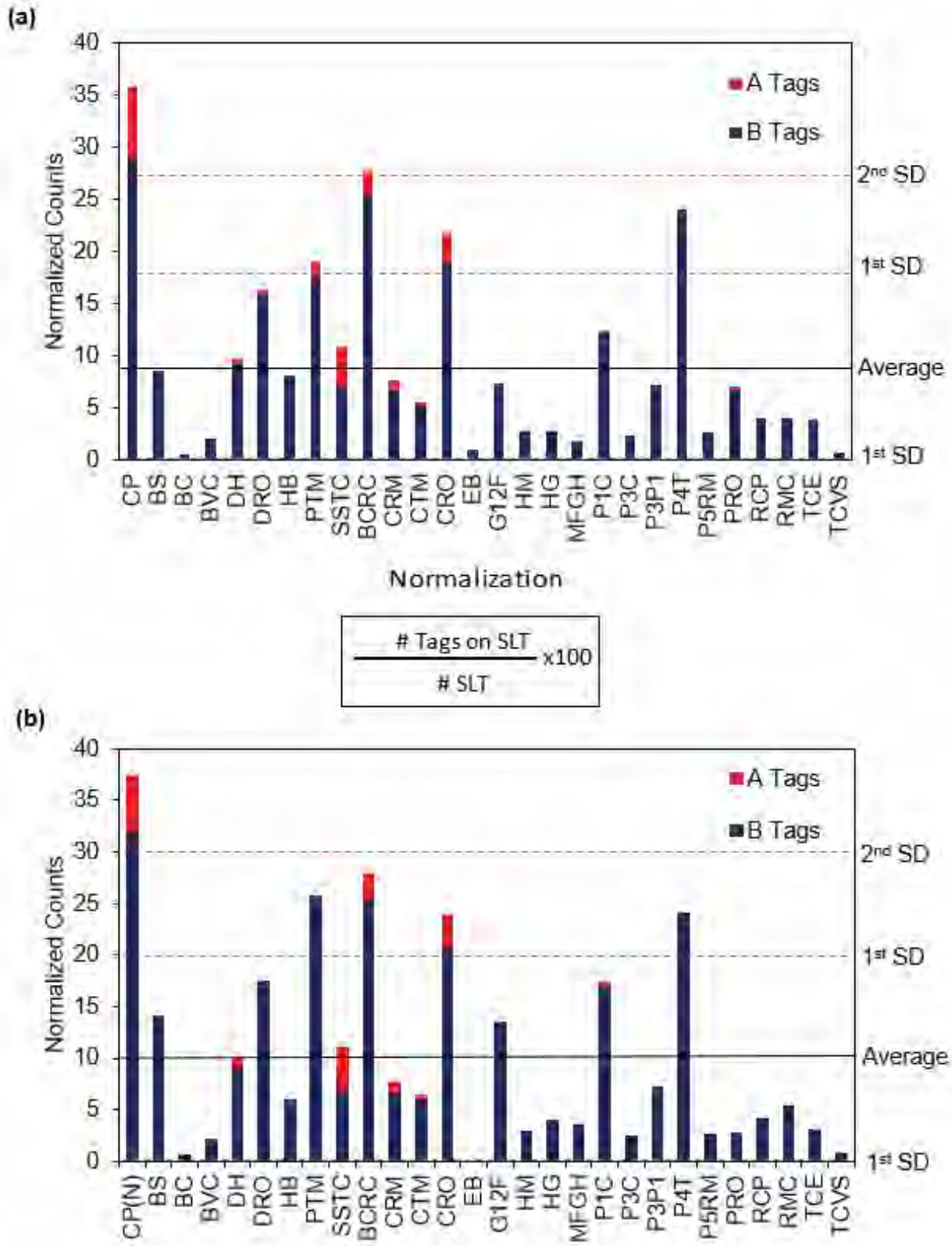


Figure 13. Normalized post–Camp Fire tag rate for Caribou-Palermo North (CP(N)) and comparison lines considering (a) steel lattice towers, and (b) steel lattice towers above 1,000 feet. SLT is steel lattice tower, SD is standard deviation.

Cold-End Hardware Tag Comparison

Figure 14 shows the counts of post–Camp Fire "A" and "B" tags associated with cold-end hardware on all comparison lines. The absolute count of cold-end hardware tags on Caribou-Palermo greatly exceeds that of any other comparison line; however, after normalizing by the number of steel lattice structures in each line, two other lines, Bucks Creek–Rock Creek–Cresta (BCRC) and Cresta–Rio Oso (CRO), are found to have comparable normalized counts of cold-end hardware tags, shown in Figure 15. These three lines, all located in the North Fork Feather River Canyon, exhibit significantly more post–Camp Fire cold-end hardware / wear tags than any of the other comparison lines. Examples of cold-end hardware / wear are shown in Figure 8.

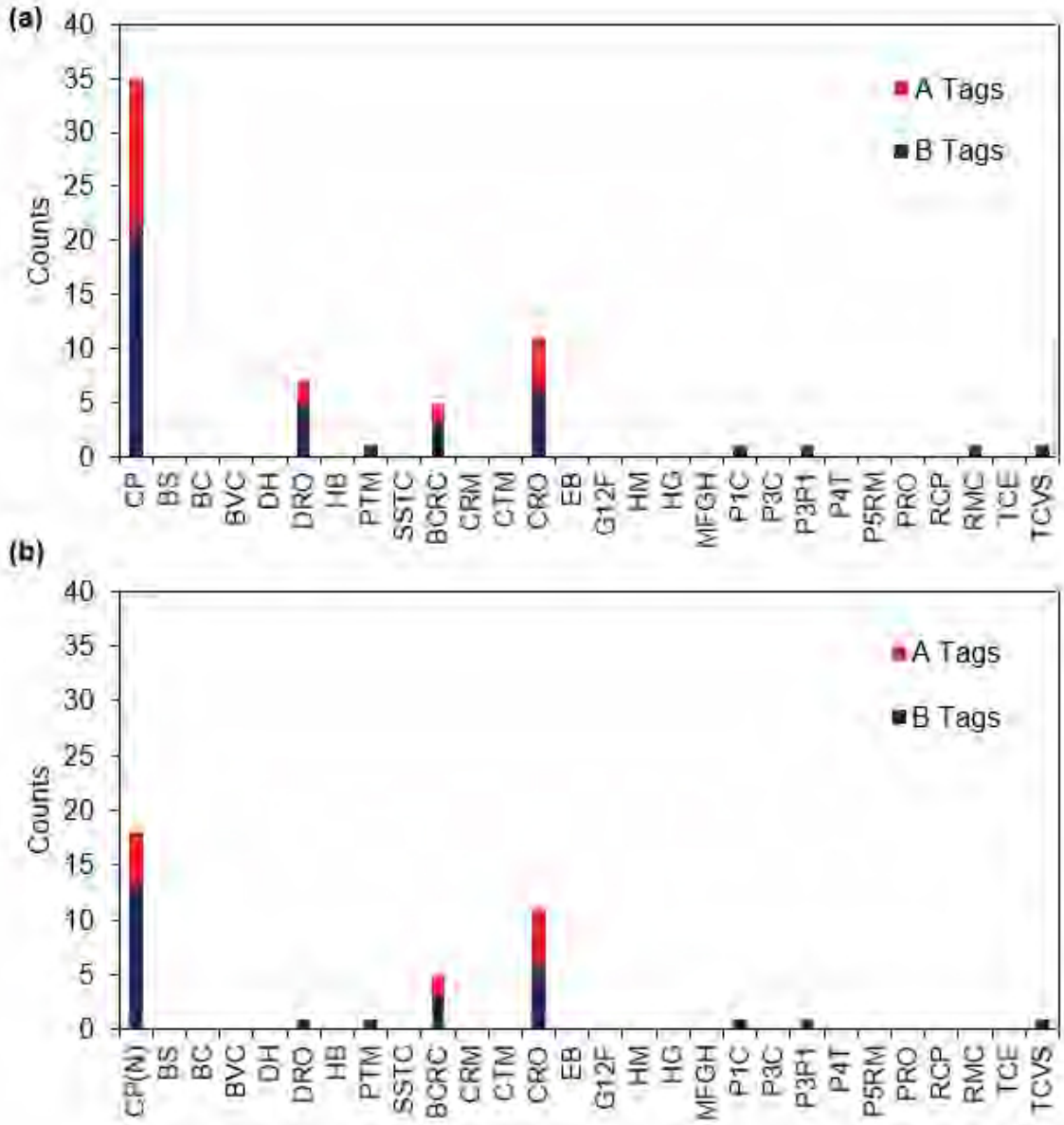


Figure 14. Total counts of post–Camp Fire cold-end hardware tags for Caribou-Palermo (CP) and comparison lines for (a) steel lattice towers and (b) steel lattice towers over 1,000 feet of elevation.

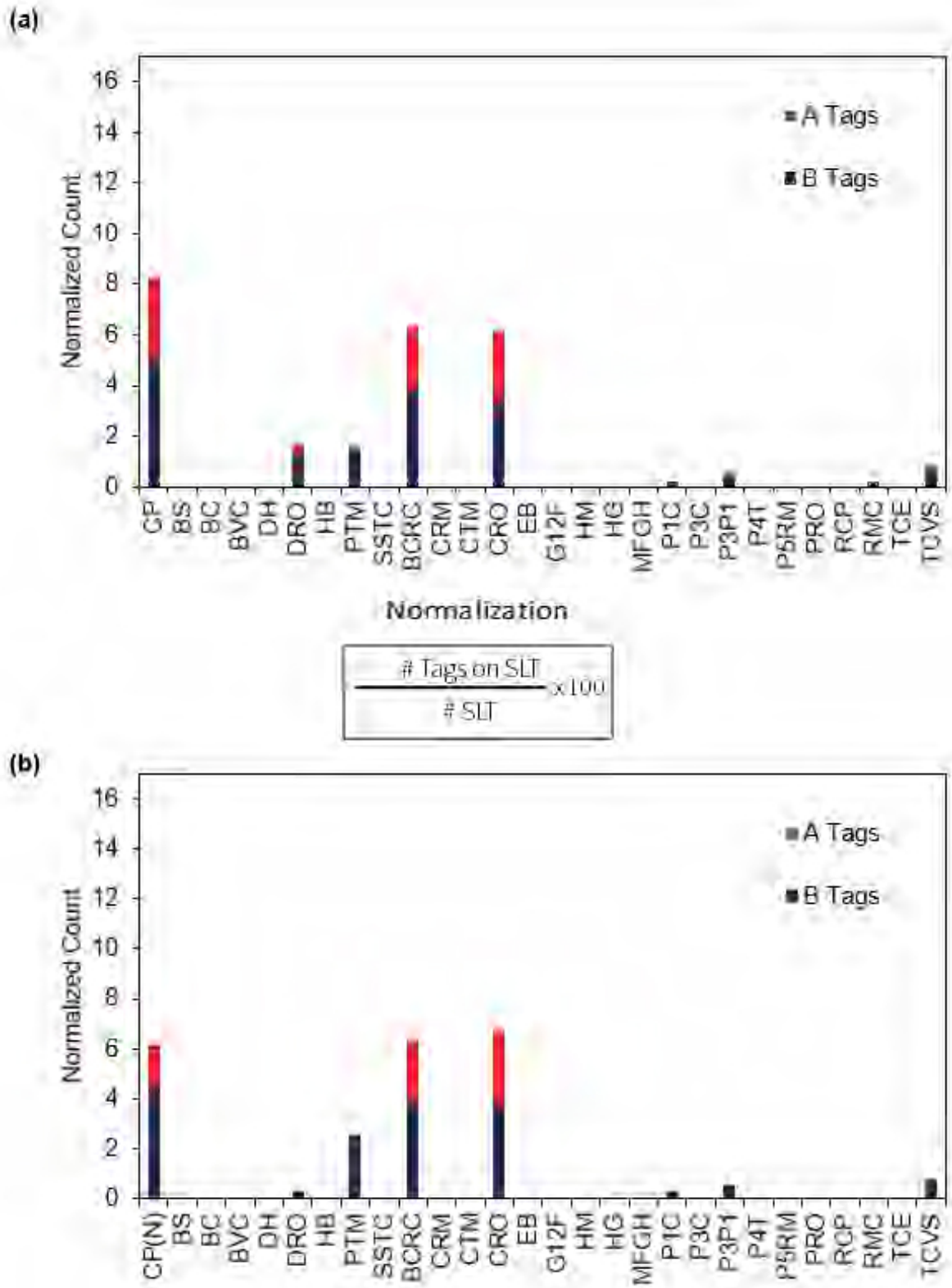


Figure 15. Normalized post–Camp Fire cold-end hardware tag counts for Caribou-Palermo (CP) and comparison lines for (a) steel lattice towers and (b) steel lattice towers over 1,000 feet of elevation. SLT is steel lattice tower.

Foundation Tag Comparison

The most common Caribou-Palermo high-priority "B" tag was associated with buried foundations. Although Caribou-Palermo had roughly twice the number of buried foundation tags as the next highest comparison line, when normalized for the number of steel lattice towers Caribou-Palermo had a comparable number of foundation tags to other lines in the North Fork Feather River Canyon such as Bucks Creek–Rock Creek–Cresta (BCRC) and Cresta–Rio Oso (CRO), as shown in Figure 16.

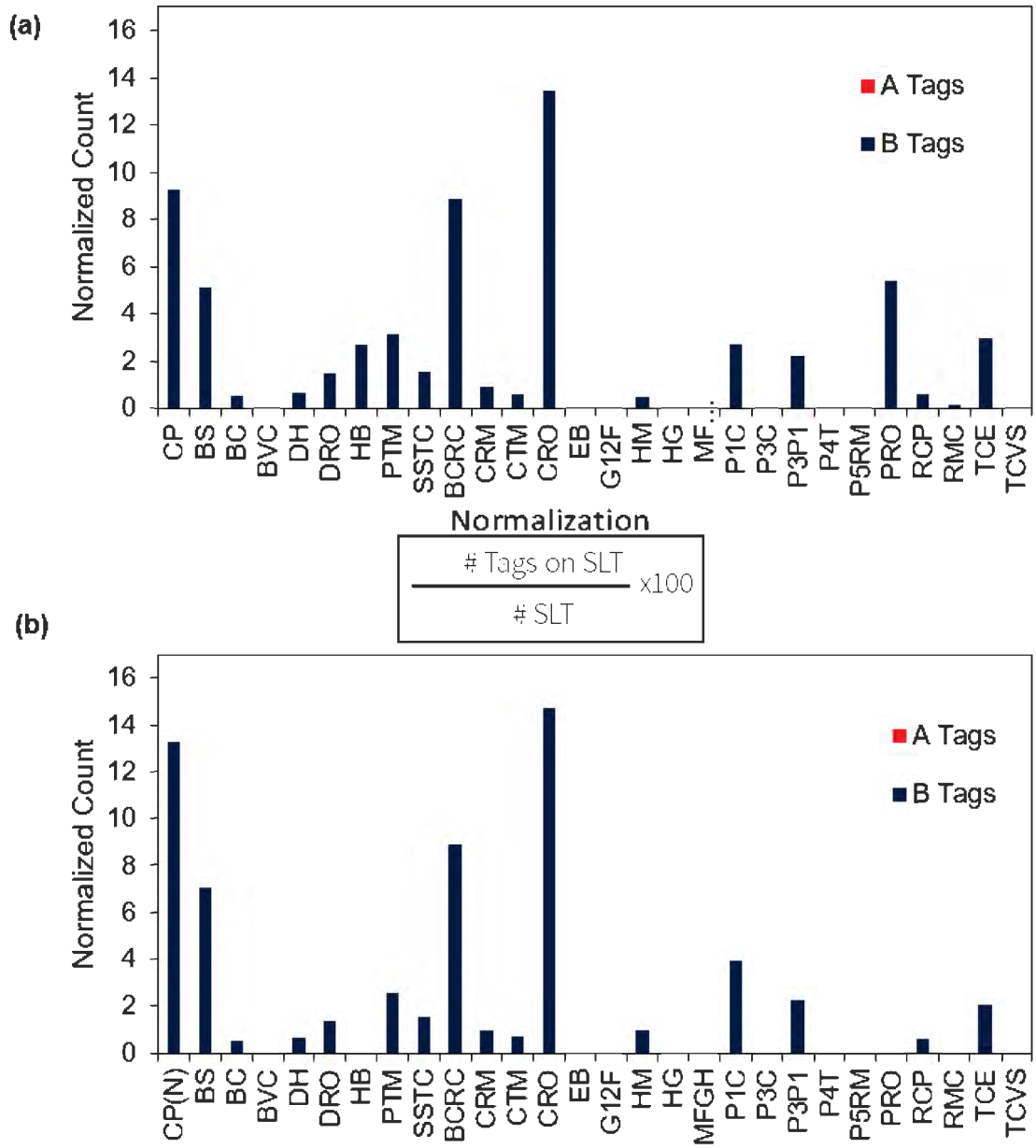


Figure 16. Normalized count of tags associated with foundation tags for Caribou-Palermo (CP) comparison lines for (a) steel lattice towers and (b) steel lattice towers over 1,000 feet of elevation. SLT is steel lattice tower, SD is standard deviation.

Post–Camp Fire Hardware Analysis

Connection Type

Available drone photos were used to determine the type of cold-end insulator hardware on each Caribou-Palermo tower, as well as selected available comparison lines as described in the methodology section. More than 4,000 insulator attachment points were categorized on Caribou-Palermo, CRO, DH, DRO, PTM, and BCRC lines. The numbers of each connection type on Caribou-Palermo South and on Caribou-Palermo North are shown in Figure 17. This analysis shows that the link style connection was unique to Caribou-Palermo South and was not found on Caribou-Palermo North or any of the comparison lines. Example link connections are shown in Figure 18.

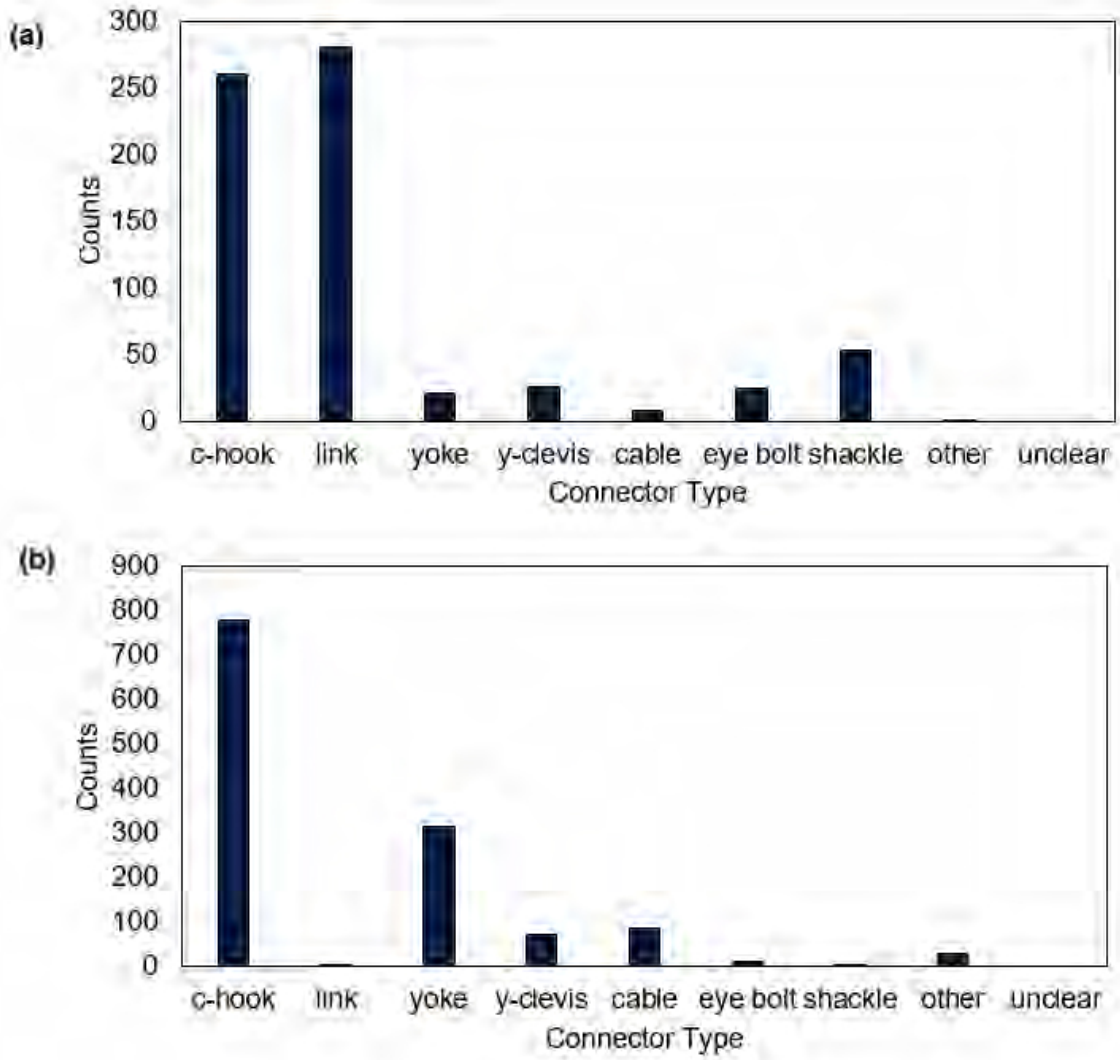


Figure 17. Counts of insulator connection types present on (a) Caribou-Palermo South and (b) Caribou-Palermo North.

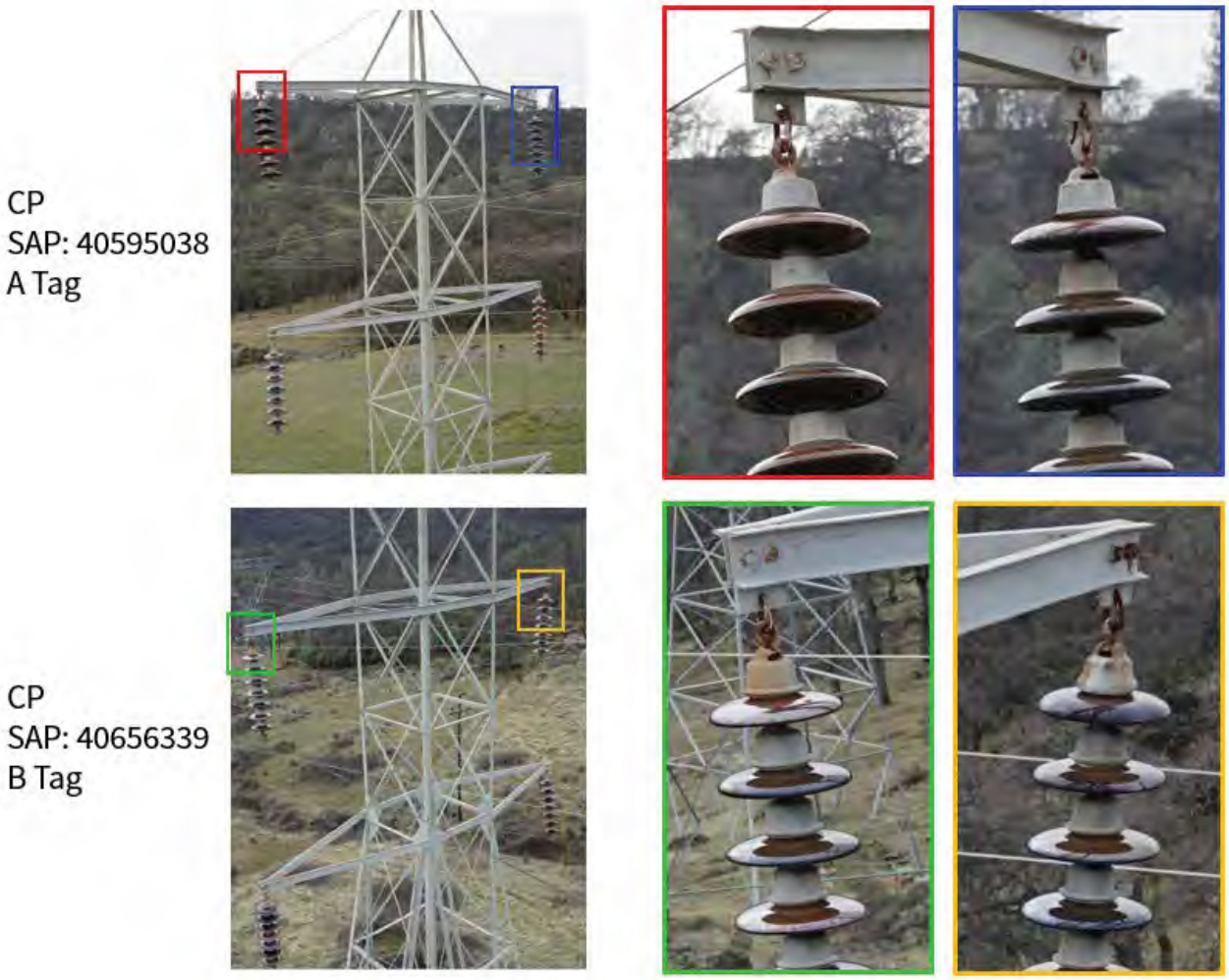


Figure 18. Representative photographs of link connections found on steel lattice towers on Caribou-Palermo South.

Approximately half of the Caribou-Palermo South steel lattice towers contained link connections. However, all of the high-priority Caribou-Palermo South cold-end hardware / wear tags were on structures with link connections (Figure 19). For cases in which a tagged structure contained multiple connection types, the link connection was determined to be the connection likely associated with the wear tag, based on inspector text and photographs of each connection.

Link connections were originally installed on the Great Western Power Company Line #1 (present-day Caribou-Palermo South) as early as 1908.[3] According to design books, both C-hook connections and link connections were utilized in construction of historical transmission lines that included portions of Caribou-Palermo. Technical drawings from these design books indicate that links generally have smaller dimensions than C-hooks (Figure 20), leading to smaller contact area between the connector and the tower attachment point. Distribution of load

[3] Date determined from conversations with PG&E subject matter expert.

across a smaller area could increase the link wear rate, and may contribute to the higher incidence of cold-end hardware / wear tags associated with links compared to C-hooks on Caribou-Palermo South. A plot of the link connection locations along the length of Caribou-Palermo is shown in Figure 21.

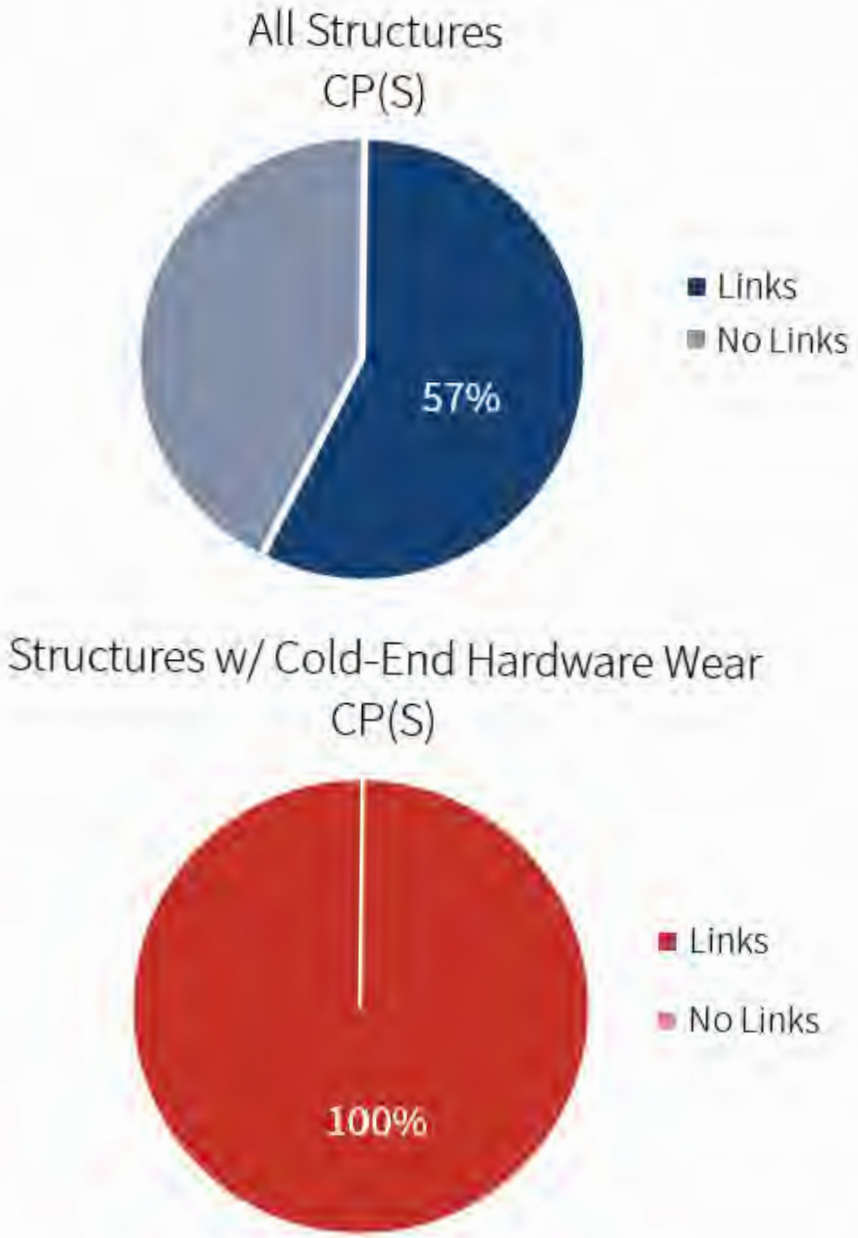


Figure 19. Of the post–Camp Fire drone-inspected steel lattice towers on Caribou-Palermo South, approximately 57 percent contained one or more link connections. However, all 14 of the high-priority cold-end hardware / wear tags on Caribou-Palermo South were on structures with link connections.

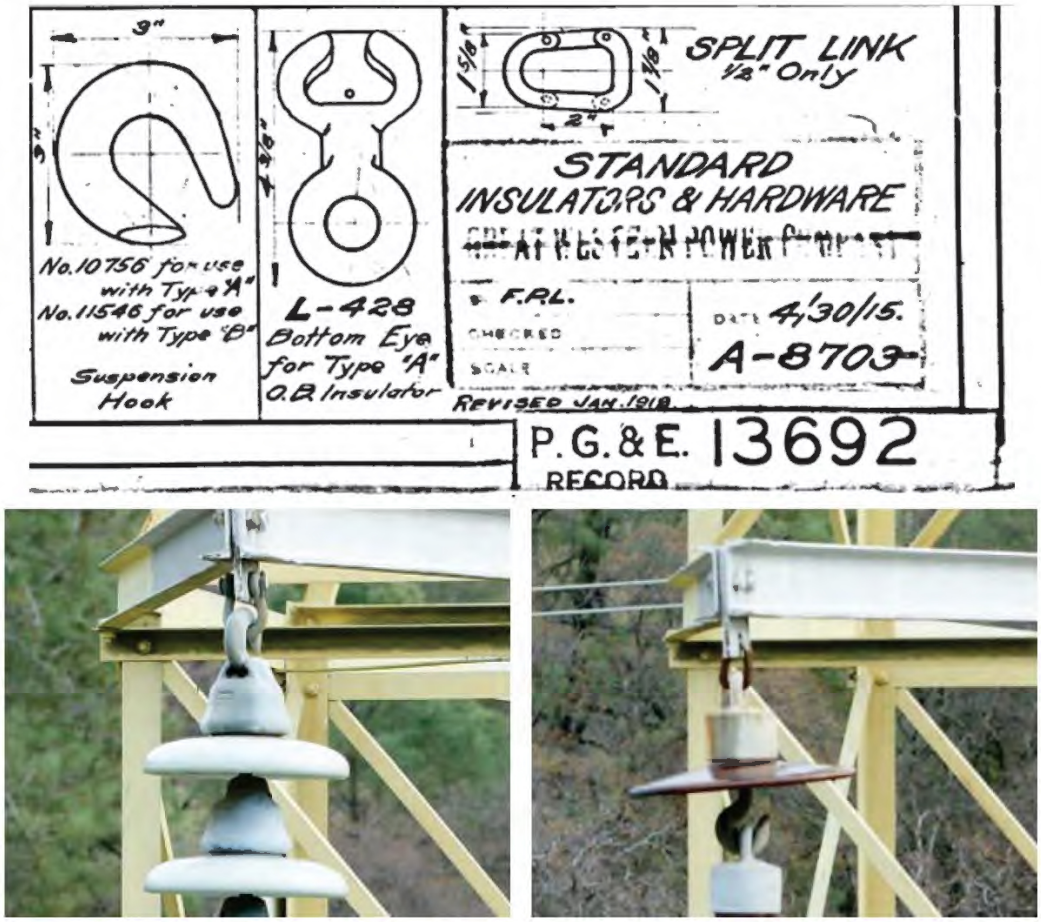


Figure 20. Design book drawing from 1918 showing C-hooks and link connections used during this time (top), and photograph of C-hooks and link connections used on Tower 007/061 on Caribou-Palermo South (bottom).

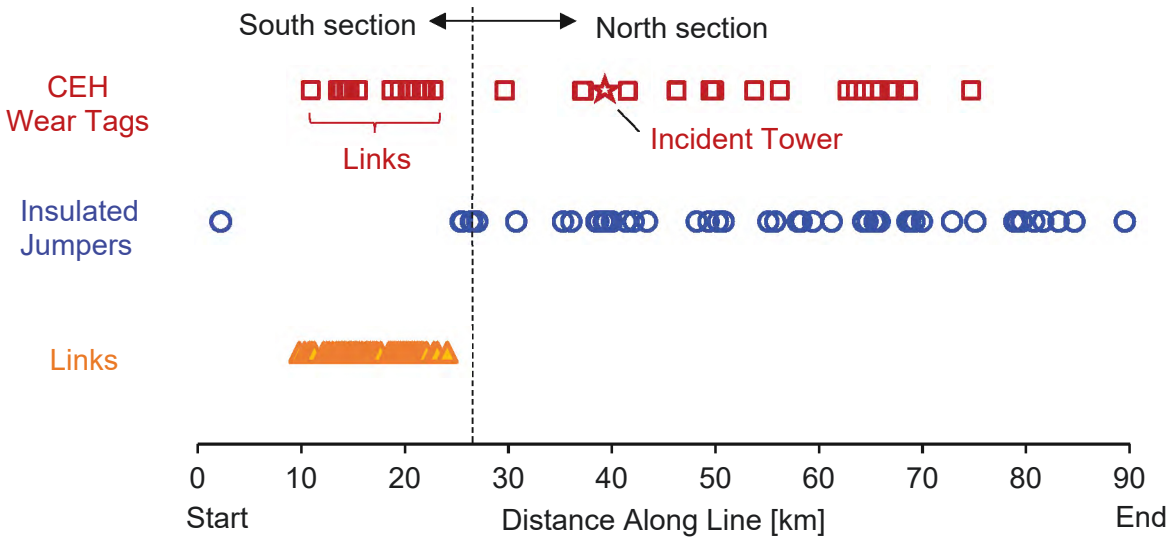


Figure 21. High-priority cold-end hardware / wear tags mapped in conjunction with link connectors and insulated jumpers on Caribou-Palermo.

Insulated Jumper Analysis

Dead-end insulators require a jumper to electrically connect the two ends of the conductor. In some instances, such as when conductors are transposed (when their positions are swapped to equalize mutual inductance and impedance), or the jumper is at risk of contacting the tower, an insulator is used to suspend the jumper away from the tower, preventing undesirable jumper-tower contact. In regions such as the North Fork Feather River Canyon, jumper insulators are more common and may be associated with the increase in cold-end hardware / wear tags, as discussed below and shown in Figure 21. Example photographs of worn cold-end hardware on jumper insulators are shown in Figure 22.

Caribou-Palermo
North
SAP: 40747408
B Tag

CRO
SAP: 40911292
B Tag

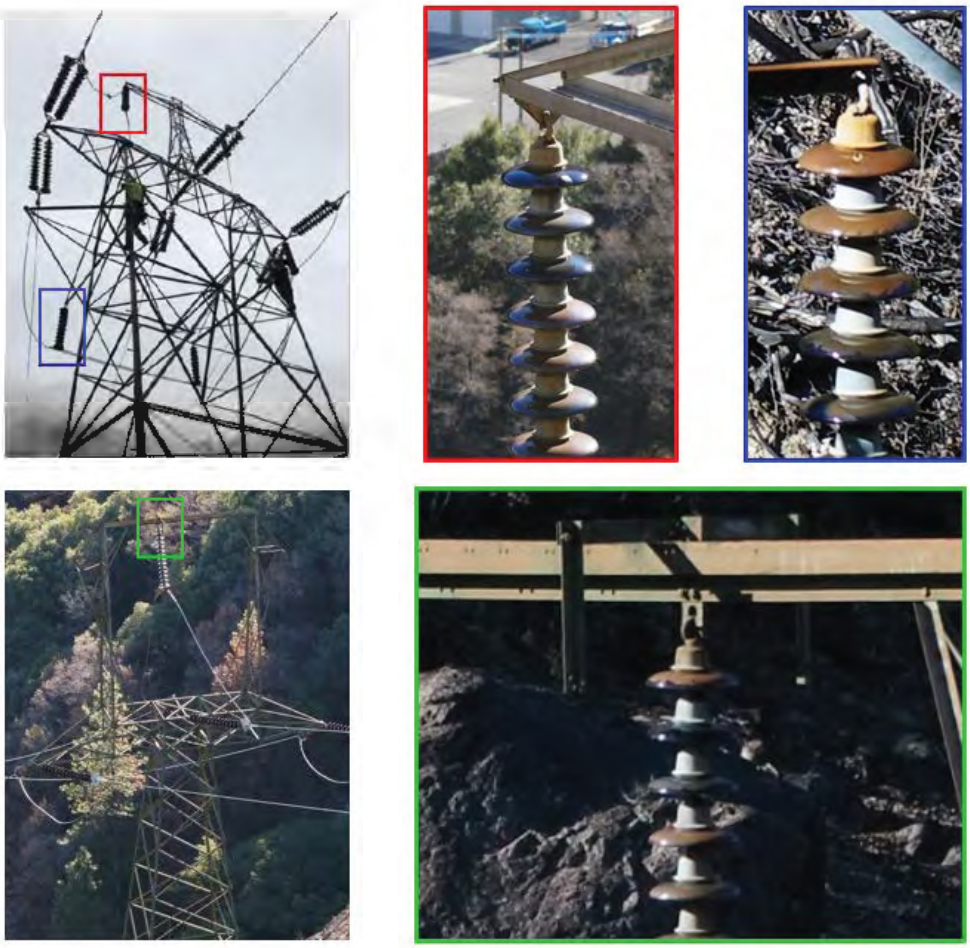


Figure 22. Representative jumper insulator cold-end hardware / wear tags within the North Fork Feather River Canyon.

Using the post–Camp Fire drone inspection data, the hot end (conductor end) of each insulator-to-tower attachment point was characterized as attaching to either the main line or a jumper. Insulators connected to jumpers on Caribou-Palermo were found primarily on Caribou-Palermo North, as shown in Figure 21. Roughly one-sixth of Caribou-Palermo North structures contained insulated jumpers. However, more than 60 percent of the high-priority cold-end hardware / wear tags on Caribou-Palermo North were associated with structures that contained insulated jumpers, as shown in Figure 23.

Suspended insulators attached to the jumpers are likely not subjected to Aeolian vibration conditions traditionally associated with tensioned conductors. Rather, insulated jumper connector wear is likely the result of greater freedom of movement between the conductor/insulator couple and the tower, specifically due to the low jumper line tension. A breakdown of Caribou-Palermo North structures with cold-end hardware / wear tags is given in Figure 24.

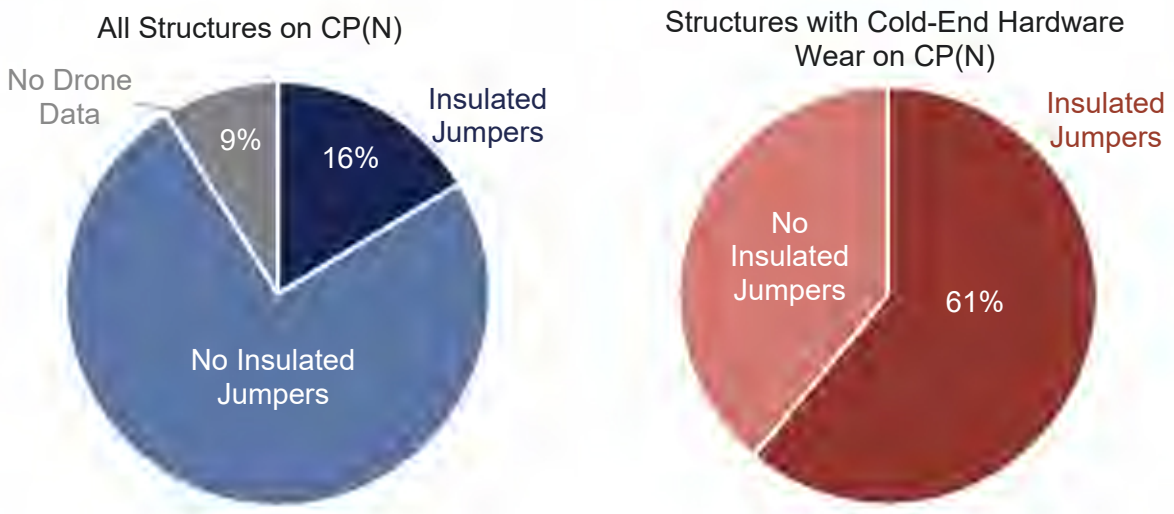


Figure 23. Pie charts showing the percentage of post–Camp Fire structures with insulated jumpers on Caribou-Palermo North (left), compared to the number of structures with insulated jumpers with cold-end hardware / wear tags (right).

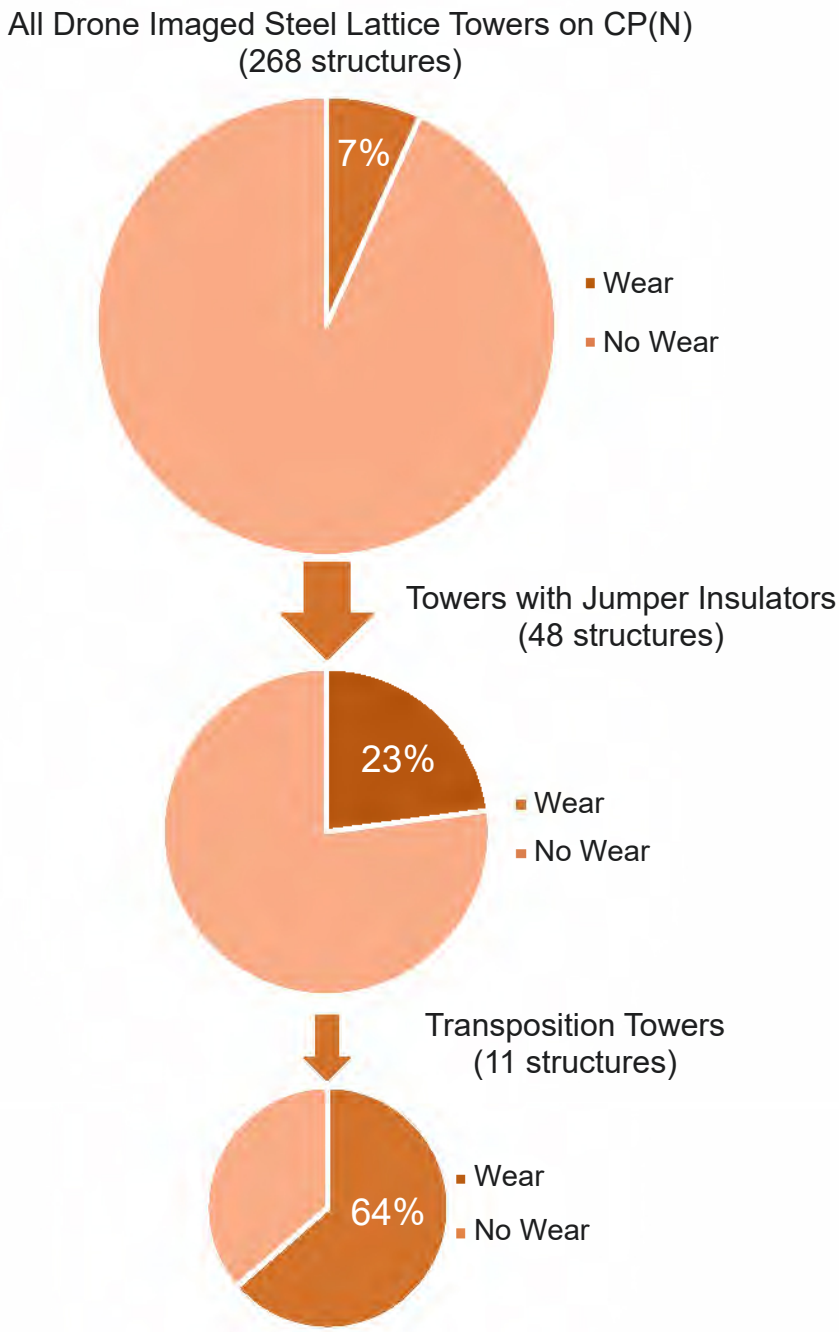


Figure 24. Breakdown of Caribou-Palermo North cold-end hardware / wear tag rates for all steel lattice towers, all steel lattice towers with jumper insulators, and all transposition towers. All transposition towers on Caribou-Palermo North contain jumpers attached to insulators.

Normalized counts of insulators attached to jumpers for the Caribou-Palermo, Cresta–Rio Oso (CRO), Drum-Higgins (DH), Drum–Rio Oso (DRO), Paradise–Table Mountain (PTM), and Bucks Creek–Rock Creek–Cresta (BCRC) lines are shown in Figure 25, as determined from post–Camp Fire drone inspection data. We note that normalized counts for PTM and BCRC were determined from a relatively small number of steel lattice towers, based on the available drone inspection photos at the time of analysis. CRO and BCRC, which exhibited high normalized counts of cold-end hardware / wear, comparable to Caribou-Palermo (Figure 15), also have high normalized counts of insulated jumpers. Of the 16 high-priority cold-end hardware / wear tags on BCRC and CRO, nine (56%) were associated with insulators attached to jumpers.

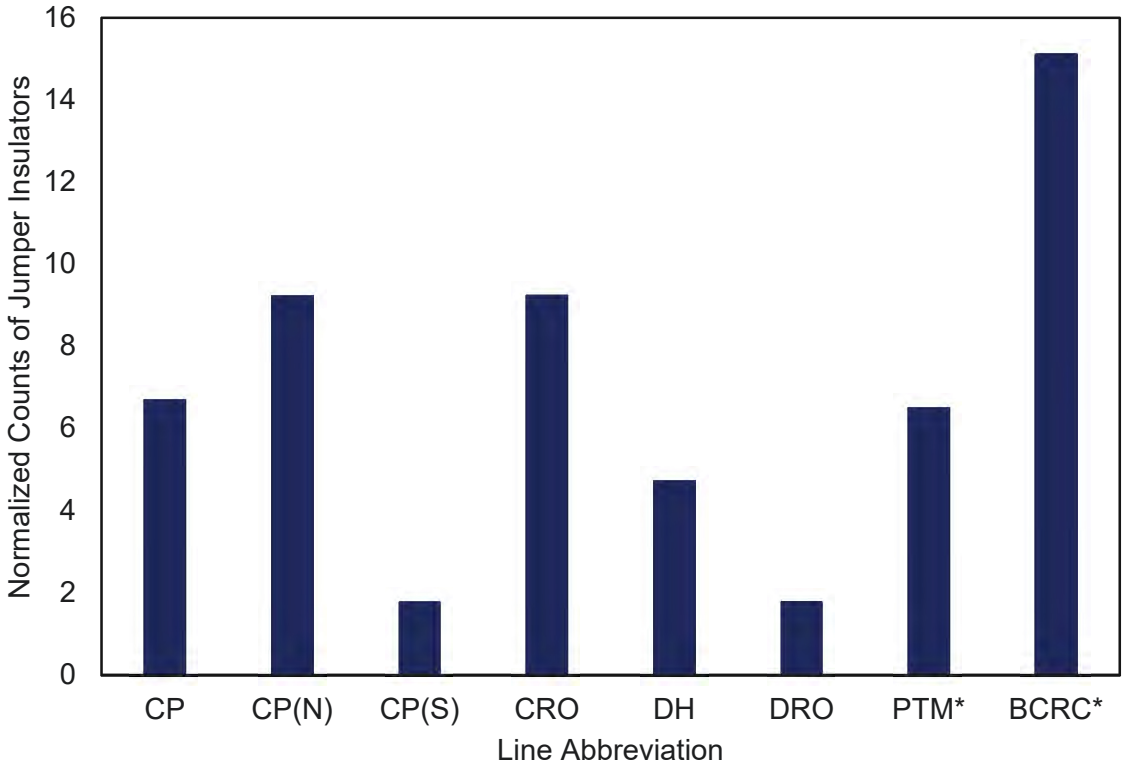


Figure 25. Normalized counts of insulated jumpers on Caribou-Palermo (CP) and selected comparison lines. Counts of insulators attached to jumpers were normalized by the total number of drone-inspected insulator-tower attachment points as of May 13, 2019, and multiplied by 100. (* Fewer than 21 drone-inspected steel lattice towers as of May 13, 2019.)

Transposition Towers

The Caribou-Palermo tower reportedly associated with the Camp Fire (Tower :027/222) was a transposition tower, and the incident C-hook was reportedly on an insulator attached to a jumper rather than the main line. Photos of Tower :027/222 are shown in Figure 26. Caribou-Palermo North transposition towers contained jumpers attached to suspended insulators. Eleven transposition towers were identified on Caribou-Palermo North, and seven of these (64 percent)

were given high-priority cold-end hardware / wear tags following the Camp Fire. Transposition towers and cold-end hardware / wear tags are mapped in Figure 27. These seven wear tags represent 39 percent of the cold-end hardware / wear tags on Caribou-Palermo North. Each of these Caribou-Palermo North transposition towers contains a steel bar that bridges two jumper insulators, shown in Figure 28. This specific assembly appears to be unique to Caribou-Palermo North and PTM, and its role in long-term cold-end hardware wear is unknown at this time. The southern portion of PTM contained two transposition towers with similar construction to the incident transposition tower :027/222. One of these two PTM towers had a "B" priority cold-end hardware related wear tag. Neighboring BCRC and CRO transposition towers have a similar bridging bar on transposition towers. However, the bar does not appear to pass through the shoe as in the Caribou-Palermo North transposition towers.

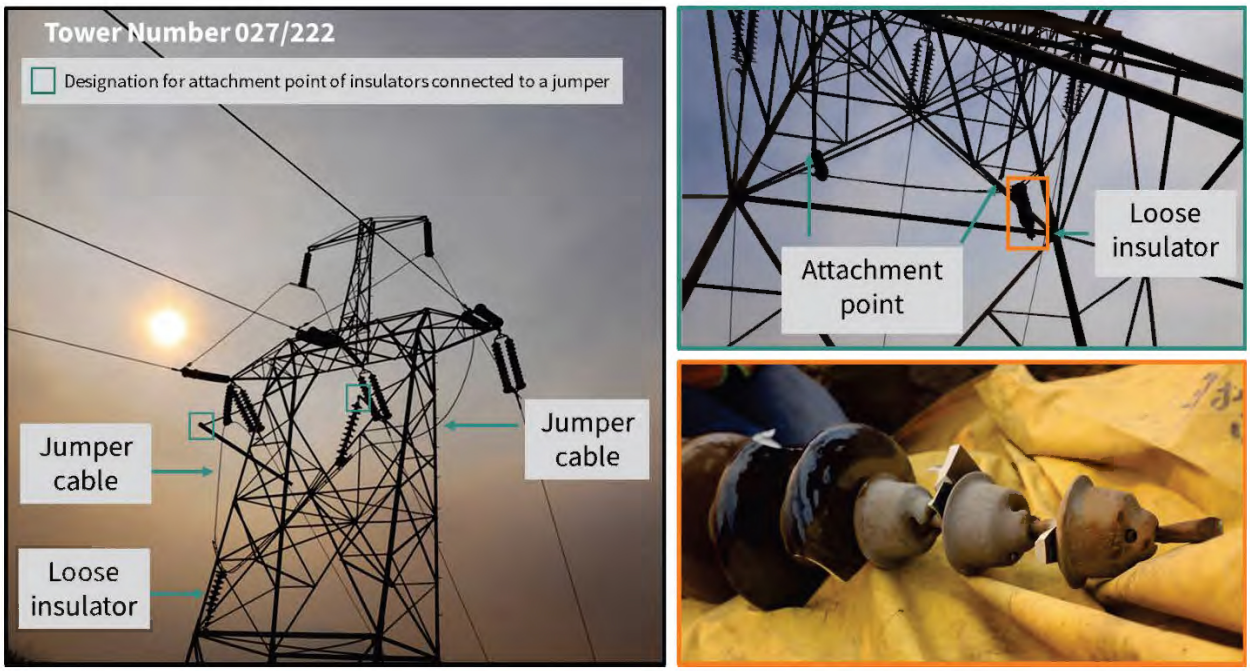


Figure 26. Images of the incident Tower :027/222 after the 2018 Camp Fire.

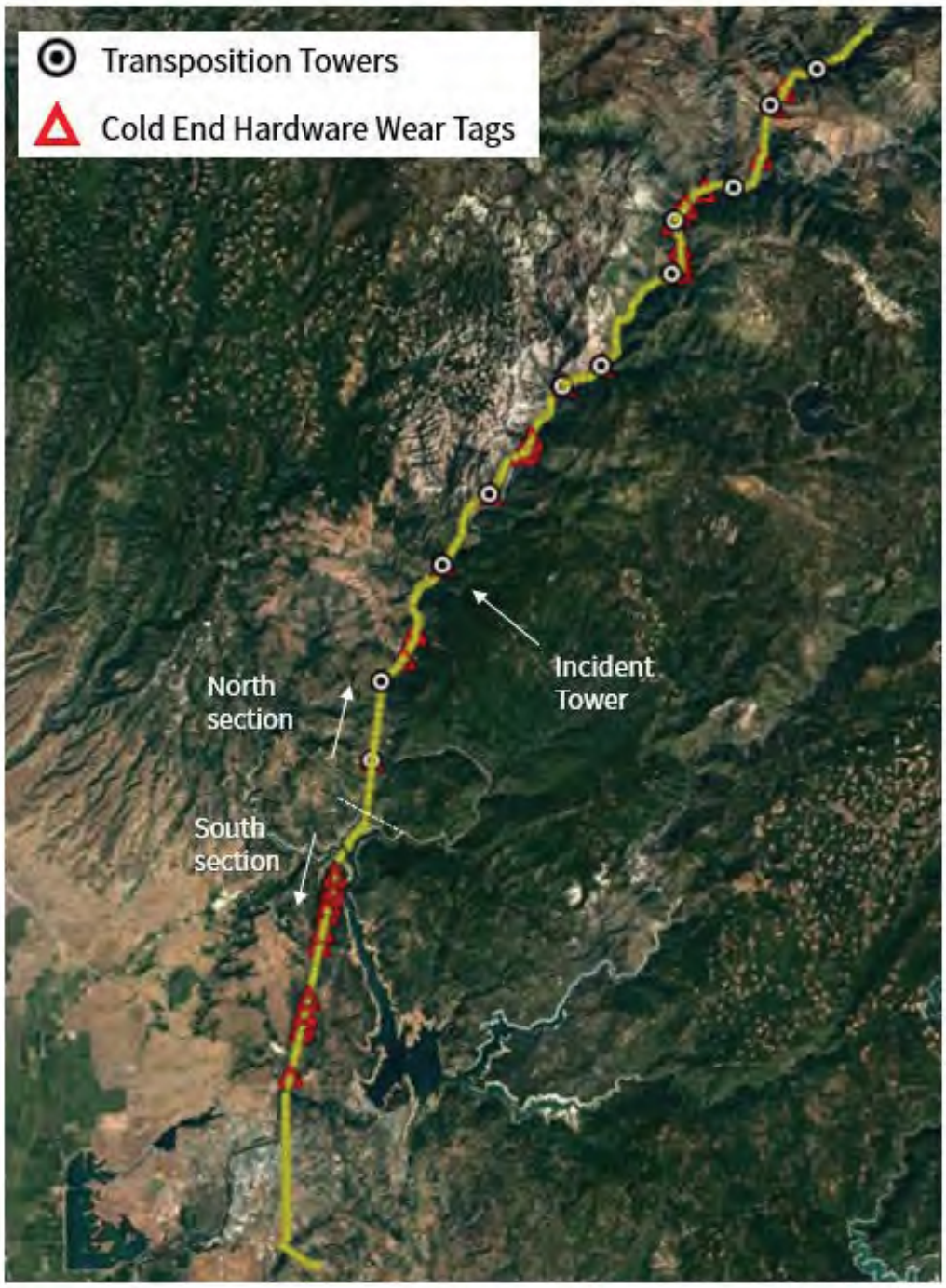


Figure 27. Map of Caribou-Palermo showing the north-south dividing line, cold-end hardware / wear tags, and transposition towers.

Figure 28. Photograph of transposition Tower :032/260 on Caribou-Palermo North showing the jumper suspended from insulators with an attached steel bar.

Cold-End Hardware / Wear Summary

There were 32 high-priority cold-end hardware / wear tags on Caribou-Palermo from November 8, 2018, to June 19, 2019. These tags were approximately split 60 percent / 40 percent between the northern and southern portions of Caribou-Palermo, shown in Figure 29. All of the 14 high-priority cold-end hardware / wear tags on Caribou-Palermo South were on structures with link connections. Of the 18 high-priority cold-end hardware / wear tags on Caribou-Palermo North, 11 (61 percent) were on dead-end towers with insulated jumpers, depicted in Figure 30. The remainder were on standard suspension towers. Seven of these 11 dead-end towers were transposition towers with the bar shown in Figure 28.

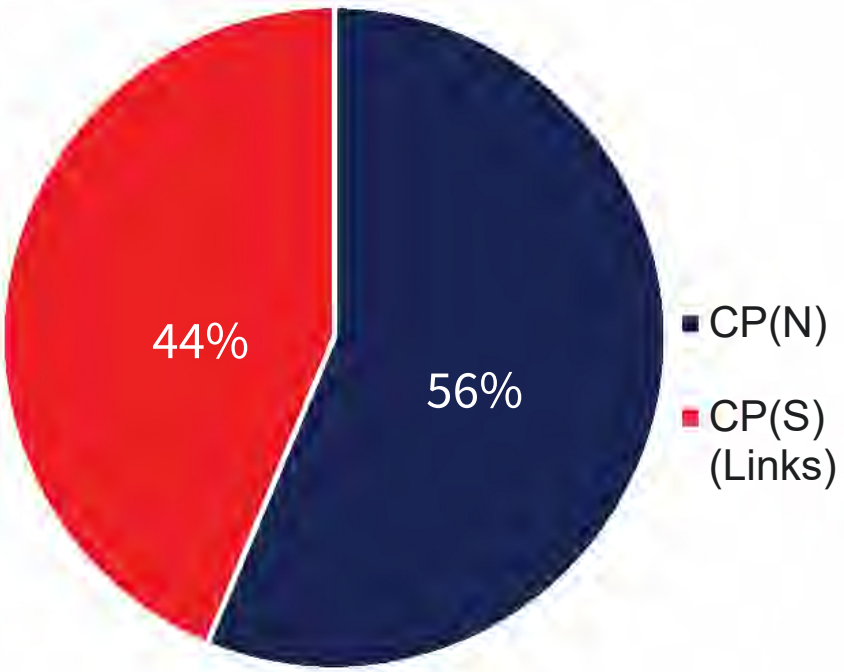


Figure 29. Breakdown of cold-end hardware / wears tags on the entire Caribou-Palermo line.

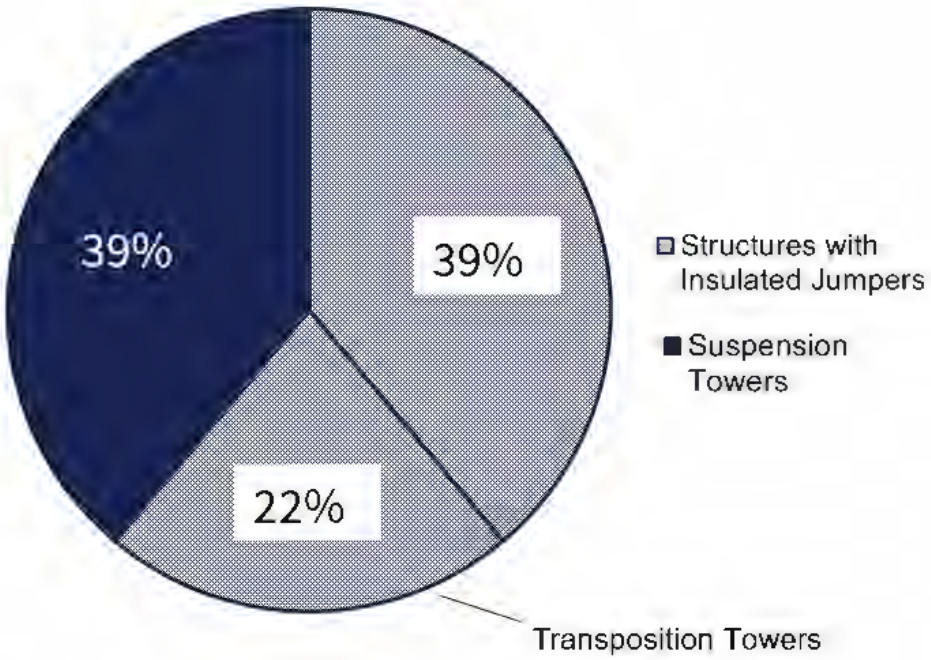


Figure 30. Breakdown of cold-end hardware / wear tags on Caribou-Palermo North.

Variation in Hanger Plate Specifications

Construction drawings were reviewed for structures located on parts of the Caribou-Palermo line as well as comparison lines. A wide variety of structure and component designs were found across both Caribou-Palermo and comparison lines. Of note is the variety of hanger plate designs utilized. According to the design books, certain towers on comparison lines, such as Drum–Rio Oso (DRO), have 5/8-inch-thick hanger plates. Towers where 5/8-inch-thick hanger plates were found include double-circuit suspension and dead-end towers on DRO circa 1930, as well as single-circuit snow towers on DRO circa 1919 (Figure 31 and Figure 32). In contrast, some towers originally installed on the original Caribou–Golden Gate line (portions of which make up modern-day Caribou-Palermo) contain 3/8-inch-thick hanger plates (Figure 33). While the towers depicted in Figure 31 through Figure 33 do not appear on the modern-day Caribou-Palermo line, they provide examples of hanger plate thickness variation in similar voltage transmission towers of similar vintage. The Caribou-Palermo North line (or others within the North Fork Feather River Canyon) hanger plate thicknesses are currently unknown. Thinner hanger plates may experience more wear under given environmental conditions due to decreased contact area with attached connectors.

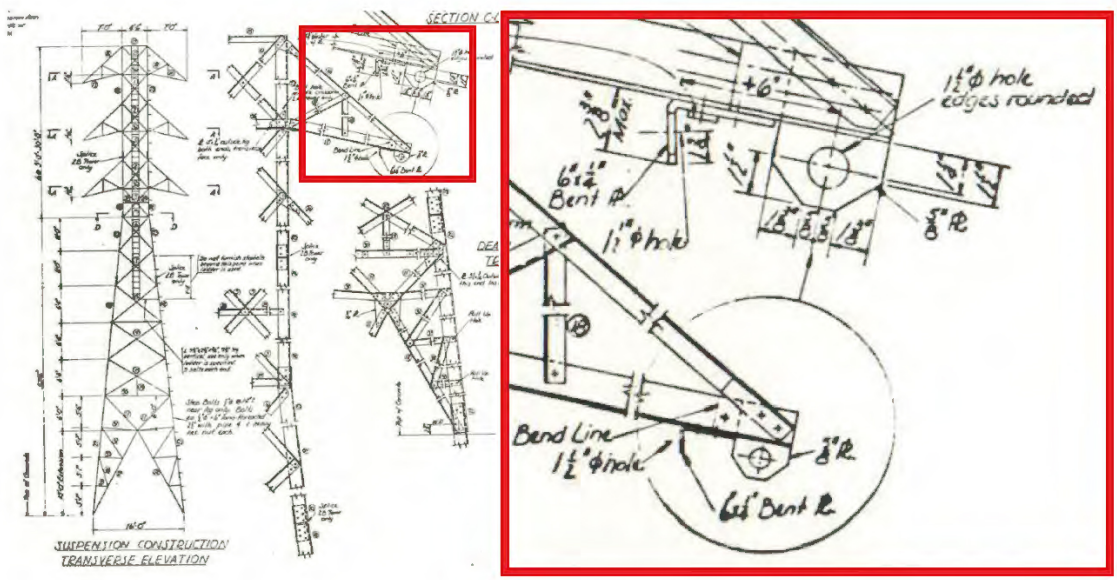
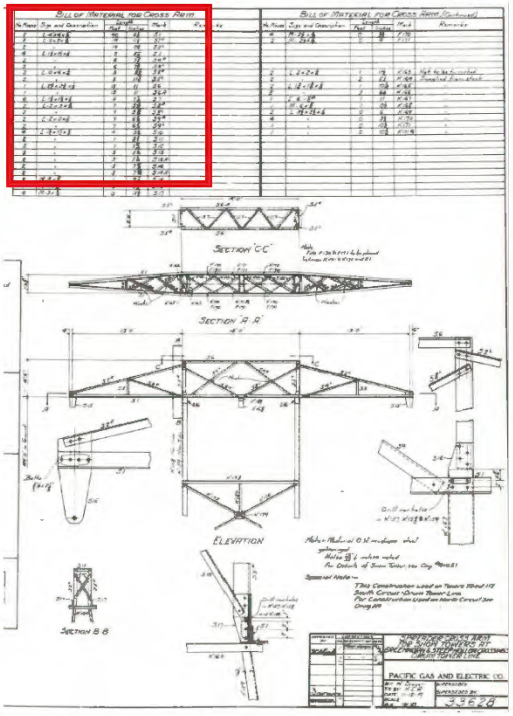


Figure 31. Drawing of “Suspension Construction Transverse Elevation” Types 2A and 2B towers from Drum–Rio Oso 115 kV design book dated October 20, 1930. The hanger plates used in these towers are 5/8 inch thick and have a 1 ½-inch-diameter eye.



BILL OF MATERIAL FOR CROSS ARM.

No. Pieces	Size and Description	Length Feet	Length Inches	Mark
2	L-4x4x$\frac{5}{8}$	40	$6\frac{1}{8}$	S1
2	L-2x2x$\frac{1}{4}$	14	$0\frac{3}{8}$	S2R
2	"	14	$0\frac{7}{8}$	S2L
4	L-$1\frac{1}{2}$x$1\frac{1}{2}$x$\frac{1}{8}$	2	$5\frac{1}{8}$	S3
2	"	6	$7\frac{3}{8}$	S4R
2	"	6	$7\frac{3}{8}$	S4L
2	L-4x4x$\frac{1}{4}$	3	$11\frac{3}{8}$	S5R
2	"	3	$11\frac{3}{8}$	S5L
1	L-$2\frac{1}{2}$x$2\frac{1}{2}$x$\frac{1}{8}$	13	11	S6
1	"	13	11	S6A
6	L-$1\frac{1}{2}$x$1\frac{1}{2}$x$\frac{1}{8}$	3	$1\frac{1}{16}$	S7
2	L-2x2x$\frac{3}{16}$	7	$5\frac{3}{16}$	S8R
2	"	7	$5\frac{3}{16}$	S8L
2	L-2x2x$\frac{1}{8}$	7	$6\frac{1}{16}$	S9R
2	"	7	$6\frac{1}{16}$	S9L
4	L-$1\frac{1}{2}$x$1\frac{1}{2}$x$\frac{1}{8}$	4	$0\frac{1}{16}$	S10
2	"	1	$8\frac{7}{16}$	S11
2	"	1	$5\frac{13}{16}$	S12
2	"	3	$5\frac{1}{16}$	S13
2	"	3	$5\frac{1}{16}$	S13A
2	"	3	$7\frac{9}{16}$	S14
2	"	3	$7\frac{13}{16}$	S14A
2	Pl-8x$\frac{5}{8}$	1	$9\frac{1}{8}$	S15
4	Pl-4x$\frac{1}{4}$	0	$11\frac{3}{8}$	S16
4	Pl-3x$\frac{1}{4}$	0	$11\frac{7}{8}$	S17

Figure 32. Drawing of a “Spreader Cross Arm” for snow towers at Greenhorn and Steephollow crossing from Drum–Rio Oso 115 kV design book dated November 12, 1919. The hanger plates used in these towers are 5/8 inch thick and have a 1 ½-inch-diameter eye.

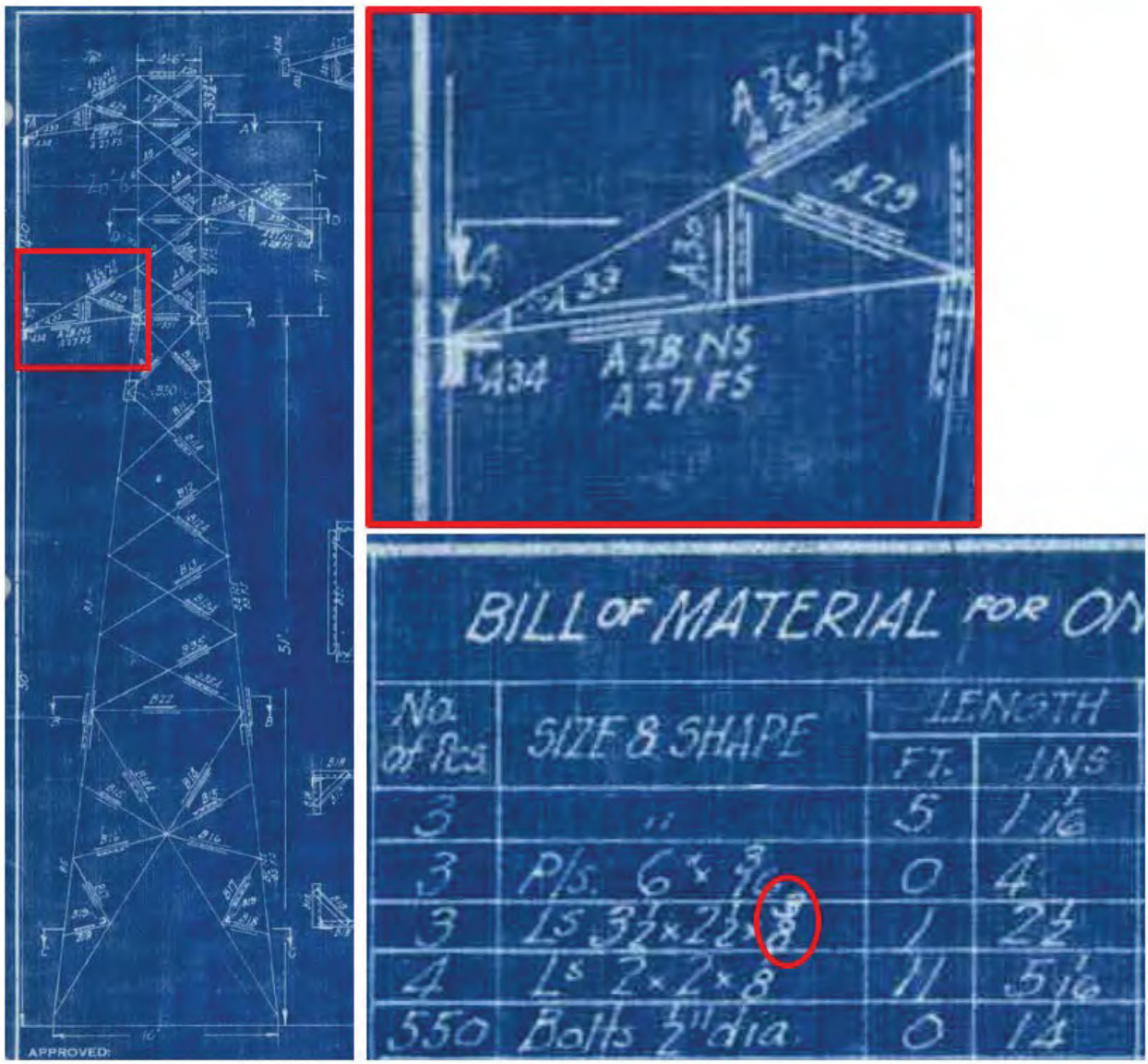


Figure 33. Drawing of “Valley Suspension “B” Tower” dated June 14, 1920. This is a valley dead-end tower originally installed on the 165 kV Caribou–Golden Gate Line. The hanger plates used in these towers are 3/8 inch thick.

Conductor Type

Six distinct conductor types or sizes are present on Caribou-Palermo, shown on the map in Figure 34. Most of the line (36.8 mil) is composed of 452.3 kcmil aluminum conductor steel-reinforced (ACSR), which consists of aluminum strands wrapped around a steel core. A large section of the southern end of Caribou-Palermo (13.2 mi) is composed of 167.8 kcmil copper (Cu). Two short sections of the line (2.2 mi and 1.5 mi) are composed of 397.5 kcmil or 715.5 kcmil all-aluminum conductor (AAC), which consists of aluminum strands wrapped around an aluminum core. Finally, two short line sections (0.9 mi and 0.6 mi) are composed of

397.5 kcmil ACSR or 795 kcmil ACSR. Conductor sizes and types used in Caribou-Palermo and comparison line jumpers are unknown and were not analyzed.

To determine whether conductor type correlates with wear tags, the locations of Caribou-Palermo cold-end hardware / wear tags were overlaid on a map of Caribou-Palermo conductor types, shown in Figure 35. A high concentration of cold-end hardware / wear tags was found on Caribou-Palermo South, where a copper conductor is used. These tags were associated with link connections, as described in a previous section. Cold-end hardware / wear tags were also found throughout the length of Caribou-Palermo, including in segments composed of 452.3 kcmil ACSR, 795 kcmil ACSR, and 397.5 kcmil AAC.

Conductor type and size may influence the susceptibility of a line to motion that could affect cold-end hardware. For example, conductors with greater diameter (greater cross-sectional area) and/or reduced weight are more susceptible to vibration and galloping. Therefore, differences in conductor type could result in one line experiencing conductor motion under a given set of environmental conditions (wind, precipitation, temperature, etc.), while a parallel line in the same location and environmental conditions may not. Diameters and weights for each Caribou-Palermo conductor type are shown in Table 3.

Susceptibility to wind-induced conductor motion increases with conductor diameter and decreases with conductor weight. Of the conductor types and sizes on Caribou-Palermo, 167.8 kcmil Cu has the lowest susceptibility to wind-induced conductor motion due to its low diameter/weight ratio, whereas 397.5 kcmil ACSR and 715.5 kcmil AAC have increased susceptibility. The high concentration of cold-end hardware / wear tags on the copper section of Caribou-Palermo, which has the lowest susceptibility to wind-induced conductor motion, indicates that conductor type is likely not a dominant factor in the location of high-priority tags on Caribou-Palermo. Rather, the cold-end connection link design (as described above) appears to be a primary factor associated with Caribou-Palermo South wear tags.

Conductor types were also examined for three lines running parallel to Caribou-Palermo in or near the North Fork Feather River Canyon, BCRC, CRO, and PTM, as shown in Figure 34. BCRC and CRO are composed of 795 kcmil ACSR and run parallel to segments in the middle of Caribou-Palermo that are composed primarily of 452.3 kcmil ACSR. The larger diameter/weight ratio for Caribou-Palermo would suggest a greater susceptibility to wind-induced conductor motion in this section of Caribou-Palermo. However, BCRC and CRO also exhibited increased normalized counts of cold-end hardware / wear tags compared to other comparison lines, Figure 15. The section of PTM that runs parallel to Caribou-Palermo is composed of a conductor type that is more susceptible to wind-induced conductor motion. However, this section of PTM exhibited fewer cold-end hardware / wear tags than Caribou-Palermo. These comparisons lend further evidence that differences in conductor type, while a factor in conductor motion, are likely not a primary cause of the increased post–Camp Fire high-priority tags associated with the Caribou-Palermo line.

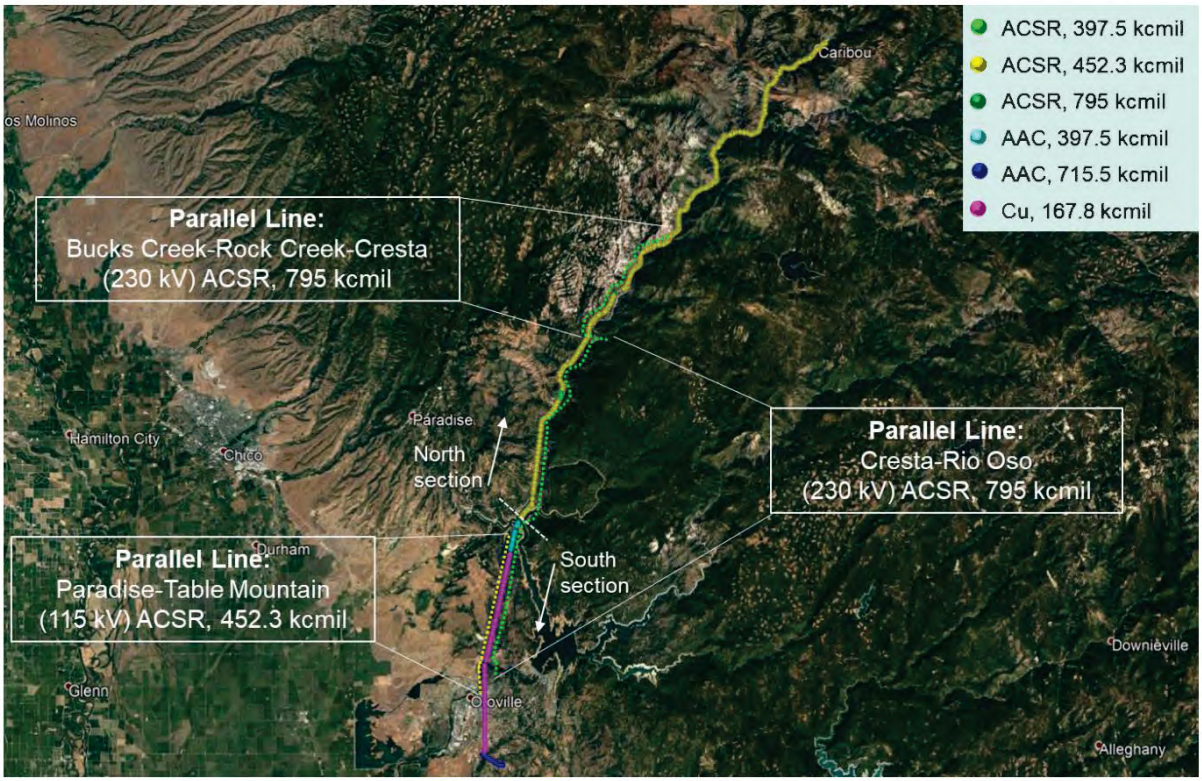


Figure 34. Map of conductor types used in Caribou-Palermo and in parallel lines running adjacent to Caribou-Palermo.

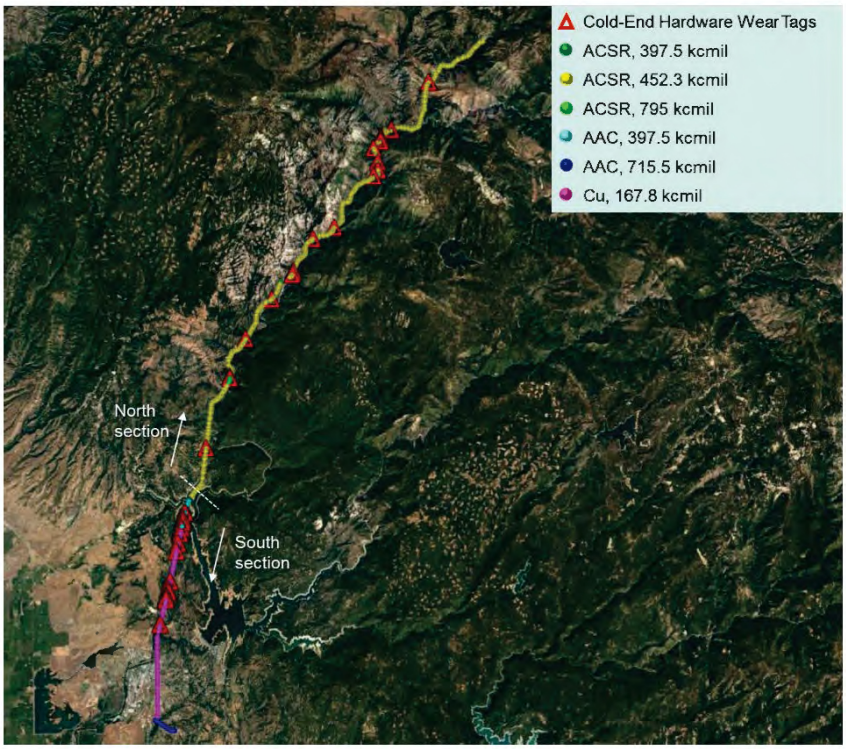


Figure 35. Map of Caribou-Palermo cold-end hardware / wear tags and conductor types.

Table 3. Diameters and weights of conductor types on Caribou-Palermo.

Conductor Type	Conductor Size (kcmil)	Diameter (in.)	Weight (lbs./ft.)	Diameter/Weight Ratio (in./[lbs./ft.])
ACSR	397.5	0.783	0.547	1.43
ACSR	452.3	0.830*	0.622*	1.33
ACSR	795.0	1.093	1.024	1.07
AAC	397.5	0.724	0.373	1.94
AAC	715.5	0.973	0.671	1.45
Cu	167.8	0.464	0.518	0.90

* Determined by linear interpolation.

Environmental Conditions

Wind Background

Although wind is broadly understood as a significant factor in the creation of extrinsic stresses in electrical transmission lines, the specific nature of those stresses may be dependent on a number of factors. In the present study, we have evaluated the influence of several environmental variables (temperature, precipitation, elevation, span length, span weight, maximum vs. average wind speeds, and wind direction relative to line orientation) on the location and frequency of the Caribou-Palermo and comparison line high-priority tags. Across the Caribou-Palermo line and each of the comparison lines, we identify damage modes that may be wind related, particularly cold-end hardware / wear tags. These damage tags are then compared against the various environmental factors to test for correlation.

Maximum and Average Wind Speed

Maximum (or peak) wind speeds in the areas of the chosen lines are generally found to vary between 60 to 100 mph, as measured and reported in “Extreme Wind Speed Estimates Along PG&E Transmission Line Corridors” across one-minute time intervals and at an elevation of 33 feet above ground level, over a 50-year return period. Peak wind speeds do not appear to show correlation with cold-end hardware / wear tag locations, as relatively few tags are present in regions associated with the highest wind speeds, as shown in Figure 36 and Figure 37. Though localized wind speeds may vary due to terrain features near structures, there is no obvious correlation between high peak speeds and damage. Furthermore, there is no observed correlation between high peak speeds and lines with higher damage rates. Of all comparison

lines considered in this report, Caribou-Palermo North shows the highest average wind speed at 10.7 mph, more than 45% greater than the average taken across all comparison lines, Figure 38.

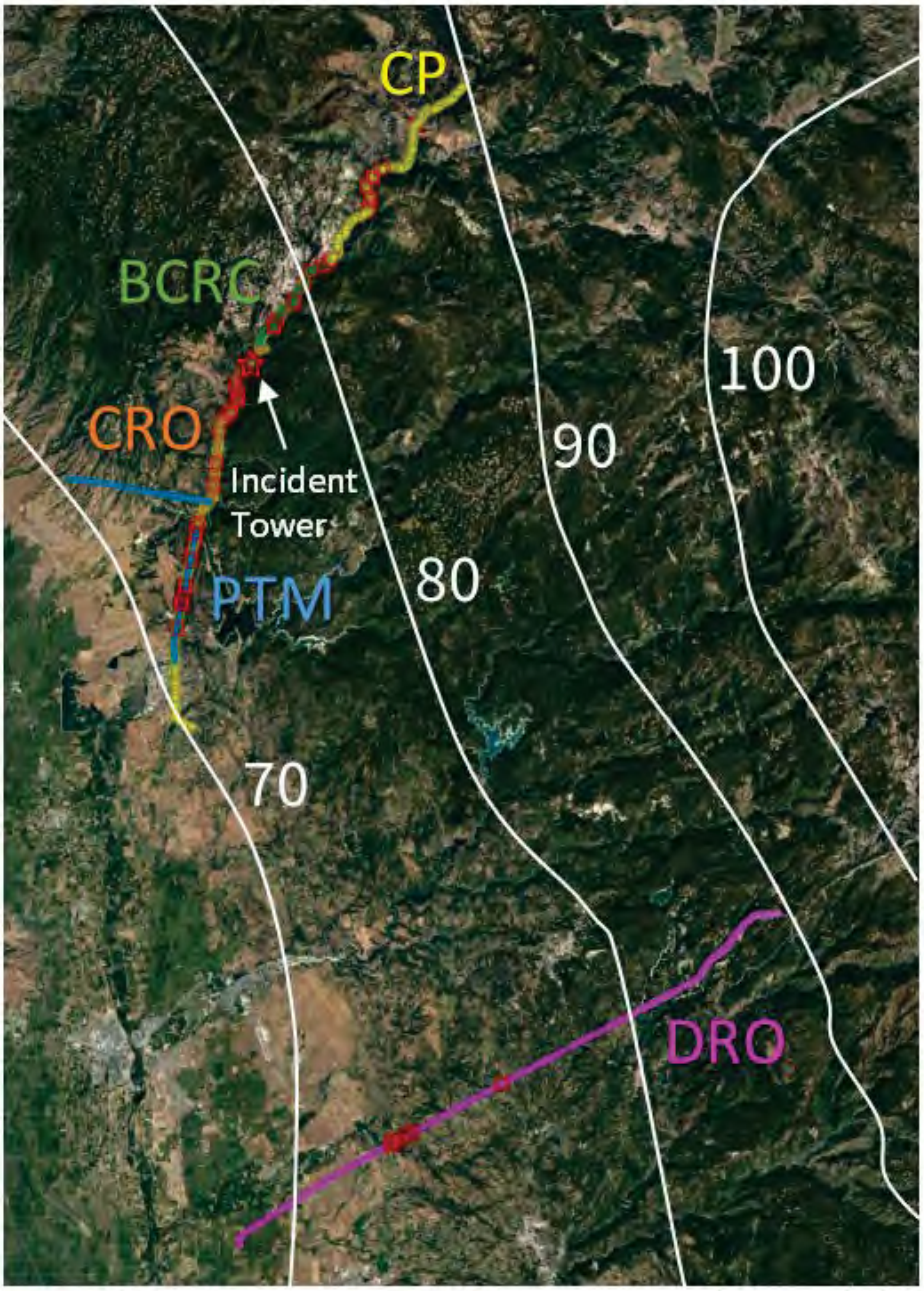
High Wind Conditions

For the purposes of this study, to consider the possibility of direction-independent wind damage, a “high speed” wind conditions category was considered. This condition was defined as the length of time the line is subjected to wind greater than 10 m/s (22 mph). The 10 m/s “high” wind condition criterion was chosen as representative for relatively high sustained winds. These higher sustained winds are more likely to cause motion in non-tensioned lines and hardware, such as jumpers.

To help determine the extent to which each tower of each line is typically subjected to 10 m/s wind conditions, data were sourced from the NREL Wind Resource database. This database combines measured wind data with topographic/meteorological indicators to report wind speed and direction across the United States in one-hour increments. The year 2010 was selected for the generation of a dataset that shows the hour-by-hour behavior of each tower throughout an entire year, as well as the yearly average. Figure 39 displays a map of the wind in the area surrounding Caribou-Palermo and the comparison lines. As shown, northern portions of the Caribou-Palermo line experience among the highest yearly average wind speeds.

High wind conditions represent a relatively simple metric for measuring the wind incident on a given line, and again show that Caribou-Palermo North experiences elevated incident winds on average, more than three times the average taken across all towers on all comparison lines.

We then examined each individual tower to determine whether it spends an elevated amount of time under high wind conditions. About 10 percent of towers experience 605 hours or more of wind greater than 22 mph per year, so this was set as the cutoff (Figure 40). If wind were a major contributing factor, it would follow that a large number of high-wind towers would correlate to an increased damage tag rate. Fifteen of the 28 lines examined show nearly no high-wind towers (4 percent or less), and only four exceeded 21 percent: Caribou-Palermo North, Humboldt-Bridgeville (HB), Pit #4 Tap (P4T), and Rock Creek–Poe (RCP), Figure 41. Nearly half of the towers in Caribou-Palermo North are high-wind towers, the highest rate of any line examined. A map of high-wind towers overlaid with high-priority cold-end hardware / wear tags is shown in Figure 42. Many of the Caribou-Palermo North towers that exhibit high-priority cold-end hardware / wear tags are exposed to elevated wind conditions.



Cold-End Hardware / Wear Tags

Figure 36. Contour map of peak wind speed (50-year return period) in the area of Caribou-Palermo and the comparison lines, with “A” and “B” cold-end hardware / wear tags highlighted. No obvious correlation between peak wind speed and damage locations is observed. Speeds are reported as the maximum one-minute interval at 33 feet above ground level.

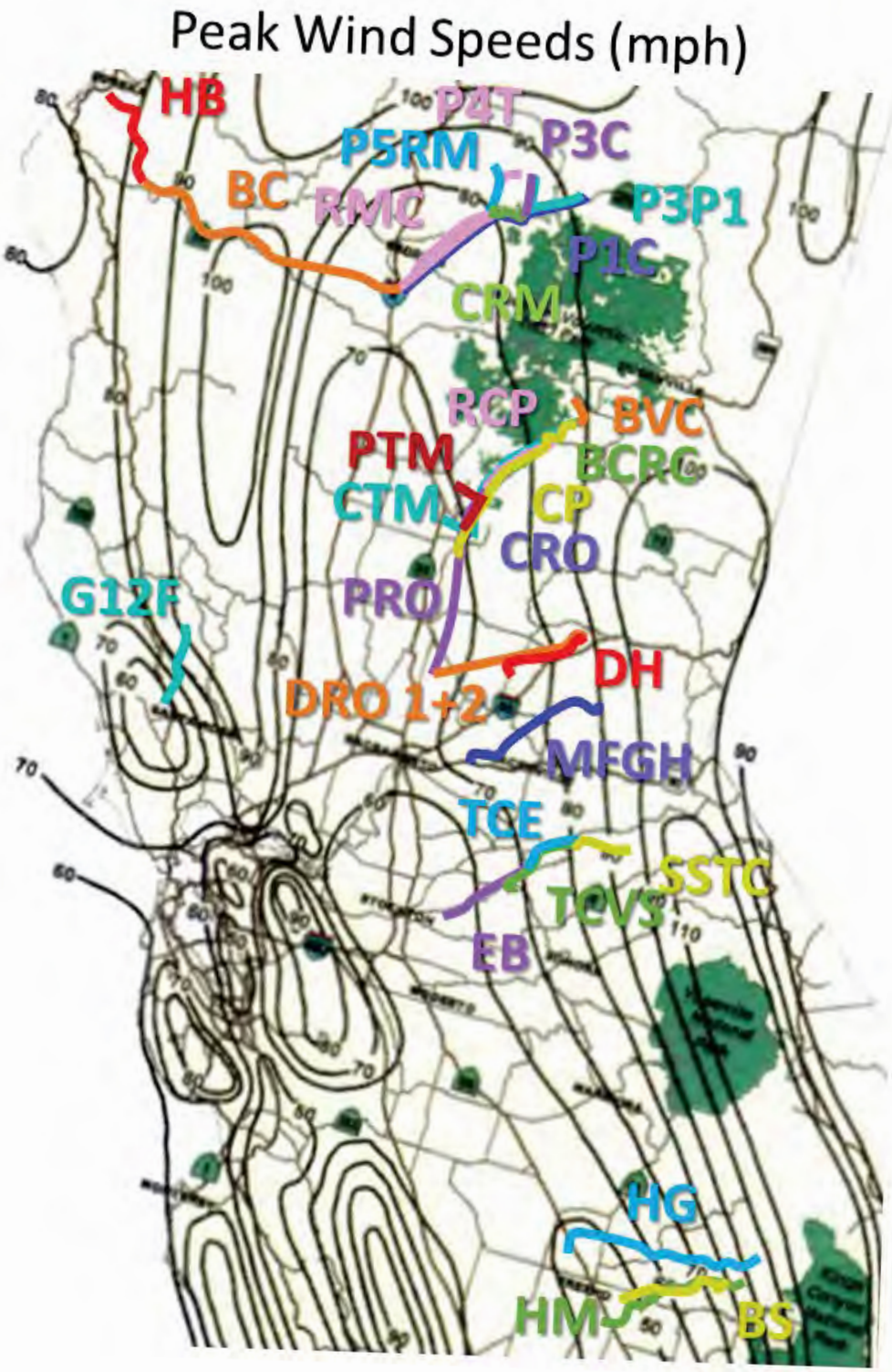


Figure 37. Contour map of peak wind speeds across Caribou-Palermo and comparison lines. No obvious correlation between peak wind speeds and lines with higher tag rates is observed. Speeds are reported as the maximum one-minute interval at 33 feet above ground level, over a 50-year return period.

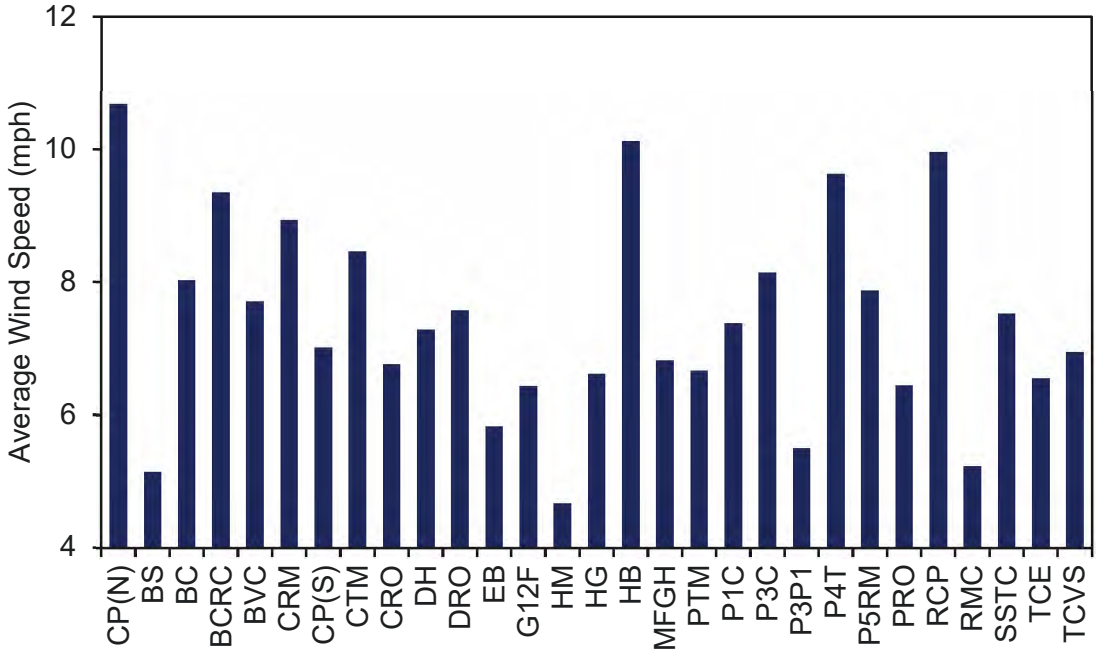


Figure 38. Average wind speed measured across all towers in the given line. All data obtained from the year 2010 in the NREL Wind Database.

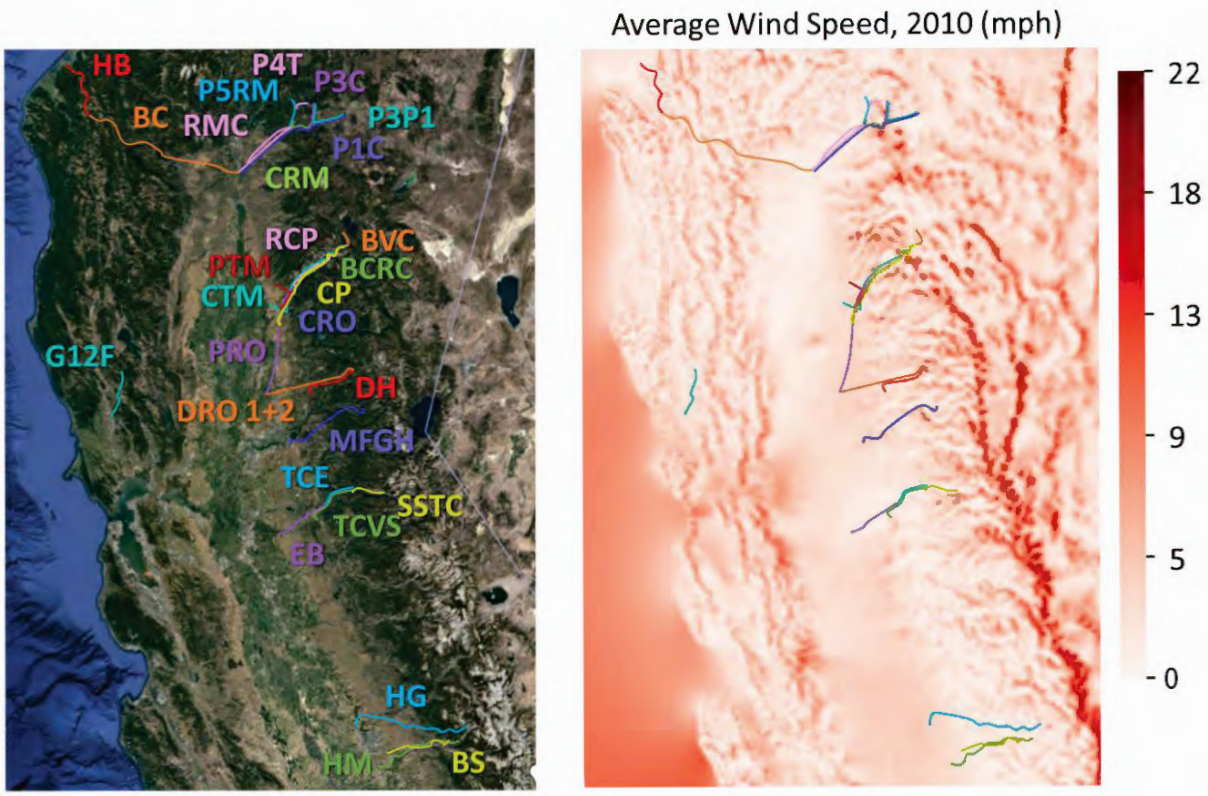


Figure 39. Average wind speed in 2010 in the areas surrounding Caribou-Palermo and comparison lines.

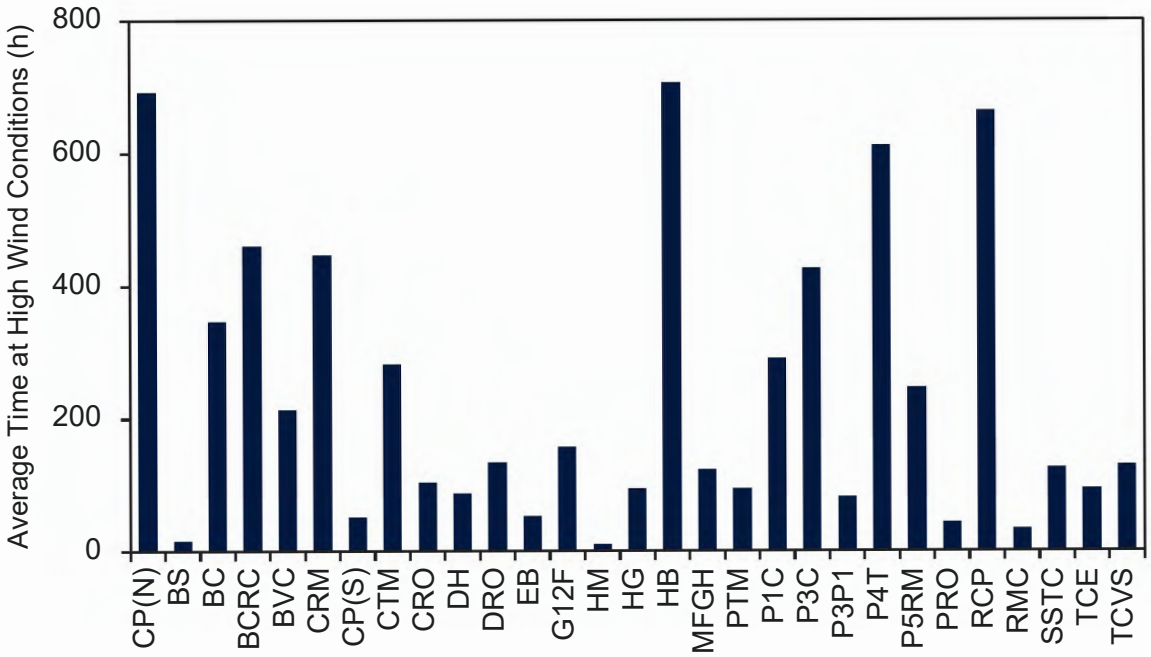


Figure 40. Average hours per year at high wind conditions (>22mph), measured across all towers.

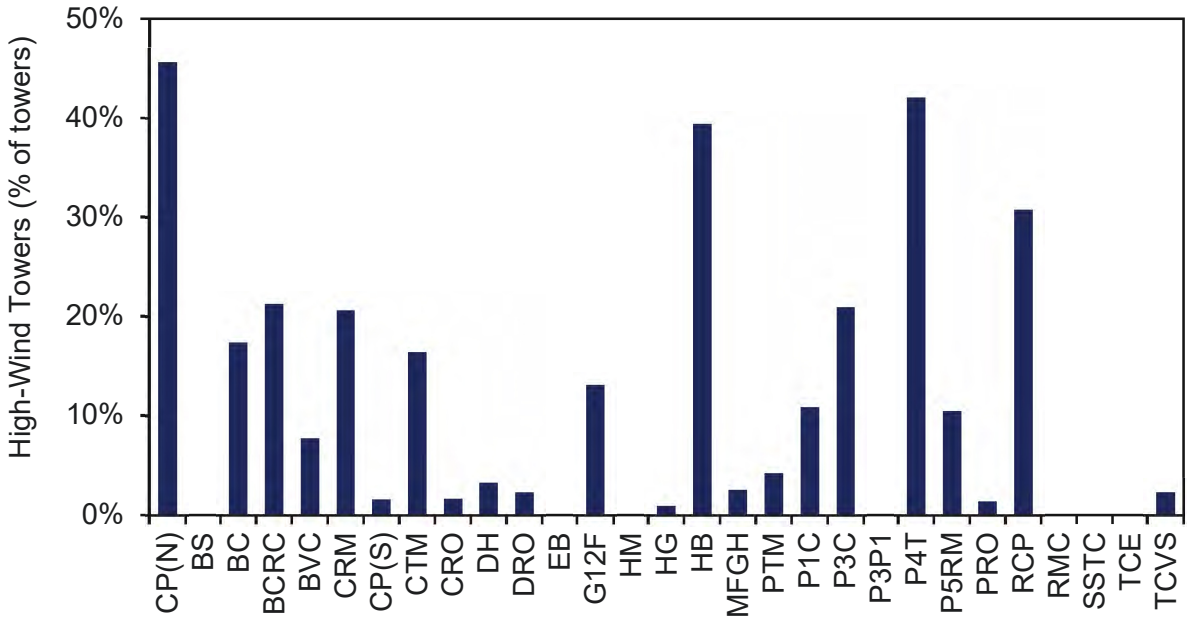


Figure 41. Number of towers that experience >605 hours of high wind conditions (>22mph) per year, measured as a percentage of total towers in the given line.

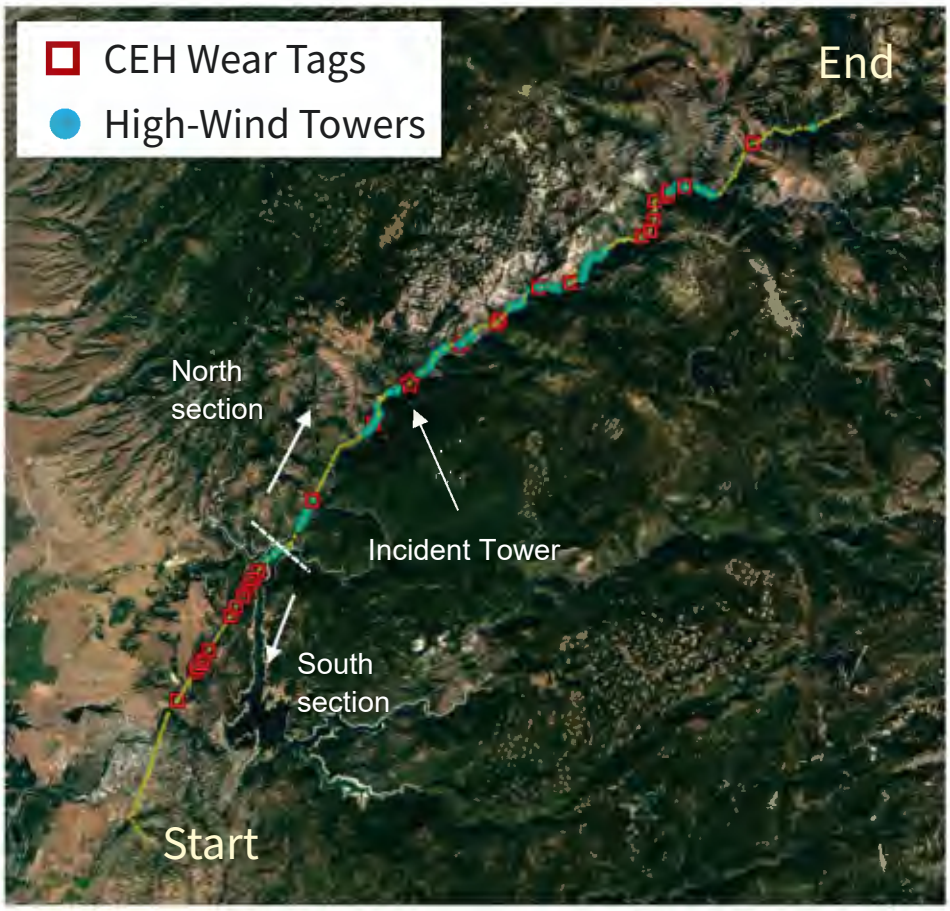


Figure 42. Map of all towers in the Caribou-Palermo line, with high-wind towers and cold-end hardware (CEH) wear tags overlaid.

Cyclic Conductor Motion and Wind

Even on days where wind speeds are low (as little as 2 mph), the forces exerted by wind may be sufficient to excite cyclic conductor motion, a key factor in the creation of progressive damage via fatigue or wearing of tower components and hardware. Two primary categories of this cyclic motion are considered: Aeolian vibrations and conductor gallop. Aeolian vibration occurs when a line experiences relatively low wind speeds (2–15 mph) traveling transverse to the heading of the line. This creates trailing vortices that excite a high-frequency (3–150 Hz), low-amplitude (0.01-1x conductor diameter) oscillation. At higher transverse wind speeds (15+ mph), and under the correct environmental conditions to produce icing on the line, conductors may "gallop." (Under particular conditions, "bare gallop" can occur in the absence of icing, but these incidents are rare.)[4] In this mode, the asymmetric cross section caused by icing allows the wind to generate lift and produces a low-frequency (0.08–3 Hz), high-amplitude (5-300x conductor diameter) oscillation. Aeolian vibrations are known to produce long-term wear in overhead

[4] Transmission Line Reference Book: Wind Induced Conductor Motion, EPRI, 1979.

lines, whereas gallop is more often associated with discrete damage events, though the two mechanisms can work in concert to exacerbate damage created during previous events.[5]

In addition to wind speed and direction, other climate conditions sourced from the NREL database include temperature and precipitation, as shown in Figure 43 and Figure 44. Each of the chosen lines tends to travel through multiple climate conditions, with lower average temperatures and higher average precipitation generally corresponding to higher elevations. The northern portions of Caribou-Palermo are subjected to relatively low average temperatures that could increase the risk of ice formation and cyclic conductor motion via galloping. Given the highly seasonal nature of these data, these conditions should be considered as broad summaries of conditions, with subsequent analyses making use of hour-by-hour temperature and precipitation data.

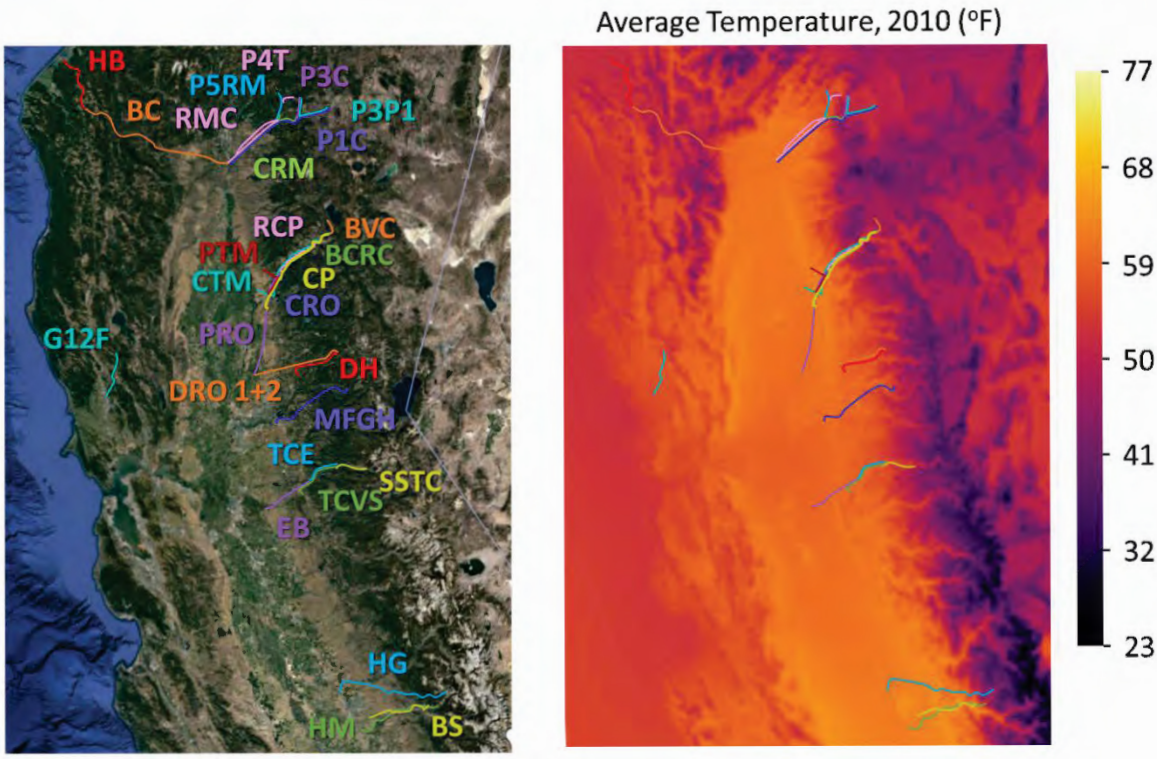


Figure 43. Average temperature in 2010 in the areas surrounding Caribou-Palermo and the selected comparison lines.

[5] Transmission Line Reference Book: Wind Induced Conductor Motion, EPRI, 1979.

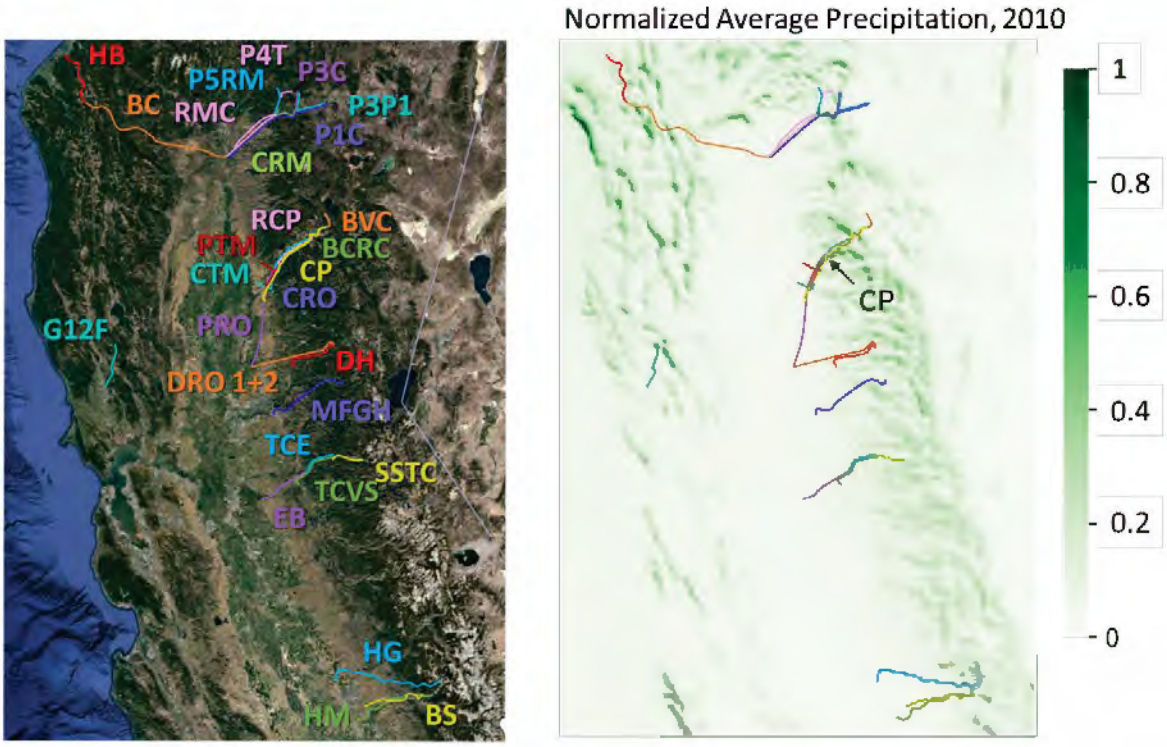


Figure 44. Normalized average precipitation in 2010 in the areas surrounding Caribou-Palermo and the selected comparison lines.

Several metrics were developed to help assess possible contributors to sustained cyclic conductor motion over time. Yearly time at Aeolian conditions was defined as the number of hours per year where the transverse-to-span wind speed vector is between 2 and 15 mph. The average number of hours in these conditions per year is relatively high, so these are compared in terms of hours above or below the average time of 5,765 hours. Time at galloping conditions was defined as any hour in which incident wind speed is above 15 mph and the temperature is at or below 3°C, which has generally been found in past studies as the temperature at which a sufficient amount of ice may be present to produce galloping effects.[6] High wind conditions are defined as any hour in which wind speed is above 22 mph (independent of direction), and these data are further analyzed by calculating the percentage of the towers for a given line that spend greater than 605 hours in high wind conditions per year.

Additional risk factors (several of which are considered elsewhere in this report) include the age of the lines, the flexibility and configuration of hardware connections, the relative amount of friction at hardware connection points, conductor tension, and interactions between the natural structure/line frequency and the forcing frequency of the wind.

[6] Transmission Line Reference Book: Wind Induced Conductor Motion, EPRI, 1979.

Temperature and Precipitation

No obvious correlation between temperature or precipitation and damage tags was observed. However, Caribou-Palermo notably has the lowest average temperature of all lines considered here, meaning that it may be more prone to icing and conductor galloping.

Aeolian Conditions

As described previously, Aeolian conditions are created by relatively low, sustained wind speeds traveling transverse to the line and are known to cause fatigue or wear damage over time in towers. Analysis of Aeolian conditions for a subset of comparison lines can be found in Table 4. This subset of lines was selected for additional analysis based on rates of damage tags and similarity to Caribou-Palermo. Caribou-Palermo shows significantly elevated time spent at Aeolian conditions compared to the other lines. Most significantly, the towers with cold-end hardware wear tags spend about 435 hours more time per year at Aeolian conditions when compared to the average.

Galloping Conditions

As described previously, galloping conditions are created by relatively high wind speeds traveling transverse to the line, when temperatures and environmental conditions are correct for the formation of ice on the line. Galloping events are typically associated with more acute damage such as larger-scale bending of tower structures but may also work in concert with other long-term damage modes to cause failures. Analysis of galloping conditions for a subset of comparison lines is shown in Table 4. Of the lines examined, Caribou-Palermo is one of the few lines that spends significant time at galloping conditions each year, more than double the next closest lines, BCRC and P4T, as portions of Caribou-Palermo extend further north and to higher elevations than the comparison lines. The towers with post–Camp Fire cold-end hardware wear tags and “A” damage tags (across all lines) also tend to spend an above-average amount of time at galloping conditions each year.

Table 4. Summary of wind factors for Caribou-Palermo and a selected set of comparison lines. Each is presented as an average of all structures in the given category.

	% of Towers, >605 Hours of High Wind per Year	High Wind Conditions (hours)	Aeolian Conditions (hours above avg.)	Gallop Conditions (hours)
Caribou-Palermo North	**46%**	**692**	**253**	**323**
Bucks Creek-Rock Creek-Cresta	21%	460	141	159
Caribou-Palermo South	2%	51	**202**	1
Cresta-Rio Oso	2%	104	54	6
Drum-Higgins	3%	87	6	14
Drum-Rio Oso	2%	134	-115	36
Paradise-Table Mtn	4%	94	-593	1
Pit #1-Cottonwood	11%	290	-599	131
Pit #4 Tap	42%	611	-126	145
All Tower Average	10%	222	0**	106
All Tower Stdev		408	836	243

** The average tower experiences 5,765 hours at Aeolian conditions per year.

For each line, a series of factors including elevation, span weight, temperature, precipitation, wind speed, time at Aeolian conditions, time at galloping conditions, and tower connection types were mapped and compared against the locations of cold-end hardware / wear tags to help determine any possible relationships. The geographic location of all towers within each line is mapped as well. The Caribou-Palermo plot and map are shown in Figure 45 and Figure 46 respectively.

Many of the Caribou-Palermo wear damage tags are located within areas of elevated Aeolian time (highlighted in gray), and areas of elevated galloping time (highlighted in green), Figure 45. On the southern section of Caribou-Palermo, a high density of cold-end hardware wear tags are located in a region that has both elevated Aeolian time and towers that make use of link connections. Although some cold-end hardware / wear tags are co-located with high-wind towers (as highlighted in Figure 45), a large number of high-wind towers with no cold-end hardware / wear tags are observed. Further, wear tags are also present in areas of reduced wind speed, Aeolian, and galloping conditions. Thus, while wind is likely required to cause cold-end hardware wear, and the Caribou-Palermo line has the most aggressive wind conditions analyzed, no direct correlation between peak (50-year return) wind, Aeolian, or galloping conditions and high-priority wear tags can be made at this time.

Elevation, span weight (described in greater detail below), temperature, and precipitation also exhibit no obvious correlation to the presence of cold-end hardware wear or other wear-related tags, as shown in Figure 45. In addition to elevation, further analysis was also carried out on the terrain slope surrounding each tower, as peaks in elevation may correlate to elevated localized winds. Factors that make such environmental contributions difficult to characterize include effects of local terrain, as well as differences in maintenance, age, and design of structures and equipment.

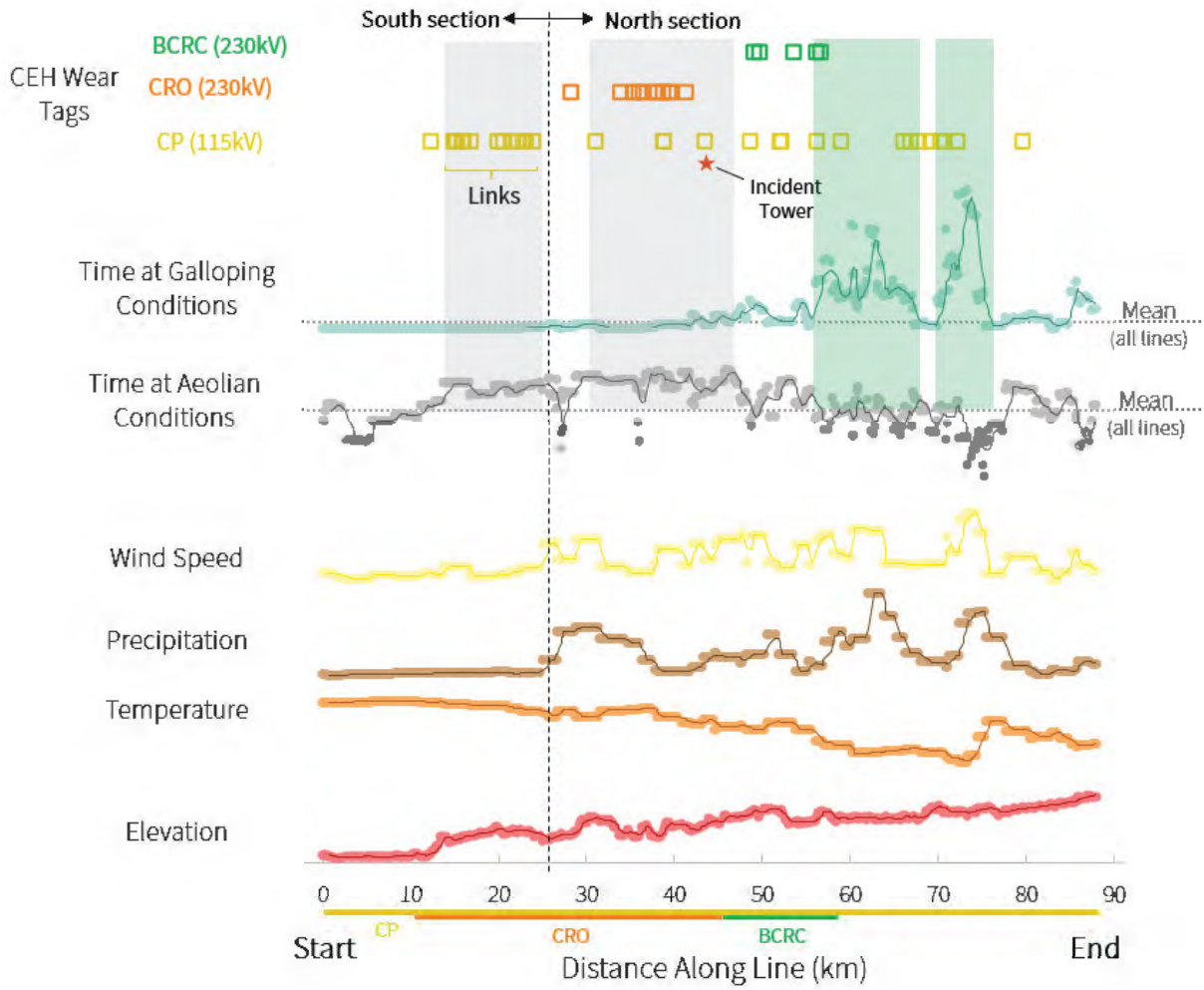


Figure 45. Factors vs. distance along line for the Caribou-Palermo line. All time-dependent data shown are averages of the full-year data from 2010. Areas of elevated Aeolian time (highlighted in gray), and areas of elevated galloping time (highlighted in green). CEH stands for cold-end hardware.

Comparison of Caribou-Palermo, CRO, and BCRC Wind Factors

Overlaying of the damage tags and wind conditions on each parallel line does not reveal obvious correlations between damage in one line vs. another. This suggests that wind conditions alone are not sufficient to describe the primary cause of damage in each tower. Other factors likely include differences in age of the structures, maintenance history, and tower/component design.

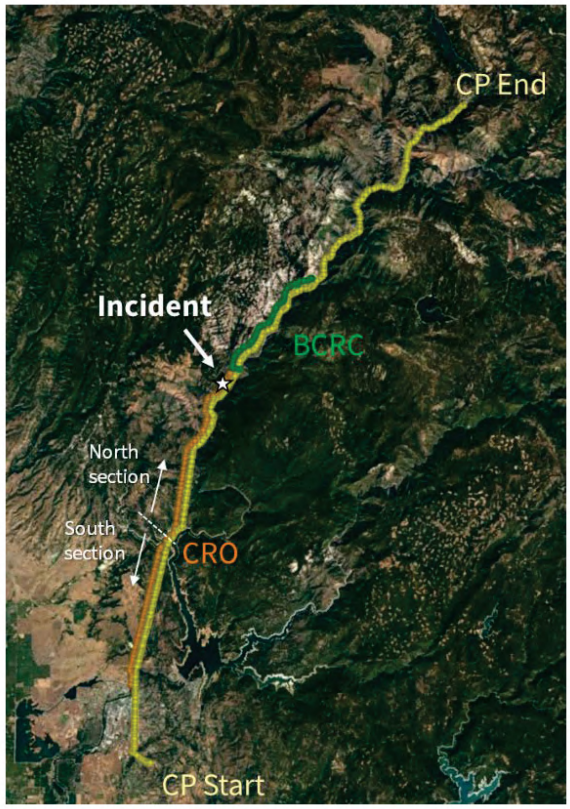


Figure 46. Map of all towers in the Caribou-Palermo line, and parallel lines Cresta–Rio Oso (CRO) and Bucks Creek–Rock Creek–Cresta (BCRC).

Span Distance

In addition to these wind and climate metrics, the tower-to-tower span distances and span weights were also calculated for each structure on Caribou-Palermo and selected comparison lines, Figure 47. The mean value of each category is calculated for each line, as well as the mean values of these categories for all towers with “A” damage tags, and all towers with cold-end hardware / wear tags.

The typical span distance between towers is roughly 200–260 m, with only a few lines (G12F, HM, HG) showing appreciably larger average distances. However, the variance in span distance is quite high, with some spans reaching distances greater than 500 m. No obvious correlation between span distance and damage tags is observed.

Span Weight

Span weight is calculated only for several adjacent lines where information on conductor type is available. Span weights were calculated from known conductor weights and GIS estimated span distances. These calculations are underestimates of span weights as they do not include conductor sag. However, comparison between BCRC, CRO, and Caribou-Palermo shows that Caribou-Palermo uses significantly lower weight conductors, leading to lower average span weights given the roughly similar average span distances, Figure 47. Tower-by-tower analysis of span weight is shown in Figure 48 for Caribou-Palermo. Lower span weights may increase susceptibility to wind-induced conductor motion.

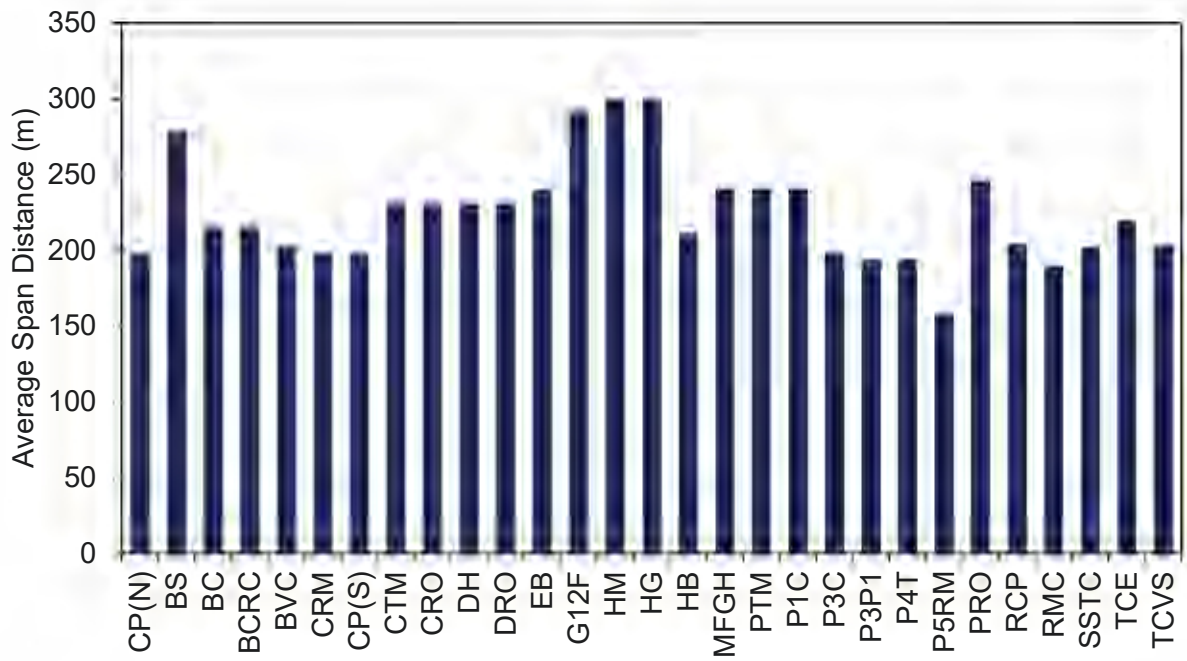


Figure 47. Average span distance measured across all towers in the given line.

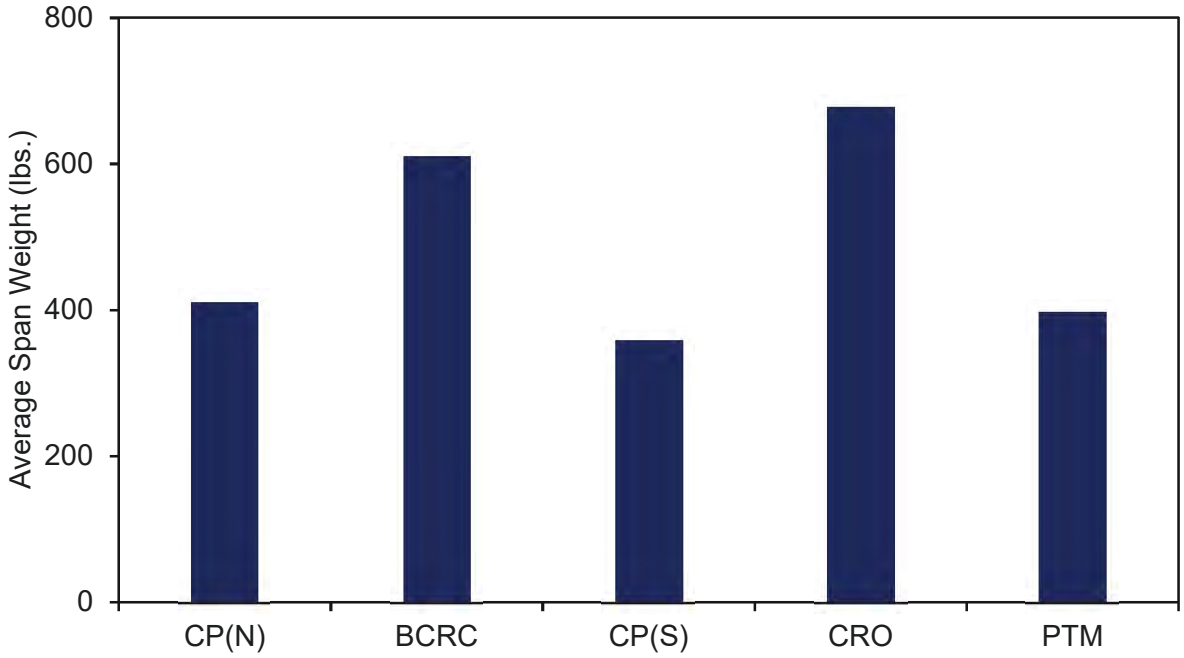


Figure 48. Average span weight measured across all towers in the given line.

Maintenance

The relatively high rate of wear-related high-priority tags observed on Caribou-Palermo after the Camp Fire suggests damage that has accumulated over years. To better understand the relevance of maintenance on Caribou-Palermo, the nature and frequency of historical repairs, including records of inspections, replacements, and corrective tags were analyzed. Selected comparison lines were also analyzed to create a relative comparison of historical maintenance.

Maintenance Districts

The PG&E electrical transmission system is divided into several maintenance districts. To assess how the comparison lines were distributed among these districts, and how tags might be clustered, post–Camp Fire high-priority tags were broken down by districts. A map of comparison lines broken down by maintenance district is shown in Figure 49. The Table Mountain district was found to have the highest number of tags, more than four times greater than the next highest district, Sacramento, Figure 50. However, upon normalizing for the number of steel lattice towers, the tag rate is very comparable to the Sacramento and Lakeville districts, Figure 51.

Figure 49. Map of comparison lines colored by maintenance district.

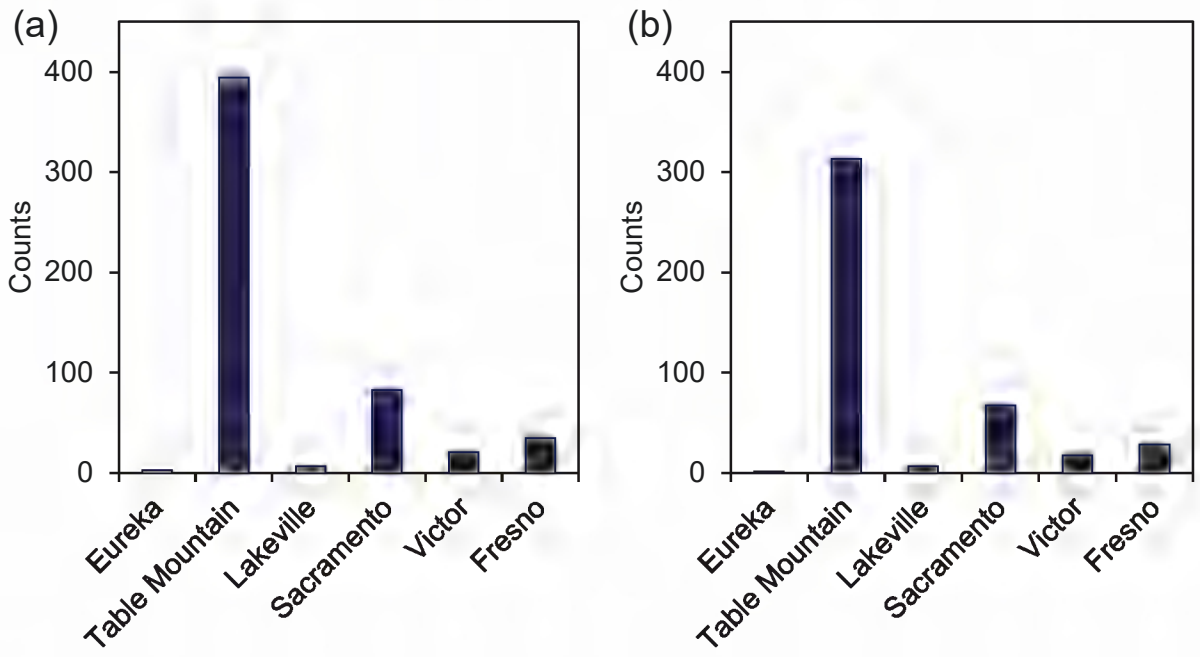


Figure 50. Post-Camp Fire high-priority ("A" and "B") tag counts of maintenance districts for (a) steel lattice towers and (b) steel lattice towers above 1,000 ft.

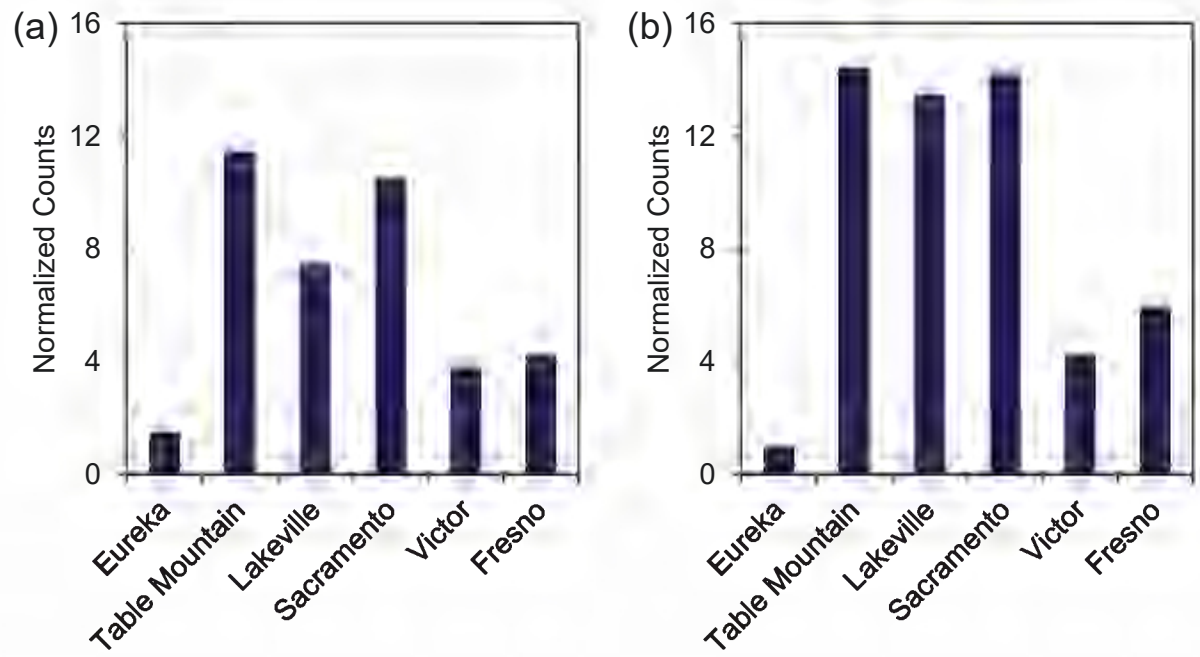


Figure 51. Post–Camp Fire high-priority ("A" and "B") tag counts of maintenance districts for (a) steel lattice towers and (b) steel lattice towers above 1,000 feet normalized by the total number of steel lattice towers and steel lattice towers above 1,000 feet, respectively.

Pre–Camp Fire Climbing Inspections

Based on our meetings with PG&E SMEs, patrols and ground inspections typically did not include detailed climbing inspections of structures on lines less than 500 kV. However, in the months prior to the Camp Fire, PG&E did conduct climbing inspections on 79 Caribou-Palermo structures (one three-pole structure counted as one), as part of an aging asset inspection program. From September 19, 2018, to November 5, 2018, 45 structures on Caribou-Palermo South were climbing inspected, and 34 on Caribou-Palermo North, shown in Figure 52. A total of 141 inspector-noted issues were found. Exponent has binned the nonconformities noted during these inspections by component and inspector-noted priority, Figure 53. The letter priority rating utilized during these inspections has the same designations as post–Camp Fire inspections; however, the majority of issues found did not generate tags but rather were denoted "PC" or problem corrected. Because most inspector-noted nonconformities were corrected and did not result in a corrective action tag, we compare these inspections to post–Camp Fire Pronto inspection forms rather than post–Camp Fire tags.

The inspector-noted nonconformities during the post–Camp Fire climbing inspections were obtained from the Pronto forms associated with the same 79 structures. The inspector comments and nonconformity priority ratings from these forms were binned into components, as shown in Figure 54. These priority ratings were on a numerical scale, as follows, and were used as an estimate of damage level:

- 5 = Heavy Damage with Safety Concerns
- 4 = Heavy Damage
- 3 = Moderate Damage
- 2 = Light Damage
- 1 = No Visible Damage

Comparison between pre– and post–Camp fire inspections on the 79 Caribou-Palermo towers showed that a similar number of issues were noted, shown in Figure 55. However, the types and severity of issues differed. The majority of issues identified pre–Camp Fire were related to sealed foundations, missing signs, or loose or missing bolts. The issues identified post–Camp Fire included substantially more insulator and conductor-related damage, including those relating to both cold and hot-end hardware, Figure 54. The newly implemented enhanced inspection procedures, including the CIRT or DIRT review, appear to have led to substantial improvements in identifying progressive or wear-related damage near the tops of towers, particularly associated with cold- and hot-end hardware.

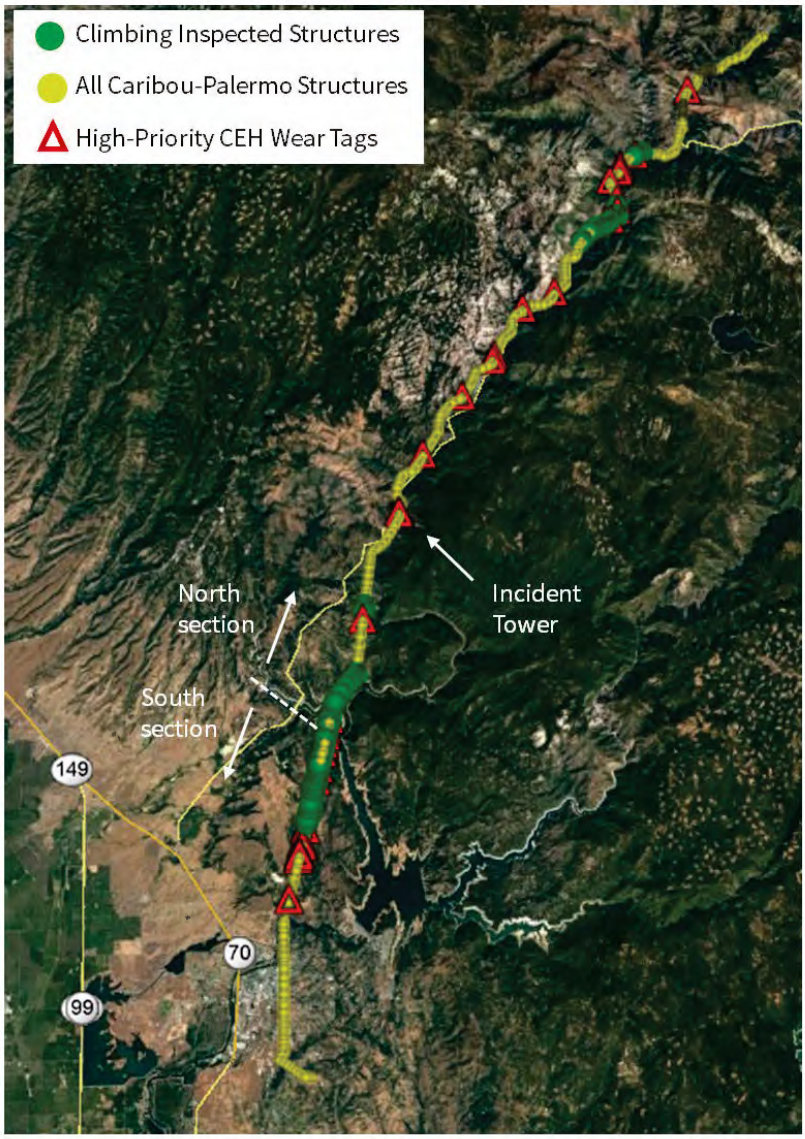


Figure 52. Map of structures that underwent a climbing inspection from September 19, 2018, to November 5, 2018.

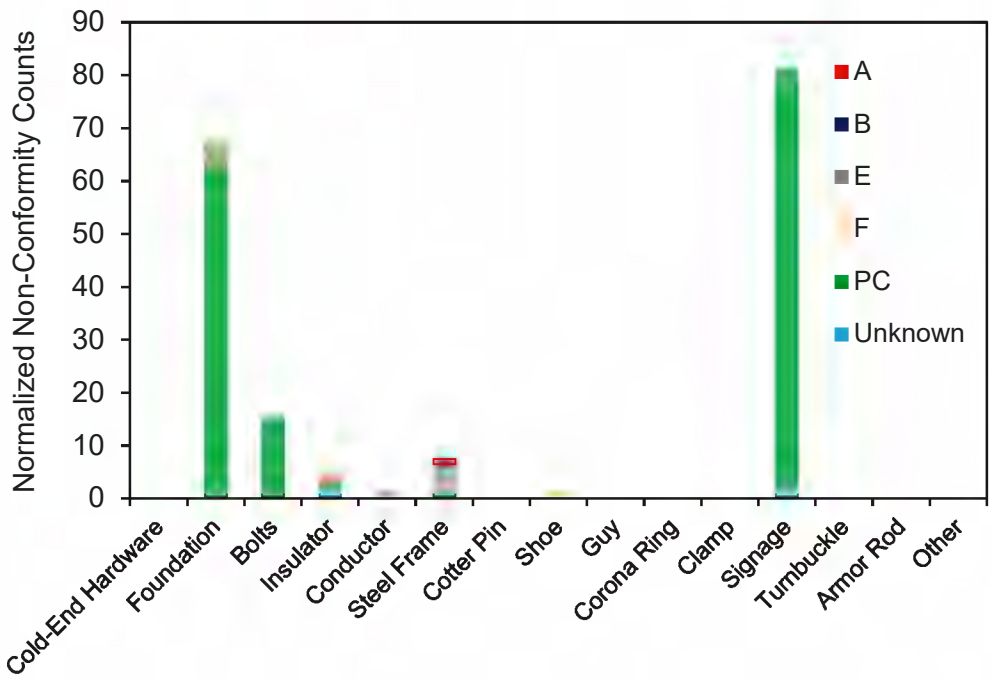


Figure 53. Inspector-noted nonconformities from pre–Camp Fire climbing inspections on 79 towers binned by component. Priorities were assigned by the inspector and were not reviewed by CIRT. Designations have the same repair timescale as post–Camp Fire tags. PC stands for problem corrected and was indicated when the issue was repaired by the inspector.

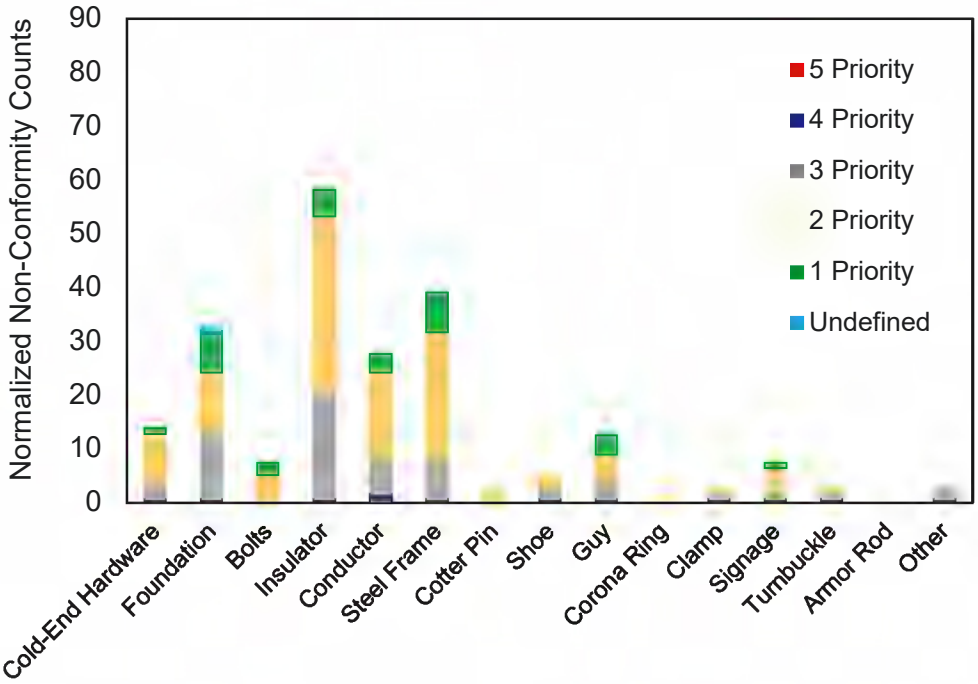


Figure 54. Binned post–Camp Fire inspector-noted nonconformities from the same 79 structures as Figure 53, obtained from Pronto forms.

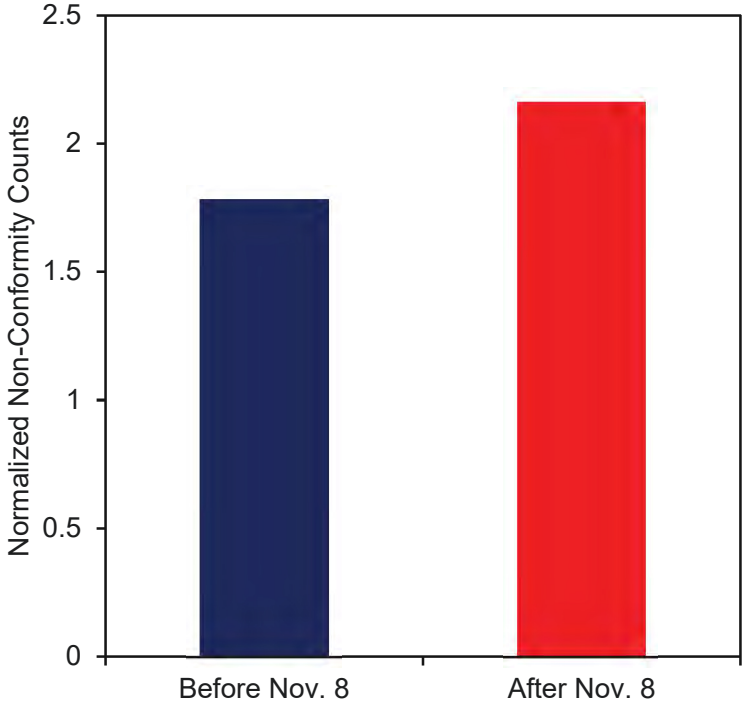


Figure 55. Comparison of the number of inspector-noted nonconformities from pre– and post–Camp Fire climbing inspections.

Inspection Frequency

Caribou-Palermo and comparison lines were subject to periodic ground inspections. In addition, ground or air patrols were performed during years without ground inspections. The PG&E Electric Transmission Preventive Maintenance Manual (ETPM) defines a patrol as walking, driving, or flying (helicopter only) visual observation of structures to identify abnormalities, i.e., obvious structural problems or hazards or circumstances that will negatively impact safety. An inspection is defined as a detailed visual observation of individual components that will negatively impact safety, reliability, or asset life. Figure 56 shows the average time interval between ground inspections for Caribou-Palermo and selected comparison lines between January 2001 and October 2018. The average interval between ground inspections across these lines was 2.8 years. Caribou-Palermo received ground inspections every 2.8 years on average, similar to the inspection frequency for comparison lines.

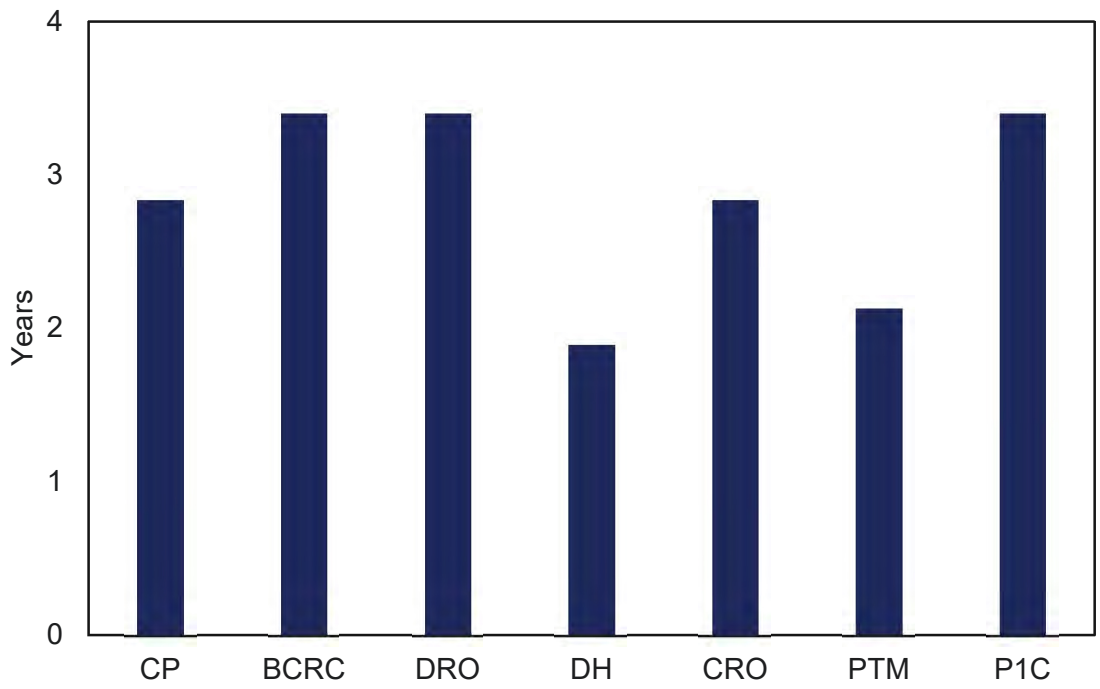


Figure 56. Average time interval between ground inspections for select comparison lines over the period from January 2001 to October 2018.

Historical Tag Counts

The number of high-priority tags per line over the period from January 2001 through October 2018 was tallied for the full set of 28 comparison lines. From 2001 to 2007, tags were prioritized on a scale of 1 to 6, according to the scheduled time to completion for repairs:

- "1" – Force out / work now
- "2" – 90 days
- "3" – 1–6 months
- "4" – 6–12 months
- "5" – 24 months
- "6" – more than 24 months

To compare pre-2008 tags with more recent tags, the 1–6 priority scale was converted to the present A–F priority scale:

- 1 = A – Perform corrective action immediately.
- 2 = B – Perform corrective action within three months.
- 3 or 4 = E – Perform corrective action within one year.
- 5 or 6 = F – Perform corrective action in more than one year.

For the following analysis, only high-priority ("1," "2" / "A," and "B") tags were considered. To compare tag counts across lines, counts were normalized using the same method as described in the "Line Comparison and Normalization Methodology" section. The high-priority tag count for Caribou-Palermo was similar to comparison lines prior to November 2018. In Figure 57(a), the normalized high-priority tag counts from January 2001 through October 2018 are tallied for steel lattice towers on Caribou-Palermo and comparison lines. The average normalized steel lattice tower tag count across all comparison lines was 6.1 over this time period, compared to a normalized count of 4.7 on Caribou-Palermo. Figure 57(b) shows the normalized tag counts for high-priority tags on the subset of steel lattice towers over 1,000 feet in elevation. For steel lattice towers over 1,000 feet, the average normalized count was 6.7, compared to a normalized count of 5.4 on Caribou-Palermo North.

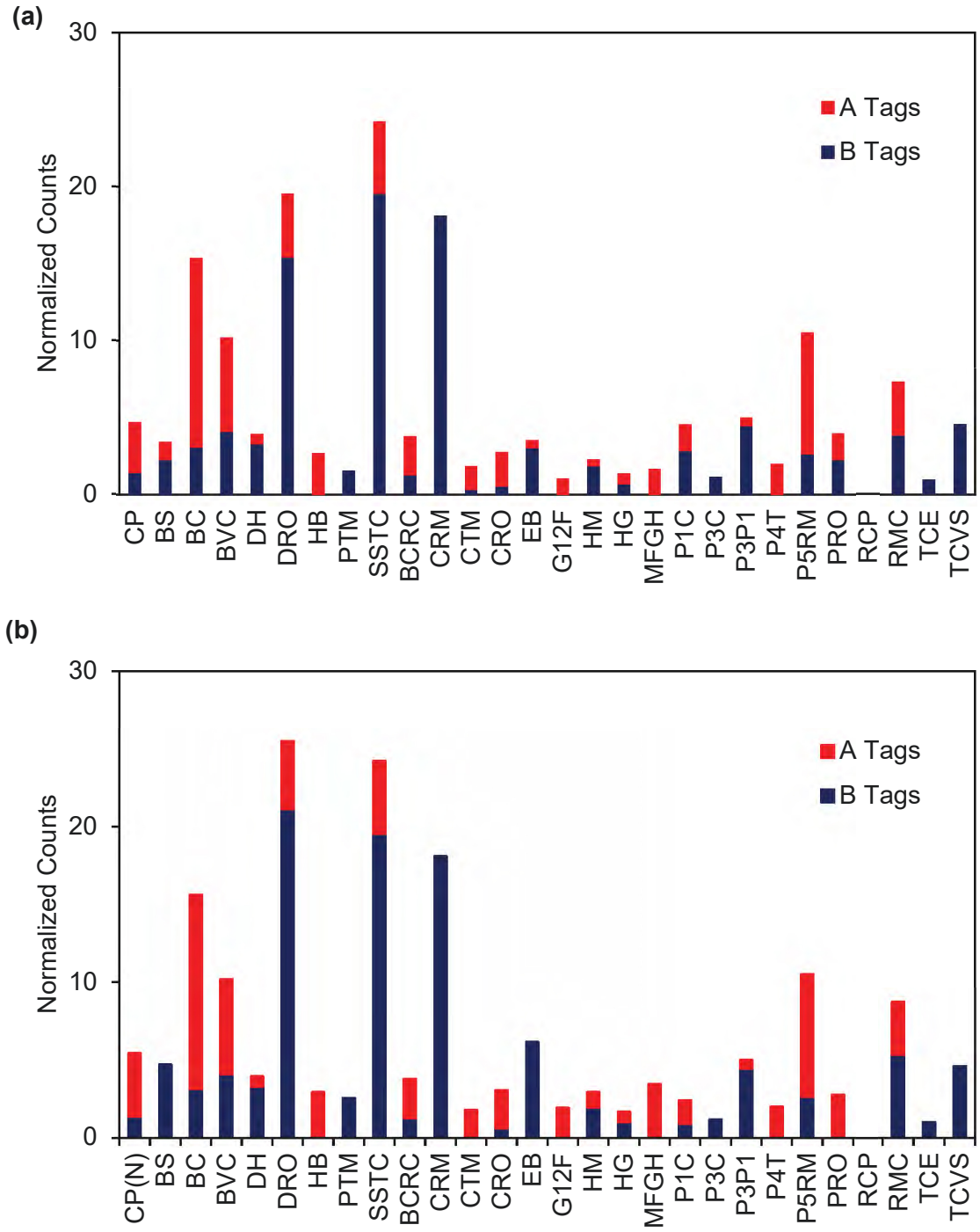


Figure 57. Cumulative normalized “A” and “B” tag counts associated with steel lattice towers on entire Caribou-Palermo line and comparison lines (a) and steel lattice towers over 1,000 feet (b) for the period from January 2001 to October 2018.

Analysis of Components and Damage Modes in Caribou-Palermo Historical Tags

Historical high-priority (converted to "A" and "B") Caribou Palermo tags were binned by component type and damage mode using the same approach as described in the "Post-Camp Fire Caribou-Palermo Tag Analysis" section. In Figure 58, a breakdown of the component types and damage modes shows that steel frame and conductor related issues accounted for the highest number of historical tags. No high-priority tags associated with cold-end hardware wear were found. A review of historical tags for comparison lines also found no high-priority cold-end hardware / wear tags during the period from January 2001 through October 2018.

Examples of forms used during patrols and inspections were reviewed for indications of whether hanger plates and associated cold-end hardware were subject to regular inspection. Detailed climbing inspection forms used before and after the institution of WSIP did contain fields specifically designated for assessing cold-end hardware wear. However, prior to WSIP, detailed climbing inspections were reportedly not routinely performed for Caribou-Palermo and the comparison lines. Example forms for ground inspections and patrols did not include fields specified for assessing cold-end hardware wear.

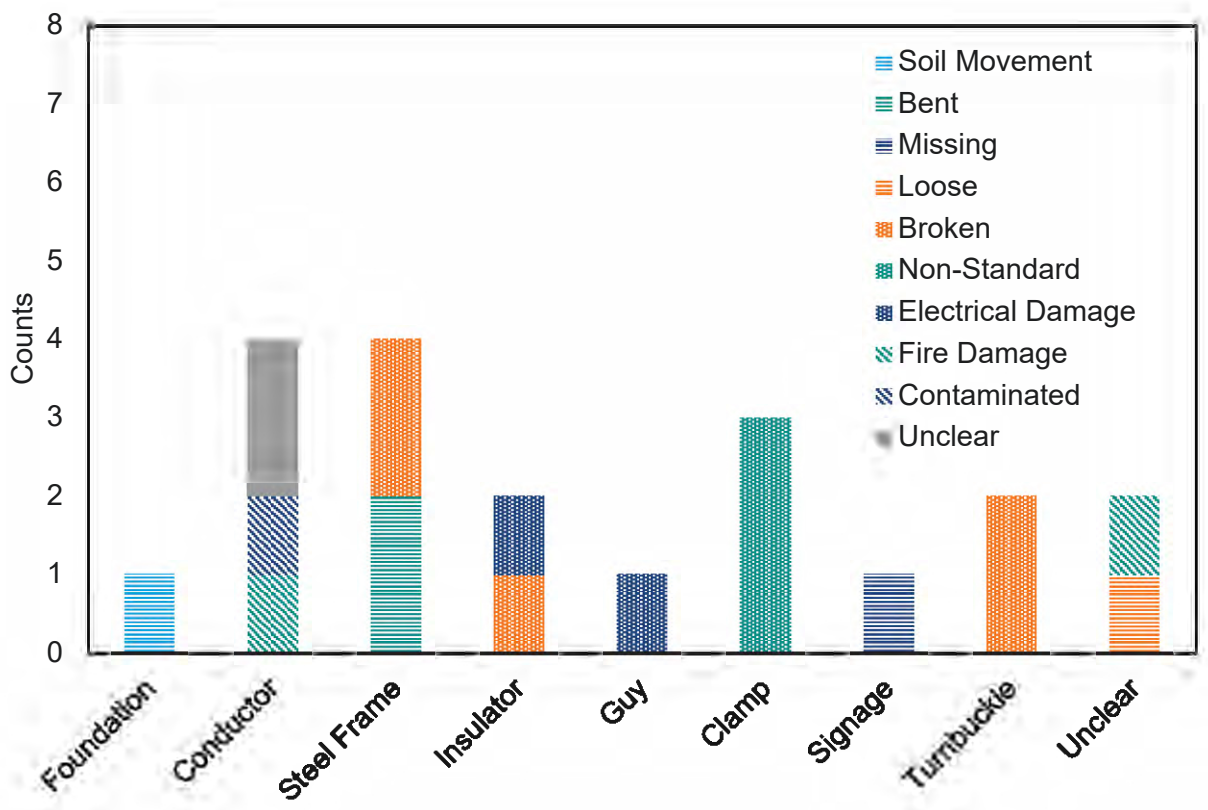


Figure 58. High-priority tag counts broken down by component type and damage mode for Caribou-Palermo over the period from January 2001 through October 2018.

Historical Outage Performance

The historical rate of power outages on Caribou-Palermo was examined in comparison with other electric transmission lines (ETLs) in WSIP. The outage data was provided by a PG&E SME for an 11-year period (2007–2018), and was filtered to include only unplanned and equipment-related outages (including outages caused by equipment failure, weather, and non-animal contamination). The ETLs were ranked by the number of equipment-related outages, normalized by total days of outage history (i.e., 365 days in a year times 11 years) and circuit length (in miles), as shown in Figure 59. The circuit length was obtained from PG&E's ET-GIS database. Based on the data, a total of 159 of the 551 ETLs in WSIP had zero recorded outages during this period. In addition, 7 of the 551 ETLs were foreign lines with no outage data available (null values). Caribou-Palermo experienced 38 equipment-related outages, more per-mile per-day than approximately 80 percent of the other WSIP lines. Among the 28 comparison lines, only Butte Valley–Caribou and Paradise–Table Mountain experienced more outages per-mile per-day. Other lines in the North Fork Feather River Canyon, labeled on the plot in Figure 59, exhibited a wide range of outage performance.

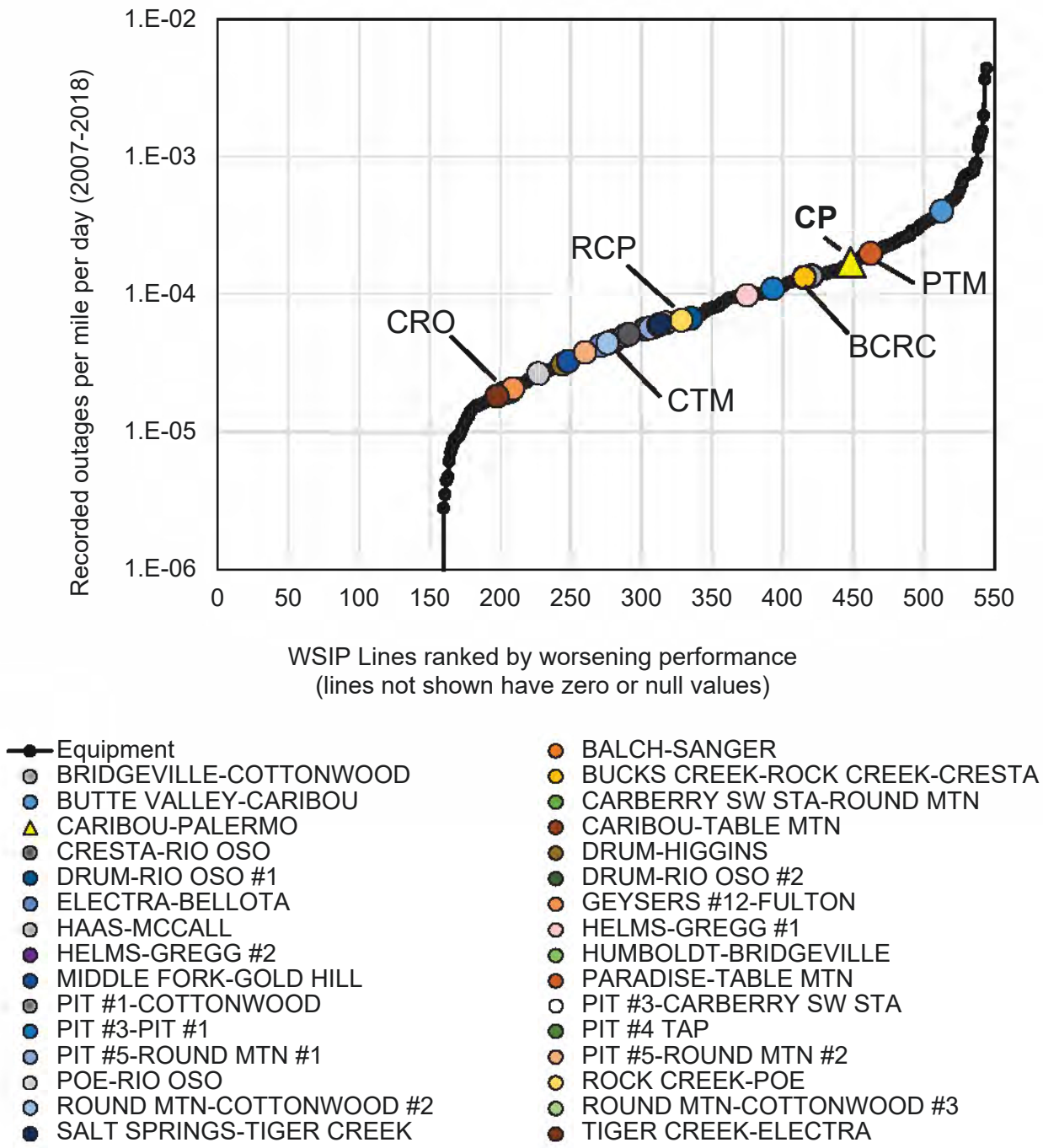


Figure 59. Historical outage performance from 2007 to 2018 for unplanned, equipment-based outages.

Conclusions

The following section offers selected high-level conclusions based on the previously presented observations:

1. The Caribou-Palermo line was confirmed to have greater post–Camp Fire high-priority ("A" + "B") repair tag counts than all selected comparison lines, as well as an increased per-structure high-priority tag rate when normalized for the number of steel lattice towers.

2. Other lines adjacent to Caribou-Palermo such as Bucks Creek–Rock Creek–Cresta (BCRC), Cresta–Rio Oso (CRO), and Paradise–Table Mountain (PTM) had the second, fourth, and fifth highest post–Camp Fire high-priority tag counts, respectively, when normalized for steel lattice towers. Pit #4 Tap (P4T) had the third highest normalized high-priority tag count, but is not near Caribou-Palermo.

3. Cold-end insulator hardware-related issues were responsible for the highest number of "A" priority post–Camp Fire tags on Caribou-Palermo, and the second highest number of "B" priority tags. Foundation-related issues accounted for the greatest number of "B" tags.

4. Wear was the most commonly observed post–Camp Fire damage mechanism for Caribou-Palermo "A" tags and second most commonly observed damage mechanism for "B" tags. Nearly all Caribou-Palermo wear-related tags were associated with cold-end hardware. Cold-end hardware wear issues were likely caused by repeated conductor and insulator movement over time.

5. Caribou-Palermo, BCRC, and CRO lines, each located within the North Fork Feather River Canyon, exhibited high-priority cold-end hardware wear tag counts more than three times higher than the next highest comparison line when normalized for steel lattice towers.

6. Link connections were observed only on the southern portion of Caribou-Palermo and accounted for approximately 40-percent of cold-end hardware wear tags on the entire line. All of the Caribou-Palermo South wear tags were associated with link connections.

7. Roughly one-sixth of drone-imaged Caribou-Palermo North towers contained insulated jumpers. However, over 60-percent of the post–Camp Fire high-priority cold-end hardware wear tags on Caribou-Palermo North were associated with structures that contained insulated jumpers. Additionally, over half of all cold-end hardware wear tags on BCRC and CRO were on towers with insulated jumpers.

8. Caribou-Palermo North and other North Fork Feather River Canyon comparison lines contained an increased number of insulated jumpers (and insulated jumper wear tags) compared to similar lines. These Caribou-Palermo and other North Fork Feather River

Canyon structures with insulated jumpers exhibited a higher incidence of cold-end hardware wear than standard suspension structures.

9. Caribou-Palermo North experiences higher annual average wind speeds than non-adjacent comparison lines. Lines analyzed within the North Fork Feather River Canyon may have increased wear tag rates associated with longer-duration high-wind conditions. No apparent correlation between wear tags and temperature, precipitation, or peak wind speed (50-year return) was observed.

10. From 2001 to November 2018, the Caribou-Palermo line was subjected to similar ground inspection and patrol frequencies as comparison lines. These inspections and patrols yielded comparable normalized high-priority tag counts between Caribou-Palermo and comparison lines.

11. Historical ground and patrol inspection forms did not specify cold-end hardware assessment. Pre-Camp Fire climbing inspection forms did contain assessment fields for structural components such as insulator hardware. However, climbing inspections were not routinely performed on lines less than 500kV.

12. Although climbing inspections were not routinely performed on lines less than 500 kV, 79 Caribou-Palermo towers were subjected to climbing inspections in the months prior to the Camp Fire. The tower reportedly associated with the Camp Fire was not inspected. PG&E's post–Camp Fire enhanced inspection procedures, including CIRT or DIRT reviews, have led to substantial improvements in identifying progressive or wear-related insulator hardware damage.

13. The Caribou-Palermo line had more normalized equipment-based outages between 2007 and 2018 than approximately 80 percent of the other WSIP transmission lines.

14. Caribou-Palermo and other North Fork Feather River Canyon lines appear to have a unique set of factors that contributed to increased rates of high-priority cold-end hardware tags relative to other comparison lines. Factors such as design (link connectors and a relatively large number of non-tensioned insulated conductors), long-duration exposure to higher winds, age, and historical inspection methodologies likely all contributed to these cold-end hardware wear issues.

Attachment O

2/1/2019 PG&E Response to CPUC Data Request SED-001, Big Bend Question 1

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-001 - Big Bend 1101 Distribution

Requesters: Banu Acimis
Request Date: December 6, 2018
Response Sent: February 1, 2019

Question 1:
Why didn't PG&E report this incident to CPUC before Nov 16, 2018?

Response to Question 1:
For purposes of responding to this question, PG&E understands "this incident" to mean the incident reported in PG&E's Electric Safety Incident Report ("EIR") for Incident No: 181116-9015, related to Incident Location 2, as defined by the SED's Data Request IV. Electric utilities must report to the CPUC "reportable incidents", which Appendix B of CPUC Decision No. 06-04-55, as amended by Resolution E-4184, defines as incidents that (1) result in fatality or personal injury rising to the level of in-patient hospitalization and attributable or allegedly attributable to utility owned facilities; (2) are the subject of significant public attention or media coverage and are attributable or allegedly attributable to utility facilities; (3) involve damage to property of the utility or others estimated to exceed $50,000. In addition, Standard 6 of General Order 166 requires each utility to report to the CPUC "major outages", defined as outages that result in a simultaneous, non-momentary interruption of service to at least 10% of the electric utility's serviceable customers.

On November 8, 2018, PG&E filed with the CPUC an EIR for Incident No. 181108-9002, related to Incident Location 1, as defined by the SED's Data Request IV, reporting an outage on the Caribou-Palermo 115 kV Transmission Line and damage found on a transmission tower on that same line.

Prior to November 16, 2018, PG&E did not believe, based on the information available to it at the time, that the outage described in the EIR for Incident Location 2 (Incident No. 181116-9015) met the definition of a reportable event or major outage as defined by the CPUC. On November 8, 2018, at approximately 6:45 a.m., the Big Bend 1101 12 kV Distribution Circuit experienced an outage, affecting four customers on Flea Mountain. Due to the location and timing of the outage, it was believed that this outage was the result of the Camp Fire burning through the area.

PG&E did not believe this incident met the definition of a reportable event. At the time, the Big Bend area was not the subject of significant public attention or media coverage, nor had CAL FIRE or other authorities alleged that the distribution facilities located in that area were related to the cause or origin of the Camp Fire. Therefore, PG&E had no reason to believe that the facilities at Incident Location 2 had resulted in a fatality, personal injury rising to the level of in-patient hospitalization or property damage in excess of $50,000.

In addition, the outage did not fit the definition of a major outage because it did not result in a non-momentary interruption of service to at least 10% of PG&E's approximately 16 million customers.

On November 15, 2018, at approximately 6:00 p.m., CAL FIRE held a press conference during which it identified a "possible second origin related to the Camp incident in the Concow area." CAL FIRE did not indicate during that press conference the specific location of the possible second origin point. Out of an abundance of caution, on November 16, 2018, PG&E submitted the EIR for Incident Location 2, which referenced the November 8, 2018 outage on the Big Bend 1101 12 kV Distribution Circuit, even though it may not have met the incident reporting criteria.

Response provided by:

[redacted], Senior Manager, Distribution Work & Resource Management, [redacted]

Attachment P

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 09/18

Bates PGE-CAMP-CPUC-0000019432

Pacific Gas and Electric Company.

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

ETPM Form
Elec. Trans.
09/18

The "**Steel Structure Detailed Climbing Inspection Form**" for non-500kV structures provides a ready reference to ensure a consistent and thorough inspection. TD-1001M-JA04 provides a reference to aid the inspector in recording line-related component deficiencies that may be noted during the inspection. It is intended that the checklist items on Pages 2-5 of the form will be inspected during the climbing inspection.

Structure #:	Line Name:		Voltage:	SAP Structure ID #:
Latitude:	Longitude:		Structure Type:	Foundation Type:
Date Inspected:	Inspected By:			ETL #:
Inspection Order #:	Notification Required:	No ☐	Yes ☐	Notification #:
Comments:				
Inspector Review:	(Signature)		LAN ID:	Date:
Supervisor Review:	(Signature)		LAN ID:	Date:

PRIORITY CODES

N/A	Does not apply to this location
NP	No problem found
	Using Priority Code requires a Condition and Action to be documented
PC	Problem corrected at the time of inspection
A	Perform work immediately
B	Perform work within 3 months
E	Perform work within 12 months
F	Perform work within 24 months

INSTRUCTIONS

1. Inspect the structure using the form to record issues for each component. Determine the condition of each component. Consider all conditions to determine the appropriate Priority Code for any Notification, if required.
   - 5 = Heavy Damage with Safety Concerns
   - 4 = Heavy Damage
   - 3 = Moderate Damage
   - 2 = Light Damage
   - 1 = No Visible Damage
2. Completed forms and structure photograph* shall be distributed as follows:
   - One copy to be retained by the Tower department.
   - One copy to the local T-Line first line supervisor if line hardware / component work is required.

CAMP-0631
PGE-CAMP-CPUC-0000019432

- Inspection crew to create notification (if required). Notification to be attached to inspection report and Structure photograph* to be added to SAP and ET-GIS.

CHECK THIS ITEM	CHECK APPLICABLE			COMMENTS
ANCHOR FOUNDATION				
Concrete 6" or less above ground line (or steel interface buried)	☐ Yes	☐ No	☐ N/A	
Concrete cracked or deteriorated	☐ Yes	☐ No	☐ N/A	
Stub in concrete not sealed and water proofed	☐ Yes	☐ No	☐ N/A	
Anchor rod damage (e.g. corrosion, cracked, bent)	☐ Yes	☐ No	☐ N/A	
Earth around anchors eroded, soil movement, slide	☐ Yes	☐ No	☐ N/A	
Anchors have evidence of pull out?	☐ Yes	☐ No	☐ N/A	
Do anchors consist of "loops" or rods?	☐ Loops	☐ Rods	☐ N/A	
TSP Anchor bolts in poor conditions	☐ Yes	☐ No	☐ N/A	
Anchor Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1 ☐ N/A

GUYS				
Guys are loose	☐ Yes	☐ No	☐ N/A	
Guys are over-tensioned	☐ Yes	☐ No	☐ N/A	
Turnbuckle not punched	☐ Yes	☐ No	☐ N/A	
Improper guy cable and hardware used	☐ Yes	☐ No	☐ N/A	
6" or less of travel left in turnbuckle	☐ Yes	☐ No	☐ N/A	
Preform cross ties not properly installed	☐ Yes	☐ No	☐ N/A	
Guy tails not clipped properly	☐ Yes	☐ No	☐ N/A	
Preform grips not in thimbles	☐ Yes	☐ No	☐ N/A	
Guys in poor condition (e.g., corrosion, broken)	☐ Yes	☐ No	☐ N/A	
Guys insulator in poor condition	☐ Yes	☐ No	☐ N/A	
Guy marker missing	☐ Yes	☐ No	☐ N/A	
Automatic guy splice present (for records purpose)	☐ Yes	☐ No	☐ N/A	
Guy Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1 ☐ N/A

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

STEEL STRUCTURE FOUNDATION Concrete ☐ or Direct Buried ☐				
Concrete 6" or less above ground line (or steel interface buried)	☐ Yes	☐ No	☐ N/A	
Concrete cracked or deteriorated	☐ Yes	☐ No	☐ N/A	
Rebar exposed	☐ Yes	☐ No	☐ N/A	
Stub in concrete not sealed and water proofed	☐ Yes	☐ No	☐ N/A	
Stub damage (e.g. corrosion, cracked, bent)	☐ Yes	☐ No	☐ N/A	
Earth around structure eroded, soil movement, slide	☐ Yes	☐ No	☐ N/A	
Significant vegetation around concrete? Impacting foundation?	☐ Yes	☐ No	☐ N/A	
Piles exposed, rotted or deteriorated	☐ Yes	☐ No	☐ N/A	
Foundation under water (for records purposes)	☐ Yes	☐ No	☐ N/A	
Foundation Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1 ☐ N/A

STEEL STRUCTURES				
Bird nests presence	☐ Yes	☐ No	☐ N/A	
Bird mitigation needed	☐ Yes	☐ No	☐ N/A	
Bird/Animal guards in poor condition (e.g. loose, contamination, broken)	☐ Yes	☐ No	☐ N/A	
Cell antennas attachments (for records purposes)	☐ Yes	☐ No	☐ N/A	
Unauthorized attachments	☐ Yes	☐ No	☐ N/A	
Structure out-of-plumb and leaning	☐ Yes	☐ No	☐ N/A	
Ground wire in poor condition (e.g. corrosion, flashed, broken, missing)	☐ Yes	☐ No	☐ N/A	
Vegetation present	☐ Yes	☐ No	☐ N/A	
Vegetation impact structure	☐ Yes	☐ No	☐ N/A	
Vegetation removal required	☐ Yes	☐ No	☐ N/A	If Yes, create notification_____
Vegetation Removed (for information only)	☐ Yes	☐ No	☐ N/A	
High voltage signs missing	☐ Yes	☐ No	☐ N/A	

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

High voltage signs installed incorrectly(see ED 022168)	☐ Yes	☐ No	☐ N/A	
Tower no. missing (see E.D. 022168)	☐ Yes	☐ No	☐ N/A	
Anti-climbing guard needed per E.D. 022168 and TD-1009S	☐ Yes	☐ No	☐ N/A	
Climbing steps installed incorrectly or missing	☐ Yes	☐ No	☐ N/A	
Climbing steps in poor condition	☐ Yes	☐ No	☐ N/A	
Damaged members (e.g., broken, bent, corrosion)	☐ Yes	☐ No	☐ N/A	If yes AND a primary support member, consider while assigning condition
Loose or missing members	☐ Yes	☐ No	☐ N/A	If yes AND a primary support member, consider while assigning condition
Damaged bolts	☐ Yes	☐ No	☐ N/A	If yes AND load bearing without additional support, consider while assigning condition
Loose bolts	☐ Yes	☐ No	☐ N/A	If yes AND load bearing without additional support, consider while assigning condition
Missing bolts	☐ Yes	☐ No	☐ N/A	If yes AND it is load bearing without additional support, consider while assigning condition
Bolts not punched	☐ Yes	☐ No	☐ N/A	
Tower Finish Type (for records purpose)	☐ Yes	☐ No	☐ N/A	i.e., galvanized, painted or partially painted, if not obvious choose N/A
Galvanized or paint finish in poor condition	☐ Yes	☐ No	☐ N/A	
Zinc paint applied (for information only)	☐ Yes	☐ No	☐ N/A	If using aerosol, shake well.
Working eyes and shackles show significant wear	☐ Yes	☐ No	☐ N/A	
Tower/FAA Lighting (for records purposes)	☐ Yes	☐ No	☐ N/A	
Tower/FAA Lighting not properly working	☐ Yes	☐ No	☐ N/A	
Mastic sealant in poor condition	☐ Yes	☐ No	☐ N/A	
Mastic applied during inspection (for information only)	☐ Yes	☐ No	☐ N/A	
Stub and Splice plate Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1
Steel Members including attachments Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1

Comments and Overall Condition of Foundations, Stub, Guys & Steel Structure Corrosion:

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

CONDUCTOR				
Conductor in poor condition. (Broken strands melt, corrosion, vibrating)	☐ Yes	☐ No	☐ N/A	
Conductor clearance or tension issue (slack or over-tension, uneven sag)	☐ Yes	☐ No	☐ N/A	
Jumpers in poor condition	☐ Yes	☐ No	☐ N/A	
Jumper clearance issue	☐ Yes	☐ No	☐ N/A	
Are splices present? (for records purposes)	☐ Yes	☐ No	☐ N/A	If yes, how many per span? ___
Splices in poor condition	☐ Yes	☐ No	☐ N/A	
Are splices within 10' of structure	☐ Yes	☐ No	☐ N/A	
What type of splices (for records purposes)	☐ Yes	☐ No	☐ N/A	i.e., automatic, shunt, compression, etc.
Automatic guy splice present (for replacement)	☐ Yes	☐ No	☐ N/A	If Yes, create notification to replacement with a shunt splice (see ETPM)
Flying bells present (for records purposes)	☐ Yes	☐ No	☐ N/A	
Spacers in poor condition	☐ Yes	☐ No	☐ N/A	
Are dampers present? (for records purposes)	☐ Yes	☐ No	☐ N/A	
Is there indication that dampers were present but are missing?	☐ Yes	☐ No	☐ N/A	
Are dampers in poor condition? (Fatigued, i.e. drooping or missing weight)	☐ Yes	☐ No	☐ N/A	
Marker balls in poor condition	☐ Yes	☐ No	☐ N/A	
Conductor Condition	☐ Yes 5	☐ No 4	☐ N 3	☐ ☐ ☐ 2 1 N/A

OVERHEAD GROUND WIRE				
Shield wire or OPGW grounded (for records purposes)	☐ Yes	☐ No	☐ N/A	
Shield wire in poor condition (i.e.,broken strands at the connectors or in the span.)	☐ Yes	☐ No	☐ N/A	
Shield wire plate in poor condition	☐ Yes	☐ No	☐ N/A	
Are dampers present? (for records purposes)	☐ Yes	☐ No	☐ N/A	
Are dampers in poor condition?	☐ Yes	☐ No	☐ N/A	
Overhead Ground Wire Condition	☐ Yes 5	☐ No 4	☐ N 3	☐ ☐ ☐ 2 1 N/A

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

HARDWARE & INSULATORS				
Insulator cap(s) show signs of corrosion?	☐ Yes	☐ No	☐ N/A	
Suspension / Dead-end conductor hardware hot-end/shoe assembly in poor condition	☐ Yes	☐ No	☐ N/A	
Suspension / Dead-end conductor hardware cold-end in poor condition	☐ Yes	☐ No	☐ N/A	
Insulator hanger plate in poor condition?	☐ Yes	☐ No	☐ N/A	
Are insulators in poor condition and/or contaminated? (Chipped, cracked, broken, dirty or "flashed")	☐ Yes	☐ No	☐ N/A	
Insulators are out-of-plumb	☐ Yes	☐ No	☐ N/A	
Grading/Corona rings in poor condition	☐ Yes	☐ No	☐ N/A	
Clamps in poor condition	☐ Yes	☐ No	☐ N/A	
Connectors in poor condition	☐ Yes	☐ No	☐ N/A	
Hardware & Insulators Condition	☐ 5	☐ 4	☐ 3	☐ 2 ☐ 1 ☐ N/A

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

Additional Comments for Accessibility, Environmental Characteristic along the Line and Right-of-Way Features

- **Accessibility** – Ease of access at structure, problematic landowner, vehicle type needed, etc.
- **Environmental Characteristic alone the Line –** identification of specific climatic, terrain, and potential degradation hazards along line
- **Right-of-Way Features –** Features such as vegetation type, water table, landowner information, and so on

Condition Code: 5=Heavy Damage w/Safety Concerns; 4=Heavy Damage; 3=Moderate Damage; 2=Light Damage; 1=No Visible Damage; N/A=Not Present

Attachment Q

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures) Rev 03/16

Bates PGE-CAMP-CPUC-0000020061

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

The 500 kV Tower Line Climbing Inspection Form provides a ready reference to ensure a thorough inspection.

- It is intended that the items on Page 2 of the form will be inspected during the climbing inspection.
- Refer to the ETPM Manual for guidance regarding the Facility, Damage, and Action

Structure #:	Line Name:		Voltage:	SAP Structure ID #:
Date Inspected:	Inspected By:			ETL #:
Order #:	Notification Required:	No ☐	Yes ☐	Notification #:
Comments:				
Inspector Review:	(Signature)		LAN ID:	Date:
Supervisor Review:	(Signature)		LAN ID:	Date:

PRIORITY CODES

N/A	Does not apply to this location
NP	No problem found
	Using Priority Code requires a Condition and Action to be documented
PC	Problem corrected at the time of inspection
A	Perform work immediately
B	Perform work within 3 months
E	Perform work within 12 months
F	Perform work within 24 months

INSTRUCTIONS.

1. The Facility, Damage, and Action Codes (FDA), are to be in accordance with the Electric Transmission Preventive Maintenance Manual.

   .

2. Send completed forms to:

   Tower Dept. Davis
   500Kv Inspection file
   316 "L" Street,
   Davis, CA 95616

CAMP-0639
PGE-CAMP-CPUC-0000020061

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

CHECK THIS ITEM	Condition Found							Damage	Action	COMMENTS
	N/A	NP	PC	A	B	E	F			
ANCHOR FOUNDATION										
Concrete is at least 6" above ground line	☐	☐	☐	☐	☐	☐	☐			
Concrete is not cracked or deteriorated	☐	☐	☐	☐	☐	☐	☐			
Concrete is sealed and water proofed	☐	☐	☐	☐	☐	☐	☐			
Earth around anchors is not eroded	☐	☐	☐	☐	☐	☐	☐			
Anchors have no evidence of pull out?	☐	☐	☐	☐	☐	☐	☐			
Do anchors consist of loops or rods?	☐	☐ Loops		☐ Rods						
GUY WIRE										
Guys are properly tensioned	☐	☐	☐	☐	☐	☐	☐			
Turnbuckle punched	☐	☐	☐	☐	☐	☐	☐			
Proper guy cable and hardware used	☐	☐	☐	☐	☐	☐	☐			
6" of travel left in turnbuckle	☐	☐	☐	☐	☐	☐	☐			
Preform cross ties properly installed	☐	☐	☐	☐	☐	☐	☐			
Guy tails clipped properly	☐	☐	☐	☐	☐	☐	☐			
Preform grips in thimbles	☐	☐	☐	☐	☐	☐	☐			
Correct number of guys	☐	☐	☐	☐	☐	☐	☐			
Automatic Guy Splice Present	☐ No			☐ Yes						
STRUCTURE FOUNDATIONS										
Concrete is at least 6" above ground line	☐	☐	☐	☐	☐	☐	☐			
Concrete is not cracked or deteriorated	☐	☐	☐	☐	☐	☐	☐			
Rebar Exposed	☐	☐	☐	☐	☐	☐	☐			
Concrete is sealed and water proofed	☐	☐	☐	☐	☐	☐	☐			
Earth around structure is not eroded	☐	☐	☐	☐	☐	☐	☐			
Direct buried steel grillage	☐	☐	☐	☐	☐	☐	☐			
Piles exposed	☐	☐	☐	☐	☐	☐	☐			
Piles rotted/deteriorated	☐	☐	☐	☐	☐	☐	☐			
STRUCTURE/STEEL										
Tower is plumb and not leaning	☐	☐	☐	☐	☐	☐	☐			
Tower legs straight, not bowed or twisted	☐	☐	☐	☐	☐	☐	☐			
High voltage signs per E.D. 022168	☐	☐	☐	☐	☐	☐	☐			
Tower no. & line name per E.D. 022168	☐	☐	☐	☐	☐	☐	☐			
Anti-climbing guard per E.D. 022168	☐	☐	☐	☐	☐	☐	☐			
Climbing steps installed correctly & are in good condition	☐	☐	☐	☐	☐	☐	☐			
Broken or bent members	☐	☐	☐	☐	☐	☐	☐			
Loose or missing steel members	☐	☐	☐	☐	☐	☐	☐			
Loose bolts	☐	☐	☐	☐	☐	☐	☐			
Missing bolts	☐	☐	☐	☐	☐	☐	☐			
All bolt threads are double punched	☐	☐	☐	☐	☐	☐	☐			
Galvanized finish is OK	☐	☐	☐	☐	☐	☐	☐			
Galvanox applied to unfinished areas	☐	☐	☐	☐	☐	☐	☐			
Working eyes and shackles free of wear	☐	☐	☐	☐	☐	☐	☐			
Bird nests present	☐ No			☐ Yes						
Cell antenna attachments	☐ No			☐ Yes						
Unauthorized attachments	☐ No			☐ Yes						
Bird Mitigation installed	☐ No			☐ Yes						
Bird Mitigation recommended	☐ No			☐ Yes						

CAMP-0640
PGE-CAMP-CPUC-0000020062

TD-1001M-F04 Steel Structure Detailed Climbing Inspection Form (Non-500kV Structures)

CHECK THIS ITEM	Condition Found							Damage	Action	Comments
	N/A	NP	PC	A	B	E	F			
CONDUCTOR										
Conductor is in good condition, no broken strands or birdcaging at the connectors or in the span	☐	☐	☐	☐	☐	☐	☐			
All dampers are present?	☐	☐	☐	☐	☐	☐	☐			
All dampers are in good condition, not fatigued with drooping messenger or missing weight	☐	☐	☐	☐	☐	☐	☐			
OVERHEAD GROUND WIRE										
Shield wire or OPGW is grounded properly	☐	☐	☐	☐	☐	☐	☐			
Shield wire is in good condition, no broken strands at the connectors or in the span	☐	☐	☐	☐	☐	☐	☐			
All dampers are in present?	☐	☐	☐	☐	☐	☐	☐			
All dampers are in good condition?	☐	☐	☐	☐	☐	☐	☐			
HARDWARE & INSULATORS										
Insulator cap(s) are free of corrosion	☐	☐	☐	☐	☐	☐	☐			
All insulators are intact and in good condition, not chipped or broken?	☐	☐	☐	☐	☐	☐	☐			
VEGETATION										
Vegetation impact foundation	☐	☐	☐	☐	☐	☐	☐			
Vegetation impact structure	☐	☐	☐	☐	☐	☐	☐			

Comments and Overall Condition of Foundations, Guys, Structure, & Conductor:

CAMP-0641
PGE-CAMP-CPUC-0000020063

Attachment R

TD-1001M-JA02 Detailed Climbing Inspection Job Aid (Effective 09/24/2018, Rev: 1)

Bates PGE-CAMP-CPUC-0000019292

Detailed Climbing Inspection Job Aid

PPE:
- Hard Hat
- Gloves
- Safety Glasses

Tools:
- Pen – Blue or Black ink ONLY
- DO NOT USE erasable ink or pencil.

Required Forms:
- TD-1001M-F03 (500kV, including A1 & A2 or B1 & B2, or C1 & C2)
- TD-1001M-F04 (Non-500kV)

Guidance Document References:
ETPM Manual TD-1001M

Level of Use:
- ❑ Information
- ❑ Reference
- ❑ Continuous

Detailed Climbing Inspection

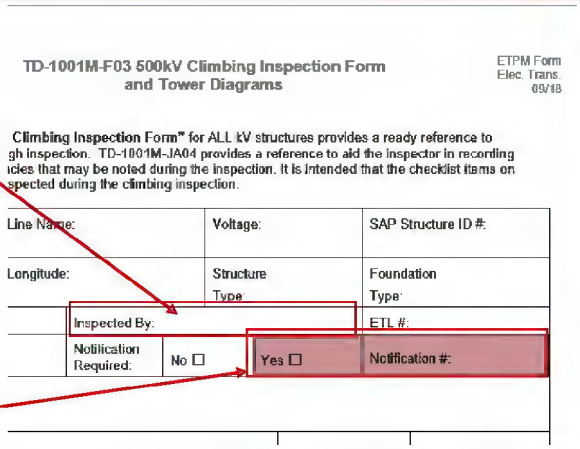
NOTE: ALWAYS use blue or black ink when filling out Inspection forms. NEVER use whiteout to fix mistakes.

STEPS

1 Fill out page 1 of inspection form as required. The first and last name of the QCR (employee who performs the inspection) must be written clearly in the 'Inspected By:' box.

> **NOTE:**
> - **If any issues were found at the structure location you may need to create a notification.**

Checking any of the following boxes will require the creation of a notification (with Priority Codes A, B, E, or F)



TD-1001M-F03 500kV Climbing Inspection Form and Tower Diagrams

ETPM Form Elec. Trans. 09/18

Climbing Inspection Form™ for ALL kV structures provides a ready reference to gh inspection. TD-1001M-JA04 provides a reference to aid the inspector in recording icies that may be noted during the inspection. It is intended that the checklist items on spected during the climbing inspection.

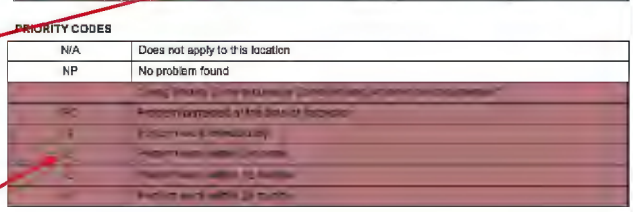
Line Name:	Voltage:	SAP Structure ID #:
Longitude:	Structure Type:	Foundation Type:
Inspected By:		ETL #:
Notification Required: No ☐	Yes ☐	Notification #:

2 The QCR (employee who inspected the structure) will sign their name in the "Inspector Review:" box, as well as write their LAN ID and date.

The supervisor responsible for the Detailed Climbing Inspection will sign and date the "Supervisor Review" box.

Order #:	Notification Required:	No ☐	
Comments:			
Inspector Review: (Signature)		LAN ID:	Date:

3 Priority, Damage, & Action codes can be found in the ETPM Manual. The manual will be necessary for ensuring the Inspection forms are filled out correctly in the ET Asset Inspection (AI) App.



PRIORITY CODES

N/A	Does not apply to this location
NP	No problem found

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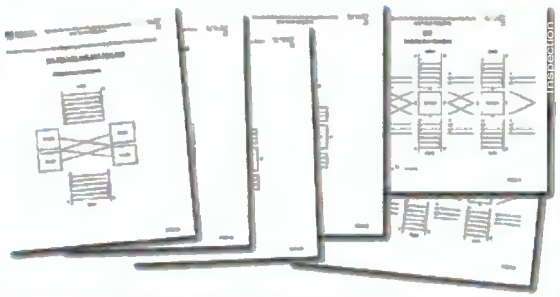
Detailed Climbing Inspection Job Aid

STEPS	
4	When completing a Detailed Climbing Inspection on a 500kV circuit. Pre and Post guy wire tensions must be captured utilizing sheets A1 & A2, B1 & B2, or C1 & C2.



5	When completing the inspection form, ONE box on every line MUST BE CHECKED. If the line item was not applicable at your location you would use N/A.

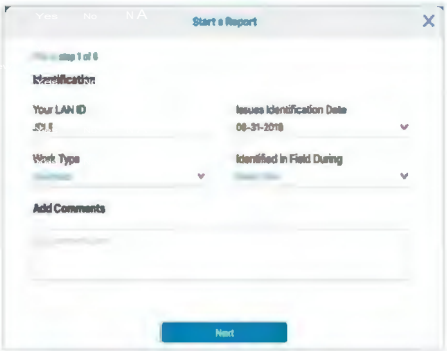
Note:

At the end of each section, choose the Condition Code. The Condition Codes for the entire facility will be considered when deciding if a notification(s) must be created and which Priority Code to choose. Condition Code choices are in the footnote of each page. Refer to TD-1001M-JA04, "Identifying Levels of Corrosion and Foundation Condition on Transmission Line Structures and Supports".

STEEL STRUCTURE FOUNDATION Concrete ☐ or Direct Buried ☐				
Concrete 6" or less above ground line (or steel interface buried)	☐ Yes	☐ No	☐ N/A	
Concrete cracked or deteriorated	☐ Yes	☐ No	☐ N/A	
Rebar exposed	☐ Yes	☐ No	☐ N/A	
Interface between concrete and steel not sealed and waterproofed	☐ Yes	☐ No	☐ N/A	
Earth around structure eroded	☐ Yes	☐ No	☐ N/A	
Significant vegetation around concrete? Impacting foundation?	☐ Yes	☐ No	☐ N/A	
Piles exposed	☐ Yes	☐ No	☐ N/A	
Foundation under water (for records purposes)	☐ Yes	☐ No	☐ N/A	
Foundation Condition	☐ 5	☐ 4	☐ 3	☐ ☐☐ 2 1 N/A

STEEL STRUCTURES				
Bird nests presence	☐ Yes	☐ No	☐ N/A	
Cell antennas attachments (for records purposes)	☐ Yes	☐ No	☐ N/A	
Unauthorized attachments	☐ Yes	☐ No	☐ N/A	
Structure is not plumb and leaning	☐ Yes	☐ No	☐ N/A	
Bird mitigation needed	☐ Yes	☐ No	☐ N/A	
Vegetation present	☐	☐	☐	

6	Use the ET AI App to create notifications with the appropriate Damage and Action codes. Include comments AND PHOTOS of the damage found.
7	If you found a problem, but you were able to correct it onsite, follow the process in the ETPM Manual and create a Notification in the ET AI App. Also note the fix in the comment section of the inspection form.



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Attachment S

Aerial Patrol Records from 2018,

Bates PGE-CAMP-CPUC-0000000516

****

Order	**43219839**	**PATR/INSP 10391 CARIBOU-PALERMO**	
Order type	**T180 EL TRANS EXPENSE RECURRING**		
Status	REL MANC NMAT PRC SETC		
User Status	UNSC ObjC		
Start date	08/30/2018		
End date	09/30/2018		
FunctLocation	ETL.3190.POLE.NWOD	10391 CARIBOU-PALERMO-NONWOOD POLE	
Equipment	41147754	:031/251A LATTICE STEEL POLE	
MaintPlanGroup	TLT	ECES	
MainWrkCenter	TABLEMTN ECES	Table Mountain	
Priority	E	E - Schd Compl Yr 0	
MaintenancePlan			
MaintPlanItem			
Revision No.			
Partner	SRF5	JO	
Address	[redacted]	[redacted]	12345
Phone	[redacted]		
Class	ETLEQP	Electric Transmission Line Equipment	002
ETL_FRAMINGCONFIG		SUSPENSION (TWR)	
ETL_OWNER		PGE	
ETL_UNDERBUILT		NO	
LATITUDE		39.766040000000	
LONGITUDE		-121.460750000000	
Class	ETL_POLE	ETL-POLE	002
ELEVATION_MSL		1,452.494 ft	
ETL_FRAMINGCONFIG		SUSPENSION (TWR)	
ETL_OWNER		PGE	
ETL_POLETYPE		LATTICE STEEL POLE	
ETL_UNDERBUILT		NO	
HEIGHT_GL		78.176 ft	
HEIGHT_MSL		1,530.670 ft	
LATITUDE		39.766040000000	
LIDAR_LAT		39.766100410000	
LIDAR_LONG		-121.460698100000	
LONGITUDE		-121.460750000000	
SEC_STRUCTURE_NUM		031/251A	
Operation	**0002**	**Transmission OH Air Patrol**	
Work center	ET_TMAN1 ECES	ELECTRIC TROUBLEMAN TRANSMISSION	

Control key	INDT	*CompConf No.*	32919766
Operation key	ETL02	*Milestone*	
Work	2 MIN	*Activity type*	MO
Duration	1 DAY	*Number*	1
EarlStartDate	08/30/2018	*Start time*	00:00:00
LateEndDate	09/30/2018	*End time*	00:00:00
Actual work	0 MIN	*Total buffer*	0 MIN

Notification	Order	Required End	Notif.date	Noti	Planne	Description	Functional Loc.	Coding	NOTES
114730861	43382525	06/12/2019	06/12/2018	LC	TLM	CARIBOU-PALERMO NON RTN GROUND PATROL	ETL.3190	539	
114777704		07/12/2019	07/12/2018	LC	TLM	CARIBOU-PALERMO 3/027 FOND NG REPA	ETL.3190.TOWR	543	
114353627	31385303	09/02/2018	03/02/2018	LC	TLN	T3 CARIBOU-PALERMO 037/301 INSS NG REPL	ETL.3190.INSL	532	

Transmission Line Inspection Datasheet OH

Inspector Name : [redacted] **Date Inspection Completed :** 9/19/18

Miles Inspected : 62 **# Structures Inspected :** 457

Order : 43219839 PATR/INSP 10391 CARIBOU-PALERMO MAT : BFX Annual Air Patrols
Plan Group : TLT ET Towers Work Center : ET_TMAN1 ELECTRIC TROUBLEMAN TRANSMISSION
Funct Loc : ETL.3190.POLE.NWOD10391 CARIBOU-PALERMO-NONWOOD POLE ABC : M Medium Impact ISO :
Oper Volt : Line Miles : # Struct Order: 457

Line Last Inspected :

Inspection Findings Data

Date Found	Structure #	Facility	Damage	Action	Priority	Comments	Notification #
9/11/18	2/22	INSULATOR	NO GOOD	REPLACE	E	REPLACE DAMAGED INSULATOR	114968341
9/11/18	27/221	INSULATOR	NO GOOD	REPAIR	E	REPAIR HOLD DOWN INSULATOR ANCHOR	114968158

Inspector's Signature: [redacted] Date: 9/19/18 LanID: J352

Supervisor's Signature: [redacted] Date: 9/25/18 LanID: jpw.

Object Codes			
AG05	Anchor Hardware	IH09	Grading Ring
AG06	Guy	IH10	Other (Describe)
AG10	Anchor	LP01	Emergency Air Patrol
CF03	Conductor	LP02	Emergency Ground Patrol
CF04	Groundwire	LP03	Emergency Infrared Patrol
CF07	Damper	MA01	Structure Marker
CF08	Spacer	MA04	Aviation ball
CF10	Connector	MA05	Lighting
CF14	Splice	MA10	Aerial marker
CF16	Shieldwire/OPGW	RW01	Right-of-Way
CF17	Jumper	RW02	Gate/Fence
EC01	Tree	RW03	Road, Culvert, etc.
EC02	Ground	RW04	Boardwalk
EC04	R/W Encroachment	SH01	Contact/Attachments
EC06	Underbuild/Xing	SH04	Equipment
EC07	Structure	SH10	Platform
FO01	Earth Footing	SH14	Operating Assembly
FO02	Concrete Footing	SS01	Leg member
FO04	Grdwire Connection	SS03	Non-leg Member
FO07	Grade beam	SS09	Bolts
FO08	Stub Angle	SS10	Steps/ladder
FO09	Anchor bolts	SS13	Anti-climbing Guard
IH01	Hardware - DE	SS15	Bird Guard
IH02	Hardware - Susp.	SW01	Pole
IH03	Insul. - Post	SW04	Wood Arm
IH04	Insul. - Pin	SW05	Steel Arm
IH05	Insul. - Bell	SW07	Bonding
IH06	NCI - Post	SW14	Molding
IH07	NCI - DE/Susp.		

Damage Codes			
CH02	Not sealed	MC01	Cracked
CH03	Corroded	MC02	Broken
CH05	Rusted	MC03	Buckled/Bent
CH07	Rotted	MC08	Loose
CH08	Worn/Aged	MC09	Twisted
CH10	Other	MC10	Over tension
CH14	Earth covered	MC12	Soil Movement
EL03	Grade change (R/W)	MC13	Bird Caged
EL05	Flashed	MC14	Out of adjustment
EL08	Clearance (ft/in)	MC15	Missing
EL09	Burnt	MC17	Slack
EL10	Contaminated	MC18	Out of plumb
EL11	Brush/fuel	MC20	Leaning
EL13	Hot/Heating	MC23	Split
EL14	Encroachment	MC26	Vibrating
LP01	Unknown Failure/Locked Out		

Cause of Problem			
3RDP	Third Party	OTHR	Other
ANIM	Animal	TBRN	Tree Branch
BIRD	Bird	TFLL	Tree Fell
FIRE	Fire	VEGE	Tree Contact
LITN	Lightning		

Inspected By: [redacted]

Funct Loc : ETL.3190.POLE.NWOD 10391 CARIBOU-PALERMO-NONWOOD POLE Medium Impact
Order : 43219839 PATR/INSP 10391 CARIBOU-PALERMO Annual Air Patrols

Date Inspected: 9/11/18
Structures Inspected: From 0/1 To :8/67

Date Inspected: 9/19/18
Structures Inspected: From :8/66 To :0/1

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Date Inspected: _____
Structures Inspected: From _____ To _____

Notes: _____

Attachment T

LC Notification #103995542,

Bates PGE-CAMP-CPUC-0000000553

Corrective Work Form
Electric Transmission Line

CARIBOU PALERMO :27/222 RPL CONNECTORS

LC #	103995542
Priority	F - Schd Compl Yr 1+
Work Type	534 - ICM-Bolted Connector Repairs

Line Name	10391 CARIBOU-PALERMO		
Functional Location	ETL.3190.INSL - 10391 CARIBOU-PALERMO-INSULATOR		
Equipment	40736157 - 027/222 CERAMIC INSULATOR		
Structure ID	027/222		
Main Work Center	TABLEMTN - Table Mountain	**Required End Date**	11/30/2015
Planner Group	TLN - ET Line	**Order #**	42163528
Voltage		**Wood** ☐	**Steel** ☐
Latitude	39.819012	**Longitude**	-121.429717
Bird report event log		**Bird Incident #**	

Facility		Damage		Activity	
CF10	Connector	**CH10**	Other	**COMP**	Completed By :

Street	
Cross Street	
Division	NV
City	Zip 00000
County	004 - Butte County

Crew Size	
Estimated Labor Hours	

Reported by	JTA6	**Date Found**	8/25/2009

Completed By		**Date**		**Actual Labor Hours**
Reviewed By		**Date**		
Signature				

I verify that all maintenance on this notification is completed

Field Notes

Long Text

09/16/2009 13:12:06 [redacted] (AXRU) Phone [redacted]
PER [redacted] ON INSPECTION NEED TO REPLACE 3 BOLT CONNECTOR WITH WEDGE

07/25/2011 10:29:41 [redacted] (VLC5) Phone [redacted]
Reassess notification no -000105375996
08/16/2011 15:55:27 [redacted] (AXRU) Phone [redacted]
PER [redacted] ON 8/1/11 DURING PATROL OK TO MOVE OUT 2 YRS

01/10/2012 15:51:16 [redacted] (ALCI) Phone [redacted] 2012 Data
clean up. Move required end date to 11/30/2015

01/02/2014 17:10:16 [redacted] (EEP4) Phone [redacted]
Per [redacted] (T-Line Supervisor): Work code should be (534) for bolted

connectors, updated.

01/02/2014 17:17:59 [redacted] (EEP4) Phone [redacted]

Planner group updated from TLT to TLN.

06/29/2016 08:35:16 PST [redacted] (EEP4) Phone [redacted]

Work completed by [redacted] on 6-18-16.

Attachment U

LC Notification #105375996,

Bates PGE-CAMP-CPUC-0000017701

Corrective Work Form
Electric Transmission Line

REAS- CARIBOU PALERMO :27/222 RPL CONNEC

LC #	105375996
Priority	F
Work Type	599 - Do Not Use

Line Name	10391 CARIBOU-PALERMO		
Functional Location	ETL.3190.INSL - 10391 CARIBOU-PALERMO-INSULATOR		
Equipment	40736157 - 027/222 CERAMIC INSULATOR		
Structure ID	027/222		
Main Work Center	TABLEMTN - Table Mountain	**Required End Date**	8/30/2011
Planner Group	TLT - ET Towers	**Order #**	
Voltage		**Wood** ☐ **Steel** ☐	
Latitude	39.819012	**Longitude**	-121.429717
Bird report event log		**Bird Incident #**	

Facility		Damage		Activity
CF10	Connector	CH10	Other	

Street		**Crew Size**	
Cross Street		**Estimated Labor Hours**	
Division	NV		
City		**Zip**	00000
County	004 - Butte County		

Reported by	JTA6	**Date Found**	8/25/2009

Completed By		**Date**	**Actual Labor Hours**
Reviewed By		**Date**	
Signature			

I verify that all maintenance on this notification is completed

Field Notes

Long Text

07/25/2011 10:29:40 [redacted] (VLC5) Phone [redacted]
Reassessment of Notification: 000103995542
09/16/2009 13:12:06 [redacted] (AXRU) Phone [redacted]
PER [redacted] ON INSPECTION NEED TO REPLACE 3 BOLT CONNECTOR WITH WEDGE
05/16/2011 15:55:23 [redacted] (AXRU) Phone [redacted]
PER [redacted] ON 8/1/11 DURING PATROL OK TO MOVE OUT 2 YRS

Attachment V

PGE-CAMP-CPUC-0000004159 (enhanced inspection, disconnected insulator hold-down anchor)

V_003/037		previously examined	previously examined		
V_003/029		previously examined	previously examined		
V_003/035		previously examined	previously examined		
V_003/035		previously examined	previously examined		
V_004/039		previously examined	previously examined		
5 kV_004/042		previously examined	previously examined		
5 kV_004/043		previously examined	previously examined		
5 kV_004/042		previously examined	previously examined		
5 kV_005/051		previously examined	previously examined		
/049 REM BRUSH		previously examined	previously examined		
5 kV_005/049		previously examined	previously examined		
15 kV_010/085	F	yes	foundation		
5/286 REMV BRUSH	E	yes	Steel struc	Vegetation	
5/286 LOOSE BOLTS	A	yes	Hardware	loose bolts	replace all cold and hot hardware; Remove Corona ring
:035/284 NUMBER TWR	E	yes	Steel structure		
6/288 MISSING BOLT	E	yes	Steel struc	Also insulator contamination	
4/278 BOLT REPR	E	yes	Steel structure		
5/280 RPLC SWAY	E	yes	foundation	earth covered, also bent secondary member	
4/279 REPLC BOLTS	B	yes	Hardware	loose bolts	
034/276 BENT SWAY	E	yes	foundation	earth covered, also bent secondary member	
76 RPLC CTTR KEY	B	yes	Hardware	Bad cotter pin	
:032/259 BENT SWAY	E	yes	Steel struc	bent secondary member	
:033/268 BENT LEG	E	yes	Steel struc	bent secondary member	
:032/260 BENTSWAY	E	yes	Steel struc	bent secondary member	
:031/257 BENT SWAY	E	yes	foundation	earth covered, also bent secondary member	
:031/251A BENT SWAY	E	yes	Steel struc	bent secondary member	
:032/263 BENT SWAY	E	yes	foundation	earth covered, also bent secondary member	
:031/256 BENT SWAY	E	yes	Steel struc	bent secondary member	
:031/255 BENT SWAY	E	yes	Steel struc	bent secondary member	
2/263 RPLC EYE	B	yes	Hardware	Hard to see extent of wear in hanger plate	
V_024/388	E	yes	Wood pole	woodpecker	
V_025/404	E	yes	Wood pole	woodpecker	
_024/397	A	yes	other	bond wire attachment broken	
15 kV_:000/008	E	yes	foundation	Corrosion on stub angle; replace	
15 kV_:004/035	E	yes	Steel struc	bent secondary member	
15 kV_:003/030	E	yes	Steel struc	bent secondary member	
15 kV_:005/044	E	yes	Steel struc	bent secondary member	
15 kV_:003/026	E	yes	foundation	earth covered, also bent secondary member	
15 kV_:000/008	E	yes	foundation	Corrosion on stub angle; replace	
15 kV_:001/010	E	yes	Steel struc	bent secondary member	
15 kV_:001/013	E	yes	Steel struc	bent secondary member	
15 kV_:003/022	E	yes	Steel struc	bent secondary member	

0/079 RPL CTTR KEY	B	yes	Hardware	missing cotter pin	
0/080 WORN EYE /BN	A	yes	Hardware	worn bolt on shackle for insulator string	replace all cold and hot hardware; Remove Corona ring
5 kV_:006/047	E	yes	Steel struc	bent secondary member	
0/081 SHOE BOL RPL	E	yes	Hardware	loose bolts	
V_:011/090	E	yes	Steel struc	bent secondary member	
V_:011/091	E	yes	Steel struc	bent secondary member	
V_012/095	E	yes	Steel struc	bent secondary member	
V_:012/099	E	yes	Steel struc	bent secondary member	
V_:013/103	E	yes	Steel struc	bent secondary member	
V_:013/106	E	yes	Steel struc	bent secondary member	
V_:014/114	E	yes	Steel struc	bent secondary member	
V_:014/111	E	yes	Steel struc	bent secondary member	
V_:014/110A	E	yes	Steel struc	bent secondary member	
V_:015/121	B	yes	Steel struc	missing secondary member	
V_:015/126	E	yes	Steel struc	bent secondary member	
V_:016/130	E	yes	Steel struc	missing bolt	
V_:014/118	B	yes	Conductor	broken strands at splice	
V_014/118A	E	yes	Steel struc	bent secondary member	
V_012/093	E	yes	Steel struc	bent secondary member	
V_:012/098	A	yes	Hardware	missing cotter pin	replace all cold and hot hardware; Remove Corona ring
V_:012/098	B	yes	Steel struc	broken secondary member	
V_:012/096	B	yes	Hardware	worn hanger plate on C hook	
V_:013/102	E	yes	Steel struc	bent secondary member	
V_:014/115	B	yes	Steel struc	broken secondary member	
V_:014/117	E	yes	Steel struc	bent secondary member	
V_:015/120	B	yes	Steel struc	broken secondary member	
V_012/094	A	yes	Hardware	worn hanger plate on C hook	replace all cold and hot hardware; Remove Corona ring
V_:016/128	B	yes	Hardware	Broken hold down insulator hardware	
V_:011/092	E	yes	Steel struc	bent secondary member	
V_012/094	A	no	Conductor	bird caging and broken strands	replace all cold and hot hardware; Remove Corona ring
V_:012/100	B	yes	Hardware	missing cotter pin	
V_:013/109	B	yes	Steel struc	Corrosion on stub angle; replace	
V_:014/116	E	yes	Steel struc	bent secondary member	
V_:012/097	A	yes	Hardware	missing cotter pin	Replace all hot/cold hardware
V_:012/097	A	yes	Hardware	worn hanger plate on C hook	Replace hangar plate and hardware
V_:013/104	B	yes	Hardware	loose bolts	
V_:013/104	A	yes	Hardware	worn hanger plate on C hook	
V_:013/110	E	yes	Steel struc	bent secondary member	
V_:016/132	E	yes	Insulator	cracked bell	
V_:015/124	E	yes	Steel struc	bent secondary member	
V_:016/127	E	yes	Steel struc	bent secondary member	
V_:016/132	E	yes	Hardware	worn hanger plate on C hook	

V_:021/179	B	yes	Hardware	worn hanger plate on C hook	
V_:021/179	A	yes	Hardware	Broken hold down insulator hardware	replace all cold and hot hardware; Remove Corona ring
V_:021/181	A	yes	Hardware	Broken hold down insulator hardware	replace all cold and hot hardware; Remove Corona ring
V_:022/184	E	yes	Steel struc	bent secondary member	
V_:024/198	B	yes	Hardware	loose cotter pin	
V_:024/200	E	yes	Steel struc	bent secondary member	
V_:024/200	A	yes	Conductor	gunshot	splice in new conductor
V_:025/207	E	yes	Steel struc	bent secondary member	
V_:025/210	E	yes	Steel struc	bent secondary member	
V_:026/213	E	yes	Steel struc	bent secondary member	
V_:029/237	B	yes	Hardware	loose cotter pin	
V_:030/243	B	yes	Steel struc	broken secondary member	
V_:030/243	A	yes	Hardware	worn hanger plate on C hook	replace all cold and hot hardware; Remove Corona ring
V_:030/246	E	yes	Steel struc	bent secondary member	
V_:030/249A	E	yes	Steel struc	bent secondary member	
V_:030/249	E	yes	Steel struc	bent secondary member	
V_:017/138	E	yes	Steel struc	bent secondary member	
V_:016/135	E	yes	Steel struc	bent secondary member	
V_:017/140	E	yes	Steel struc	bent secondary member	
V_:017/143	E	yes	Steel struc	bent secondary member	
V_:017/145		missing attachment		missing attachment	
V_:018/148	no action	yes	Hardware	missing nut from switch arm	
V_:020/162	E	yes	Steel struc	bent secondary member	
V_:020/168	E	yes	Steel struc	bent secondary member	
V_:022/185	B	yes	Hardware	worn hanger plate on C hook	
V_:023/194	A	yes	Insulator	broken insulator string	replace all cold and hot hardware; Remove Corona ring
V_:023/194	E	yes	foundation	exposed reinforcing steel	
V_:024/199	A	yes	Hardware	worn hanger plate on C hook	
V_:025/209	E	yes	Steel struc	bent secondary member	
V_:025/209	B	yes	Hardware	cotter key loose	
V_:030/244	A	yes	Hardware	worn hanger plate on C hook	
V_:030/247	B	yes	Steel struc	bent primary member	

Attachment W

PGE-CAMP-CPUC-0000004188 (enhanced inspection, disconnected insulator hold-down anchor)

Privileged and Confidential: Prepared at the direction of counsel

Notification	Description	Original Priority	Date Deficiency Identified		Revised Priority		Date of Revised Priority	Completed On
						REVISED		
115335006	HAT CREEK #1-WESTWOOD 054/1056 RPL PL	E	11/11/2018	–	A	B	12/14/2018	
115338206	T3 KESWICK-TRINITY_5/74B REPAIR KING PIN	E	11/12/2018		A	A	12/14/2018	12/14/2018
115339725	CARIBOU #2 17/16 RE-TIE CENTER PHASE	E	11/12/2018		A	A	12/14/2018	11/17/2018
115339881	FULTON-HOPLAND 20/05 REPL NG POLE	E	11/12/2018	–	A	B	12/14/2018	11/26/2018
115343503	T2 CARIBOU-PALERMO - 115 kV_011/088 +	E	11/13/2018	–	A	BA	12/14/2018	Line De-Energized
115343527	T2 CARIBOU-PALERMO - 115 kV_011/099 +	E	11/13/2018		A	A	12/14/2018	Line De-Energized
115344222	T2 HAT CREEK#1-WESTWOOD 054/668 RPL PL	E	11/13/2018		A	A	12/14/2018	11/21/2018
115344237	T2 CARIBOU-PALERMO-115 kV_008/071-Conort	F	11/13/2018	–	A	E	12/14/2018	12/5/2018
115344326	T2 CARIBOU-PALERMO - 115 kV_010/084-stee	F	11/13/2018	–	A	E	12/14/2018	12/5/2018
115347910	T3 CARIBOU-PALERMO - 115 kV_035/281 +	E	11/14/2018		A	A	12/14/2018	Line De-Energized
115353174	T2 PIT #1-COTTONWOOD-016/132 REPLC INSL	E	11/15/2018	–	A	B	12/14/2018	
115375931	T3 CARIBOU-PALERMO-:035/286 LOOSE BOLTS	E	11/18/2018		A	A	12/14/2018	Line De-Energized
115395606	T2 KESWICK-TRINITY - 60 kV_024/397	E	11/13/2018		A	A	12/14/2018	DISTRIBUTION *
115410939	T2 CARIBOU-PALERMO - 115 kV_:008/067	E	11/26/2018		A	A	12/14/2018	Line De-Energized
115410960	T3 CARIBOU-PALERMO-:011/088 WARN EYE	E	11/26/2018		A	A	12/14/2018	Line De-Energized
115410963	T3 CARIBOU-PALERMO-:011/088 REPLC BOLT	E	11/26/2018	–	A	B	12/14/2018	Line De-Energized
115410980	T2 CARIBOU-PALERMO - 115 kV_:009/072	E	11/26/2018	–	A	B	12/14/2018	Line De-Energized
115411032	T3 CARIBOU-PALRMO-:10/81 BENT LEGS/SWA	E	11/26/2018		A	A	12/14/2018	Line De-Energized
115411033	T3 CARIBOU-PALERMO-:010/080 JUMPER CNTC	E	11/26/2018		A	A	12/14/2018	Line De-Energized
115411048	T3 CARIBOU-PALERMO-:010/080 WORN EYE /BN	E	11/26/2018	–	A	B	12/14/2018	Line De-Energized
115439386	T2 CARIBOU-PALERMO - 115 kV_:012/098	E	12/1/2018		A	A	12/14/2018	Line De-Energized
115439409	T3 CARIBOU-PALERMO - 115 kV_012/094	E	12/1/2018	–	A	B	12/14/2018	Line De-Energized
* 115439427	T3 CARIBOU-PALERMO - 115 kV_012/094	E	12/1/2018	–	A	B	12/14/2018	Line De-Energized
115439450	T3 CARIBOU-PALERMO - 115 kV_:012/097	E	12/1/2018		A	A	12/14/2018	Line De-Energized
115439451	T3 CARIBOU-PALERMO - 115 kV_:012/097	E	12/1/2018	–	A	B	12/14/2018	Line De-Energized
115439454	T2 CARIBOU-PALERMO - 115 kV_:013/104	E	12/1/2018	–	A	B	12/14/2018	Line De-Energized
115439572	T3 CARIBOU-PALERMO - 115 kV_:011/090	E	12/1/2018		A	A	12/14/2018	Line De-Energized
115445166	T2 CARIBOU-PALERMO - 115 kV_:020/160	E	12/4/2018		A	A	12/14/2018	Line De-Energized
115445236	T2 CARIBOU-PALERMO - 115 kV_:021/180B	E	12/4/2018	–	A	B	12/14/2018	Line De-Energized
115445516	T2 CARIBOU-PALERMO - 115 kV_:017/145	E	12/4/2018	–	A	B	12/14/2018	Line De-Energized
115445747	T2 CARIBOU-PALERMO - 115 kV_:021/179	E	12/4/2018		A	A	12/14/2018	Line De-Energized
115445751	T2 CARIBOU-PALERMO - 115 kV_:021/181	E	12/4/2018	–	A	B	12/14/2018	Line De-Energized
115445853	T2 CARIBOU-PALERMO - 115 kV_:024/200	E	12/4/2018		A	A	12/14/2018	Line De-Energized
115445945	T3 CARIBOU-PALERMO - 115 kV_:030/243	E	12/4/2018		A	A	12/14/2018	Line De-Energized
115446203	T2 CARIBOU-PALERMO - 115 kV_:023/194	E	12/4/2018		A	A	12/14/2018	Line De-Energized
115446250	T2 CARIBOU-PALERMO - 115 kV_:024/199	E	12/4/2018	–	A	B	12/14/2018	Line De-Energized
115446295	T3 CARIBOU-PALERMO - 115 kV_:030/244	E	12/4/2018	–	A	B	12/14/2018	Line De-Energized

Total = 37

+ Basis for de-energizing the Palermo-Cariboo Line

Total = 19

* found down guy (referred Pounts)

Attachment X

4/16/2019 PG&E Response to CPUC Data Request SED-006, Caribou-Palermo 115 kV Transmission, Question 2 (PG&E records do not identify the reason that the replacement work identified in LC Notification 103995542 was completed late)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-006 – Caribou-Palermo 115 kV Transmission

Requesters: Banu Acimis
Request Date: March 20, 2019
Response Date: April 16, 2019

Question 2:
Page 44 of 2015 Inspection report indicates that 027/222 lattice steel tower on the incident line had pre-existing conditions checked. Please explain the pre-existing conditions on the tower and provide a copy of all records showing the pre-existing conditions. Was a work order created? If so, please provide the details of the work order and records showing that work order has been completed. If not completed, explain why not and specify projected completion dates and priority level assigned to it. If photographs are available, please provide those as well.

Response to Question 2:
PG&E understands "pre-existing conditions" as referring to the condition on Tower :27/222 on the Caribou-Palermo 115 kV Transmission Line identified during PG&E's detailed inspection of the line in August 2009. PG&E previously produced records of the August 2009 detailed inspection in connection with its supplemental response to the SED's Data Request 001, Question 4. *See* PGE-CAMP-CPUC-0000003986.

The pre-existing condition is described in the corresponding work order, Line Corrective ("LC") Notification 103995542, which PG&E previously produced in connection with its response to the SED's Data Request 001, Question 6. *See* PGE-CAMP-CPUC-0000000553-554. LC Notification 103995542 describes the pre-existing condition as follows: "PER BUCK ON INSPECTION NEED TO REPLACE 3 BOLT CONNECTOR WITH WEDGE".

According to PG&E's system of record for work orders, Systems Applications and Products ("SAP"), LC Notification 103995542 originally was assigned Priority Code G, a priority code that PG&E no longer uses. In accordance with the April 2009 Electric Transmission Preventive Maintenance ("ETPM") Manual that was in effect at the time of the August 2009 detailed inspection, corrective action is required within 12 months from the date the condition is identified for Priority Code G conditions.

The condition identified in LC Notification 103995542 was changed to a Priority Code B condition on October 4, 2009, before being changed to a Priority Code F condition on October 27, 2009. The ETPM Manual that came into effect in January 2011 was updated to reflect PG&E's adoption of Priority Codes A, B, E and F. For Priority Code B conditions, corrective action is required within 3 months from the date the condition is identified. For Priority Code F conditions, corrective action is required within 24 months, "except for nominations[,] notifications[,] or systemwide initiatives identified by Asset Strategy (e.g., bridge bonding, shunt splicing), which can have due dates beyond 24 months".

Pursuant to the versions of the ETPM Manual in effect from August 2009 through June 2016, the required completion date for the correction of identified conditions could be reassessed for specific reasons, including, but not limited to, inability to obtain clearances, materials or access; interference from weather; and subsequent testing or reevaluation of the actual condition. PG&E's understanding based upon its records is that the completion date for the connector replacement work identified in LC Notification 103995542 was reassessed on August 1, 2011 and January 10, 2012. On the latter occasion, the required completion date for the connector replacement work was scheduled for November 30, 2015.

PG&E's understanding based upon its records is that the connector replacement work identified in LC Notification 103995542 was completed on June 18, 2016. PG&E is producing a hardcopy record stored at Table Mountain Substation that PG&E understands was completed and signed when the connector was replaced. *See* PGE-CAMP-CPUC-0000037726-37729.

PG&E aims to correct identified conditions by the required end date wherever practicable. PG&E's records identified to date do not indicate the reason that the connector replacement work identified in LC Notification 103995542 was completed in June 2016. The conditions identified in a notification may not be addressed within the originally designated period for a variety of reasons, including weather conditions, environmental permitting restrictions and subsequent re-evaluation of the condition, among others. In the event that the condition identified in a notification cannot be addressed by the required end date, PG&E aims to address the condition as soon as practicable.

Response provided by:

[redacted], Manager of Transmission Portfolio Management & Change Control, [redacted]

Attachment Y

10/25/2019 PG&E Response to CPUC Data Request SED-009, Question 1 (Detailed ground inspection reports for 2001, 2003, 2005)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-009

Requesters: Banu Acimis
Request Date: October 8, 2019
Response Date: October 25, 2019

Question 1:
In PG&E's August 30, 2019 response to CPUC Data Request SED-008, Question 3, PG&E states that it performed a ground inspection of the Caribou-Palermo 115 kV Transmission Line in January 2001, August 2003, and August 2005. However, in its April 2, 2019 response to CPUC Data Request SED-002, Question 20, PG&E lists these as ground patrol.

a. Please clarify whether these are inspections or patrols.
b. Please provide the inspection / patrol records from January 2001, August 2003, and August 2005.
c. Please provide any documents, such as checklists, job aids, etc., that provide information on what the inspectors looked at during these inspections / patrols.

Response to Question 1:
PG&E previously produced the records from the January 2001, August 2003 and August 2005 patrols of the Caribou-Palermo 115 kV Transmission Line at PGE-CAMP-CPUC-0000016821-6869, PGE-CAMP-CPUC-0000017114-7148 and PGE-CAMP-CPUC-0000016774-6820. The records use the descriptor "Ground Patrol", while the forms completed in connection with these ground patrols include the "Transmission Line Inspection Datasheet" and "Transmission Object List". Under the then-effective PG&E standard for inspections and patrols of transmission lines, described below, the terms "inspection" and "patrol" appear to be used interchangeably.

Utilities Operation ("UO") Guideline G0066, previously produced to the SED at PGE-CAMP-CPUC-0000090988-90998, was the standard governing PG&E's transmission inspections and patrols as of January 2001 and August 2003. UO Standard S1001 and accompanying attachments, previously produced to the SED at PGE-CAMP-CPUC-0000090941-90987, governed PG&E's transmission inspections and patrols as of the August 2005 ground patrol of the Caribou-Palermo 115 kV Transmission Line, which predated the publication of the first ETPM Manual the same year.

Checklists and job aids applicable to the foregoing ground patrols were produced to the SED in response to SED's Data Request 008, Question 3, as part of the UO Guideline G0066 and UO Standard S1001, referenced above.

Attachment Z

3/1/2019 PG&E Response to CPUC Data Request SED-001, Question 4 (Detailed ground inspection reports for 2009 and 2014)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-001

Requesters: Banu Acimis
Request Date: December 6, 2018
Response Date: March 1, 2019

Question 4:
Please provide copies of the patrols and inspection records that PG&E recently provided CAL FIRE for each incident location. Mark the locations of subject facilities where evidence was retained by PG&E and/or CAL FIRE.

Supplemental Response to Question 4:
PG&E's initial response to this question was sent on December 21, 2018. PG&E is supplementing its response to this question, including to provide additional information requested in SED's Data Request Clarification.

Incident Location 1 (as defined by the SED's Data Request IV):
For Incident Location 1, PG&E is producing additional patrols and inspection records that have since been provided to CAL FIRE. PG&E is producing additional:

1. Records for the annual air patrols and detailed inspections conducted on the Caribou-Palermo 115 kV Transmission Line between January 1, 2009 and November 8, 2018;
2. Paper records from PG&E's SAP database for the emergency response and non-routine aerial patrols and inspections conducted on the Caribou-Palermo 115 kV Transmission Line between November 8, 2013 and November 11, 2018; and
3. Paper records from PG&E's SAP database for infrared patrols of the Caribou-Palermo 115 kV Transmission Line that were conducted from October 2008 to November 8, 2018.

For transmission line annual patrols and inspections, the field paperwork generally consists of 1) an Operation Control Ticket, 2) an existing notification report, 3) a Transmission Line Inspection Datasheet and 4) a code reference sheet. Additionally, field paperwork may, but is not required to, include an object list. Transmission line patrol records do not contain plat maps because these lines are patrolled and inspected on a circuit basis rather than on a plat map basis. A full list of produced annual patrols and inspections is below. These patrols and inspections could span multiple days; the dates listed below are when each patrol or inspection was completed.

Transmission Annual Patrol and Detailed Inspection Records

Inspection / Patrol	Bates Stamp
Detailed Inspection, completion date August 31, 2009	PGE-CAMP-CPUC-0000003928-3996

Annual Air Patrol, completion date August 6, 2010	PGE-CAMP-CPUC-0000003678-3739
Annual Air Patrol, completion date August 27, 2011	PGE-CAMP-CPUC-0000003740-3802
Annual Air Patrol, completion date August 6, 2012	PGE-CAMP-CPUC-0000003803-3865
Annual Air Patrol, completion date August 15, 2013	PGE-CAMP-CPUC-0000003866-3927
Detailed Inspection, completion date August 28, 2014	PGE-CAMP-CPUC-0000003997-4056
Annual Air Patrol, completion date July 20, 2015	PGE-CAMP-CPUC-0000000448-509
Annual Air Patrol, completion date August 5, 2016	PGE-CAMP-CPUC-0000000443-447
Annual Air Patrol, completion date September 13, 2017	PGE-CAMP-CPUC-0000000510-515
Annual Air Patrol, completion date September 19, 2018	PGE-CAMP-CPUC-0000000516-520

For transmission line emergency response, non-routine patrols and infrared patrols, PG&E is producing each notification and all available attachments. The table below identifies the emergency response patrols, non-routine patrols and infrared patrols for which records are being produced. These patrols and inspections could span multiple days; the dates listed below are when the patrols and inspections were completed.

Transmission Emergency Response, Non-Routine Patrols and Infrared Patrol Records

Inspection / Patrol	Location & Date	Bates Stamp
Infrared Patrol	Caribou Palermo Infrared Non- Routine Patrol, completed on October 17, 2008	PGE-CAMP-CPUC-0000004072
Infrared Patrol	Caribou Palermo Infrared Air Patrol, completed on May 4, 2010	PGE-CAMP-CPUC-0000004073
Infrared Patrol	Caribou Palermo Infrared Air Patrol, completed on May 31, 2012	PGE-CAMP-CPUC-0000004074
Emergency Response	Caribou-Palermo Non-Routine Air Patrol, completed on November 23, 2013	PGE-CAMP-CPUC-0000004075
Non-Routine Patrol	Caribou-Palermo Non-Routine Air Patrol, completed on May 5, 2014	PGE-CAMP-CPUC-0000004083
Infrared Patrol	Caribou-Palermo 2014 Infrared Patrol (Wildfire), completed on May 22, 2014	PGE-CAMP-CPUC-0000004076-4082
Emergency Response	Caribou Palermo Non-Routine Air Patrol, completed on February 7, 2015	PGE-CAMP-CPUC-0000004084

Non-Routine Patrol	Caribou-Palermo Non-Routine Air Patrol, completed on April 14, 2015	PGE-CAMP-CPUC-0000004085
Non-Routine Patrol	Caribou Palermo Non-Routine Air Patrol, completed on May 5, 2015	PGE-CAMP-CPUC-0000004086
Infrared Patrol	Caribou Palermo 2015 Infrared Fire Area, completed on June 3, 2015	PGE-CAMP-CPUC-0000004087
Non-Routine Patrol	Caribou-Palermo Non-Routine Air Patrol, completed on December 10, 2015	PGE-CAMP-CPUC-0000004088-4089
Infrared Patrol	Caribou Palermo 2016 Infrared Patrol, completed on May 26, 2016	PGE-CAMP-CPUC-0000004090-4092
Non-Routine Patrol	Caribou-Palermo Non-Routine Air, completed on October 3, 2016	PGE-CAMP-CPUC-0000004093-4094
Emergency Response	Caribou - Palermo Non-Routine Air Patrol, completed on January 9, 2017	PGE-CAMP-CPUC-0000004095-4097
Emergency Response	Table Mtn Jan 2017 Wind/Rain Event, completed on January 11,2017	PGE-CAMP-CPUC-0000004098-4099
Emergency Response	Caribou-Palermo Non-Routine Air, completed on January 24, 2017	PGE-CAMP-CPUC-0000004100-4105
Emergency Response	Colgate-Palermo Non-Routine Air Patrol, completed on February 21, 2017	PGE-CAMP-CPUC-0000004106-4108
Infrared Patrol	Caribou-Palermo Infrared Patrol, completed on May 23, 2017	PGE-CAMP-CPUC-0000004109
Non-Routine Patrol	Caribou-Palermo Line Air Patrol, completed on August 16, 2017	PGE-CAMP-CPUC-0000004110-4114
Infrared Patrol	Caribou-Palermo Line Infrared Patrol, completed on May 31, 2018	PGE-CAMP-CPUC-0000004115-4116
Emergency Response	Caribou Palermo Emergency Air Patrol, completed on December 12, 2018	PGE-CAMP-CPUC-0000004117- 4118

Transmission patrol and inspection records, as maintained in PG&E's ordinary course of business, do not include maps of the facilities that were patrolled. As a result, there are no maps of the transmission patrol and inspection records for PG&E to mark. Evidence was collected by CAL FIRE or PG&E at or near Towers :27/221 and :27/222 on the Caribou-Palermo 115 kV Transmission Line. For maps showing the location of Towers :27/221 and :27/222, please see PG&E's response to the SED's Data Request 002, Question 13 and the associated maps produced in connection with that response.

For a full list of evidence collected by CAL FIRE or PG&E, please see PG&E's responses to the SED's Data Request 002, Question 8 and the SED's Data Request 001, Question 41 and the associated evidence logs produced in connection with those responses.

Incident Location 2 (as defined by the SED's Data Request IV)

For Incident Location 2, PG&E is producing marked paper records for General Order ("GO") 165 patrols and inspections conducted between January 1, 2014 and November 8, 2018, of the areas corresponding to Plat Maps R36 and S36. These facilities are on the Big Bend 1101 12 kV Distribution Circuit. PG&E conducted four detailed inspections and one patrol of the areas corresponding to each of these maps during this time period.

For distribution lines, each paper file generally consists of the field paperwork product created by field inspectors during their completion of the patrol or inspection, including 1) a plat map, highlighted to indicate the completion of the patrol or inspection and 2) a log of Electric Corrective Notifications ("EC Notifications") created by inspectors in the field.

Distribution Patrols and Detailed Inspections – Plat Map R36

Inspection / Patrol	Bates Stamp
March 6, 2014 Detailed Inspection	PGE-CAMP-CPUC-0000004127-4131
March 4, 2015 Detailed Inspection	PGE-CAMP-CPUC-0000000411-414
February 24-25, 2016 Detailed Inspection	PGE-CAMP-CPUC-0000000419-426
March 14, 2017 Detailed Inspection	PGE-CAMP-CPUC-0000000401-405
April 17, 2018 Patrol	PGE-CAMP-CPUC-0000000435-438

Distribution Patrols and Detailed Inspections – Plat Map S36

Inspection / Patrol	Bates Stamp
March 6, 2014 Detailed Inspection	PGE-CAMP-CPUC-0000004132-4136
March 6, 2015 Detailed Inspection	PGE-CAMP-CPUC-0000000415-418
February 23, 2016 Detailed Inspection	PGE-CAMP-CPUC-0000000427-434
February 13, 2017 Detailed Inspection	PGE-CAMP-CPUC-0000000406-410
February 13, 2018 Patrol	PGE-CAMP-CPUC-0000000439-442

Regarding the marking of locations of subject facilities where evidence was retained by PG&E or CAL FIRE, PG&E is producing plat maps that include the incident location, annotated in red to indicate the locations of subject facilities where PG&E is aware that evidence was retained by CAL FIRE or PG&E at PGE-CAMP-CPUC-0000000521-522.

For a full list of evidence collected by CAL FIRE or PG&E, please see PG&E's responses to the SED's Data Request 002, Question 8 and the SED's Data Request 001, Question 41 and the associated evidence logs produced in connection with those responses.

Response provided by:

Greg Gabbard, Director, Transmission Line Project Delivery, [redacted]

[redacted], Senior Manager, Distribution Work & Resource Management, [redacted]

Attachment AA

10/18/2019 PG&E Response to CPUC Data Request SED-009, Question 2 (Detailed Climbing Records from September 19, 2018 – November 5, 2018)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC Data Request: SED-009

Requesters: Banu Acimis
Request Date: October 8, 2019
Response Date: October 18, 2019

Question 2:
CPUC was aware that PG&E had conducted detailed climbing inspections along the Caribou-Palermo Transmission Line from October 29 to November 5, 2018. However, CPUC was not aware that PG&E had also performed climbing inspections in September 2018.

a. Please provide the detailed climbing inspection records for the Caribou-Palermo Transmission Line from September through October, 2018. The records should be similar to the ones PG&E provided CAL FIRE and CPUC for the October 29 – November 5, 2018 detailed climbing inspections.
b. What triggered these detailed climbing inspections that PG&E performed from September through November 5, 2018?

Response to Question 2:
PG&E provided detailed climbing inspection records for the Caribou-Palermo 115 kV Transmission Line for the period from October 29 to November 5, 2018 in a production to the SED on April 2, 2019, in response to the SED's Data Request 002, Question 21. Those climbing inspection forms were produced at PGE-CAMP-CPUC-0000032036 through PGE-CAMP-CPUC-0000032101. PG&E subsequently identified additional detailed climbing inspection records for the Caribou-Palermo 115 kV Transmission Line for the period from September through November 2018. PG&E provided those additional climbing inspection forms to the SED on June 24, 2019 in a supplementary production in response to the SED's Data Request 002, Question 21. Those climbing inspection forms were produced at PGE-CAMP-CPUC-0000078845 through PGE-CAMP-CPUC-0000079018.

In response to subpart (b) of this request, PG&E refers the SED to its response to SED Data Request 008, Question 1, which is equally applicable to the climbing inspections of the Caribou-Palermo 115 kV Transmission Line performed from September through November 5, 2018.

Attachment AB

10/18/2019 PG&E Response to CPUC Data Request SED-008, Question 1 (Detailed Climbing Records from September 19, 2018 to November 5, 2018 were performed to assess the condition of the transmission line for asset management strategy)

PACIFIC GAS AND ELECTRIC COMPANY
Camp Wildfire
CPUC- Data Request: 008

Requesters: Banu Acimis
Request Date: August 2, 2019
Response Date: October 8, 2019

Question 1:
With regards to LC # 114730861 on 6/26/2018, which prompted climbing inspections of steel towers along the Caribou-Palermo line between October 29 and November 5, 2018, what was the trigger/reason the Caribou-Palermo line was selected for climbing inspections? Was climbing inspection going to be performed on all steel towers along the Caribou-Palermo transmission line? If all, how were the towers prioritized for the inspections? If not all, which towers were selected for inspections, and what was the selection criteria?

Response to Question 1:
Line Corrective Notification 114730861, dated June 26, 2018 and previously produced to the CPUC at PGE-CAMP-CPUC-0000017231, was a notification for the Caribou-Palermo 115 kV Transmission Line that called for "detailed inspections on all steel structures by Tower Department North". The notification was created following PG&E's decision earlier in 2018 to perform climbing inspections of the Caribou-Palermo 115 kV Transmission Line and multiple other transmission lines as part of an effort to assess the condition of its transmission lines and help inform its broader asset management strategy.

PG&E's inspection records do not identify the factors that led to the selection of the Caribou Palermo 115 kV Transmission Line as one of the lines selected for climbing inspections as part of this effort. PG&E understands that the age of lines was a factor that was considered in their selection.

PG&E planned to inspect all of the towers on the Caribou Palermo 115 kV Transmission Line in connection with these climbing inspections, as Line Corrective Notification 114730861 itself reflects. Between September and November 2018, prior to the Camp Fire, the Tower Department inspected approximately 80 towers at various points along the Caribou-Palermo 115 kV Transmission Line. PG&E understands that the reason these approximately 80 towers were selected first and the order in which they were inspected was determined by the Tower Department based on various considerations, including weather conditions and crew availability. The inspections were not yet complete as of November 8, 2018, and were interrupted by the Camp Fire.

Attachment AC

PG&E's Wildfire Safety Inspection Program Compliance Plan

Pacific Gas and Electric Company®

Wildfire Safety Inspection Program (WSIP) Compliance Plan and Interim Controls

August 20, 2019

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Glossary of Acronyms and Abbreviations

Acronym	Term/Definition
ALJ	Administrative Law Judge
AWRR	Accelerated Wildfire Risk Reduction
CAL FIRE	California Department of Forestry and Fire Protection
CEMA	Catastrophic Event Memorandum Account
CIRT	Centralized Inspection Review Team
CPUC or Commission	California Public Utilities Commission
D.	Decision
DER	Distributed Energy Resources
EC	Electric Corrective
EVM	Enhanced Vegetation Management
FMEA	Failure Modes and Effects Analysis
IBEW	International Brotherhood of Electrical Workers
GO	General Order
HFTD	High Fire Threat District
kV	Kilovolt
LC	Line Corrective
PG&E or the Company	Pacific Gas and Electric Company
Plan	Controls Plan
PSPS	Public Safety Power Shutoff
PUC	Public Utilities Code
QA	Quality assurance
QC	Quality control
U.S.A.	United States of America
VM	Vegetation Management
WSIP	Wildfire Safety Inspection Program
WSP	Wildfire Safety Plan

Executive Summary

The Wildfire Safety Plan ("WSP") is Pacific Gas and Electric Company's ("PG&E" or "Company") comprehensive plan to reduce the risk of catastrophic wildfires from occurring in 2019 and beyond. As part of this WSP, PG&E created and launched the 2018/2019 Wildfire Safety Inspection Program (WSIP) to perform accelerated and enhanced inspections of its electric distribution, transmission and substation facilities with objective of identifying and repairing non-conformances on its facilities that pose a safety and/or reliability risk. The WSIP focused on PG&E's electric assets located in Tier 3, Tier 2, and Zone 1 High Fire Threat District (HFTD) areas[1] as defined by the California Department of Forestry and Fire Protection (CAL FIRE) and adopted by the California Public Utilities Commission (CPUC) and included inspections of adjacent areas with structures in close proximity to the HFTD areas.

PG&E's WSIP involved inspecting approximately 695,000 distribution structures, 50,000 transmission structures and 200 substations that are in high fire risk areas. Prior to launching these accelerated inspections, PG&E leveraged a Failure Mode and Effects Analyses (FMEA) to identify single points of failure on electric asset components that could lead to fire ignition, which was later used to inform PG&E's accelerated and enhanced inspection approach. As a result of the inspections, PG&E identified approximately 277,000 non-conformances, which have resulted in the creation of Electric Corrective or Line Corrective (EC is nomenclature used for distribution, while LC is used for transmission and substation) tags. These EC/LC tags were created using PG&E's programs adopted to comply with CPUC General Orders (GOs) 95, 165 and 174. Specifically, by August 1, 2019, as summarized in Table 1 – Tags Created, PG&E created approximately 277,000 tags.

Table 1: Tags Created

Asset Type	Tag Type	Approximate Tag Numbers
Electric Distribution	EC	177,000
Electric Transmission	LC	97,000
Electric Substation	LC	3,000

PG&E is forecasting that a significant number of low to moderate ranked WSIP identified EC/LC tags will not be completed in accordance with the timelines established in PG&E's programs to meet General Order requirements. While repairs continue to be made, PG&E has developed this Compliance Plan to communicate the Company's plan to monitor the open tags by

[1] High Fire Threat Districts are identified through an independent development and review process. Each location in California is designed one of three tiers. Tier 3 Districts are designated as extreme wildland fire risk and the most restrictive regulations apply. Tier 2 Districts are defined as elevated wildland fire risk and enhanced regulations apply. Tier 1 Districts are designated as state areas not in Tiers 2 or 3 and not of immediate concern of the WSIP and this Plan.

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performing annual safety reassessments, prioritize based on risk, deploy interim safety controls for open EC/LC Tags, and execute the necessary corrective action work associated with the WSIP identified EC/LC tags.

I. Overview of Wildfire Safety Inspection Program (WSIP)

PG&E's WSIP involved performing accelerated and enhanced inspections of PG&E's electric assets located in Tier 3, Tier 2, and Zone 1 HFTD areas, which include approximately 695,000 distribution structures, 50,000 transmission structures and 200 substations. These enhanced inspections included visual ground inspections, drone and helicopter inspections, and in the case of transmission structures, climbing inspections for each transmission tower. These inspections were performed between December 2018 and June 2019 using a risk-informed approach to more proactively identify and address threats to safety and reliability. Our approach included:

- **Risk-informed information gathering** resulting in changes to how PG&E field personnel identify specific field scenarios based on asset data. Specifically, a Failure Mode and Effects Analysis (FMEA) framework was used to identify component-level single points of failure that could lead to fire ignition and to inform inspection methods.
- **Expanded scope and adjusted prioritization of specific non-conformance classifications** to align with risk-based approach, i.e. several work types moved from Priority F to Priority E.

A. Inspection Processes

PG&E routinely inspects its electric assets and facilities using a variety of methods, including observations when performing work in the area, periodic patrols and inspections, and targeted condition-based and/or diagnostic testing and monitoring. These routine inspections of PG&E's overhead and underground electric systems, including electric substation inspections, are designed to meet GO 95, 165, and 174 requirements. Basic inspection elements include travel to the asset, ground observation, air visual observation (for overhead distribution and transmission), detection and assessment of abnormal conditions, notification, prioritization and execution of repairs, and documentation needed for safe and reliable operation.

In addition to these routine inspections, and as part of PG&E's risk-informed WSIP efforts, PG&E conducted accelerated inspections of its overhead electric facilities in Tier 3, Tier 2, and Zone 1 HFTD areas to facilitate a proactive approach to repairing or replacing components that are at-risk of initiating fires. To develop the WSIP, PG&E used a risk-informed approach including conducting a Failure Modes and Effects Analysis or "FMEA." The focus of the FMEA was to identify single points of failure of electric system components that could lead to fire ignition and then aid in the development of inspection methods that can most appropriately

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identify the condition of these respective components. The Electric Operations team (e.g. distribution, transmission, and substation) performed the FMEA using the following methodology:

1. Establish a cross-functional team of external professionals and PG&E subject matter experts (SMEs) with experience in field operations, engineering, and asset management
2. Review a list of asset components to identify potential single point failure ignition risks and categorize in asset groups
3. Where available, use published reports, internal reports and SME interviews to develop an independent list of failure modes and
4. Map components to the final list of failure modes and relevant inspection methods.
5. In some cases, the failure mode does not have a readily observable issue that can be identified via a visual inspection. In those cases, non-destructive and destructive examination methods may be considered

After PG&E identified FMEA focus areas for its WSIP, field inspectors performed inspections of PG&E's facilities across PG&E's Tier 3, Tier 2 and Zone 1 HFTD areas. When an inspector identified a maintenance condition, the inspector either immediately corrected the condition and recorded the correction or recorded the uncorrected condition, which also was reviewed by a centralized review team. In addition, for Transmission and Distribution the inspector filled out the initial EC/LC notification tag. The centralized review team approved and prioritized the corrective notification tag in PG&E's SAP Work Management system. These tags are prioritized based on the risk posed by the condition and urgency of repairs. The review team process is designed to result in consistent application of the priority classification. Table 2: WSIP Tag Priority Classification describes the priority tag classification descriptions PG&E uses to comply with General Order 95, Rule 18[2] and applied to the WSIP tags:

---

[2] GO 95, Rule 18 Section B.1:
Companies shall undertake corrective actions within the time periods stated for each of the priority levels set forth below.
Scheduling of corrective actions within the time periods below may be based on additional factor, including the following factors, as appropriate:

- Type of facility or equipment;
- Location, including whether the Safety Hazard or potential violation is located in the High Fire-Threat District;
- Accessibility;
- Climate;
- Direct or potential impact on operations, customers, electrical company workers, communications workers, and the general public.

(a) The maximum time periods for corrective actions associated with potential violation of GO 95 or a Safety Hazard are based on the following priority levels:
  (i) Level 1 – An immediate risk of high potential impact to safety or reliability:
    - Take corrective action immediately, either by fully repairing or by temporarily repairing and reclassifying to a lower priority.
  (ii) Level 2 -- Any other risk of at least moderate potential impact to safety or reliability:

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Table 2: WSIP Tag Priority Classification

Tag Priority	Description
A	The condition is of immediate risk of high potential impact to safety or reliability and requires immediate response and continued action until the condition is repaired and no longer presents a potential hazard ("make safe").
B	The condition is of moderate potential impact to safety or reliability. Corrective action is required within 3 months from the date the condition is identified.
E	The condition is of moderate potential impact to safety or reliability. Corrective action is required within 12 months from the date the condition is identified (or within 6 months if tag creates potential fire ignition risk within HFTD Tier 3).
F	The condition is of low potential impact to safety or reliability. • Corrective actions for distribution facilities is recommended to be addressed within 5 years from the date the condition is identified. • Corrective actions for transmission facilities recommended to be addressed within 2 years from the date the condition is identified.

The following sections describe PG&E's WSIP processes for its distribution, transmission and substation facilities.

B. Distribution WSIP (D-WSIP) Process

As previously discussed prior to launching the D-WSIP, PG&E conducted a FMEA to better understand any additional inspections and analysis that should be implemented to reduce wildfire risk in addition to the inspections required by GO 165. Using this risk-based approach, PG&E inspected its distribution structures in HFTD areas, as well as nearby structures in close proximity[3] with high risk of fire spread into the adjacent HFTD area (across approximately 25,200 miles). These inspections focused on the failure mechanisms for transformers, conductors, connectors, insulators, fuses, switches, structures, third-party attachments, and splices that can initiate fires. To facilitate these inspections, PG&E enhanced its existing routine inspection program to include wildfire-specific elements for 185,000 poles that are due for their five-year inspection cycle in 2019. Additionally, PG&E conducted wildfire-specific inspections of

- Take corrective action within specified time period (either by fully repair or by temporarily repairing and reclassifying to Level 3 priority). Time period for corrective action to be determined at the time of identification by a qualified company representative, but not to exceed: (1) six months for potential violations that create a fire risk located in Tier 3 of the High Fire-Threat District; (2) 12 months for potential violations that create a fire risk located in Tier 2 of the High Fire-Threat District; (3) 12 months for potential violations that compromise worker safety; and (4) 36 months for all other Level 2 potential violations.

(iii) Level 3 -- Any risk of low potential impact to safety or reliability:

- Take corrective action within 60 months subject to the exception specified below.

[3] PG&E has defined proximity by establishing "buffer zones". These include structures directly outside of HFTD (0.2 miles outside for wood structures and 0.5 miles outside for non-wood structures). Additionally, the scoping considered Tier 1 structures with high fire spread and consequence along the HFTD lines.

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the remaining 500,000 poles to identify and correct any components that pose a wildfire risk. Furthermore, PG&E enhanced its inspections of difficult-to-access assets by using drone video footage to supplement the identification of abnormal asset conditions.

Inspections and high-definition photographs of identified conditions were documented and reviewed by a dedicated distribution inspection review team with experience in distribution system engineering, operation, maintenance, and planning to validate the identified EC tag need, necessary repairs, and timing of when repairs can be performed.

C. Transmission WSIP (T-WSIP) Process

Beginning in December 2018, and continuing into 2019, using the FMEA risk-informed approach, PG&E performed inspections of transmission structures (poles and towers) in Tier 3, Tier 2, and Zone 1 HFTD areas, as well as nearby structures adjacent but in close proximity and with high risk of fire spread into these HFTDs areas. There were approximately 5,700 miles of transmission line with more than 50,000 structures inspected.

The visual inspections included ground inspection of transmission poles and climbing inspection of transmission towers with complementary drone inspections to enhance inspection data. The scope of these inspections was beyond the routine detailed ground inspections. Helicopters were also used for additional aerial inspections to collect infrared data to determine hot spots on conductors, insulators, and connectors requiring repair.

Other elements of the enhanced inspection program for transmission included the following:

- The FMEA modes were incorporated into newly developed electronic inspection forms;
- New and enhanced job aids were developed to support the inspection forms;
- The condition prioritization matrix used to assess the priority and timing of corrective actions was adjusted to factor in the results of the FMEA and job aids; and
- Prioritization of the notifications was transferred from the field lineman and supervisor to a multi-discipline review team to establish a focused review process of the potential findings related to the asset condition.

D. Substation WSIP (S-WSIP) Process

For 2019, using the risk-informed approach, PG&E inspected approximately 200[4] sites located in HFTD areas, including substations, switching stations, and hydro power houses, with a

[4] After the May 31st completion of the inspections and tag reviews, a few non-conformances were identified, and tags were then approved. The delay in review and approval was the result of a new tracking workflow.

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specific focus on the failure mechanisms for transformers, conductors, connectors, capacitors, insulators, switches, poles, and other equipment that can initiate fires. Additional risk-focused work included further evaluation of the risk of catastrophic equipment failure and fire initiation. Additional efforts also focused on creating a defensible space around substation facilities consistent with CAL FIRE and CPUC recommended guidelines and evaluated and implemented animal abatement methods to prevent animal contact.

II. WSIP Results

The 2019 WSIP inspections represented a significant undertaking by PG&E in terms of the volume of facilities inspected over an accelerated six-month timeline. PG&E's normal inspection timeline would have spanned five years or more. For example, PG&E has traditionally performed inspections of its distribution assets on three- and five-year cycles in alignment with the CPUC's GO 165 requirements[5]. Furthermore, over the past 5 years, this has resulted in an annual average of 467,000 distribution inspections. However, for distribution inspections in the first half of 2019 alone, PG&E has performed nearly 50% more inspections than the past five years and, due to the enhanced inspection process focusing on FMEA areas, improved the ability to detect issues, resulting in a higher find rate per inspection (e.g. from 7% to over 27% find rate).

Table 3 summarizes the priority tags identified as part of the 2019 WSIP found as of August 1, 2019.

Table 3: Summary of PG&E's WSIP Results

	Identified Priority Tag Types				Corrective Tag Totals
	A	B	E	F	
Distribution (D)	738	7,920	162,958	5,333	176,949
Transmission (T)	125	8,013	77,214	11,738	97,090
Substation (S)	101	637	2,378	N/A	3,116
Totals: (D) +(T) +(S)	964	16,570	242,550	17,071	277,155

[5] GO 165, Table 1 http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M209/K552/209552704.pdf

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III. WSIP Repair Prioritization Approach

Given the high volume of identified EC/LC tags, PG&E utilized the following risk-informed prioritization approach to address the highest risk issues on PG&E's facilities:

1. Address all identified Priority A tags with completion dates immediately, with tags closed no later than 30 days after identification date
2. Address all identified Priority B tags within 3-months of the identification date[6]
3. Prioritize execution of Priority E and F tags based on ignition risk circuit prioritization (which is further described in the following sections)

Table 4 summarizes the open Priority tags that have not yet been addressed as of August 1, 2019 date.

Table 4: Summary of Open WSIP Priority Tags

	Open Priority Tag Types				Totals
	A	B	E	F	
Distribution (D)	0	128	149,458	4,934	154,520
Transmission (T)	9	1,702	40,127	4,101	45,939
Substation (S)	0	2	1,295	N/A	1,297
Totals: (D) +(T) +(S)	9	1,832	190,880	9,035	201,756

A. Priority A Tags

All but nine Priority A tags resulting from the D-WSIP and S-WSIP have been completed to date. There are nine Priority A tags resulting from the T-WSIP, which are being addressed in the near term.

B. Priority B Tags

As of August 1st, PG&E has completed approximately 98% of the D-WSIP, 79% of the T-WSIP and 99% of the S-WSIP Priority B tags.

[6] For T-WSIP, PG&E decided to allow B tags to go beyond the 90 days as long as it was completed by May 31 or earlier.

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C. Priority E and F Tags

The largest volume of identified corrective actions from the 2019 WSIP are the Priority E and F tags[7]. To address identified Priority E tags efficiently, while also mitigating the most risk system-wide, PG&E is conducting a holistic systematic review of these identified "E" tags (and also including the review of "F" tags) by performing a distribution and transmission circuit-by-circuit review that starts with prioritizing the highest risk for wildfire ignition distribution and transmission circuits, as well those circuits with risk for causing a detriment to the electric transmission grid. Specifically, this review process is focused on developing a coordinated plan that considers how to:

1. Leverage planned hardening and/or capital work to bundle the corrective action work required to address WSIP identified "E" and "F" tags
2. Group high concentrations of capital intensive rebuild tags (i.e. poles, equipment, crossarms) associated with WSIP identified "E" and "F tags
3. Disconnect and/or eliminate no longer necessary electric facilities that pose increased safety risks, regardless of "E" and "F" tag identification on those facilities
4. Remove long remote lines and/or tap lines serving small numbers of customers if a non-wires/DER solution can be implemented for that location, regardless of "E" and "F" tag identification on those facilities
5. Develop controls for managing residual grid risks from "E" and "F" tags that are not able to be addressed timely with planned hardening and/or capital work

As part of this review process, for those tags that will continue to exceed their compliance timelines and remain open, PG&E will monitor and perform a safety re-assessment and deploy interim controls for these open tags on an annual basis before the beginning of fire season each year, which is further described under section *VI. Safety Reassessment Process and Interim Controls*, of this document.

The following tables summarize the D-WSIP, T-WSIP and S-WSIP options for addressing the identified Priority E and F tags and the schedule for when the review of each repair option will be completed.

[7] For D-WSIP, this volume of Priority E Tags is approximately three times PG&E's typical total annual volume of identified distribution maintenance tags. 2020 GRC, Exhibit 4, Chapter 6, page 6-1 describes a typical annual volume of approximately 52,700 tags.

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1. D-WSIP E & F Tag Repair Options and Timeline for Completing Repairs

PG&E anticipates completing the engineering review of these tags to determine the optimal repair approach at the beginning of the third quarter, which is summarized in Table 5: D-WSIP Options for Addressing Priority E & F Tags.

Table 5: D-WSIP Options for Addressing Priority E & F Tags

Options for Addressing D-WSIP E&F Tags	Risk Reduction Option Description	Schedule for Implementing E&F Tag Repair Option
Individual Execution of Priority E&F Tags	Individual execution of geographically dispersed or dissimilar tags to current hardening standards	Ongoing through 2021
E&F Tags Grouped to form New System Hardening Projects	Group geographically close or similar tags into new hardening projects separate from existing planned hardening projects	Ongoing through 2023
E&F Tags bundled into Existing System Hardening Projects	Bundle of tags into existing hardening projects where there is like-work that makes sense geographically to bundle	Ongoing through 2023
Remove Facilities to address E&F Tags	Eliminate long remote taps and/or redundant facilities	Ongoing through 2023

2. T-WSIP E & F Tag Repair Options and Timeline for Completing Repairs

PG&E anticipates completing the engineering review of these tags at the beginning of 2020 to determine the optimal repair approach, which is summarized in Table 6, below. In addition, PG&E anticipates correcting all WSIP identified open Priority E/F tags by 2021.

Table 6: T-WSIP Options for Addressing Priority E & F Tags

Options for Addressing T-WSIP E&F Tags	Risk Reduction Option Description	Schedule for Implementing E&F Tag Repair Option
Individual Execution of Priority E&F Tags	Individual execution of tags by prioritized line	Ongoing through 2020
E&F Tags bundled into Existing Capital Projects	Bundle tags on transmission lines into or concurrent with existing, relevant capital project line clearances	Ongoing through 2021
Temporarily De-Energize Transmission Lines	With concurrence from Grid Operations and Transmission Planning, and consider temporarily de-energizing lines for immediate wildfire risk reduction, until tags can be completed	Ongoing through 2021
E&F Tags Idle Lines Approach	Eliminate or de-energize idle facilities	Ongoing through 2021

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3. S-WSIP E Tag Repair Options and Timeline for Completing Repairs

PG&E anticipates completing the engineering review of these tags at the beginning of 2020 to determine the optimal repair approach, which are summarized in the following table. In addition, PG&E anticipates correcting all WSIP identified open Priority E Tags by 2021.

Table 7: S-WSIP Options for Addressing Priority E Tags and Schedule

Options for Addressing S-WSIP E Tags	Risk Reduction Option Description	Schedule for Implementing E Tag Repair Option
Individual Execution of Priority E Tags	Individual execution of geographically dispersed or dissimilar tags to current hardening standards	Ongoing through 2020
E Tags bundled into Existing Work	Bundle tags into or concurrent with existing capital projects and substation clearances	Ongoing through 2021

PG&E intends to address all open EC/LC Tags within the timeframes established for the repair priority depicted in Tables 5, 6, and 7. Clearance availability, permitting, materials and resource availability are the variables that we cannot completely control. As a result, we expect that a small percentage of tags will extend beyond the planned time frames. In those situations, each of the tags will be managed through an exemption process that is discussed in in Section 6 below.

IV. Forecast of Tags Expected to Exceed Compliance Dates

The following table summarizes the volume of Transmission and Distribution WSIP EC/LC Tags that are forecast to be Open (i.e. “Outstanding”) for each year, along with the number of those Outstanding tags that are forecast to be addressed with a corrective action (i.e. “Completed”). In addition, the table also includes a forecast of those “Completed” Tags, the number of which tags were completed within its Compliance timeline and which tags were completed beyond their compliance timeline (i.e. “Past Due). Please note that cancelled tags (cancelled due to redundancy or after further review of the tag) are included in the “Completed” tag rows. The WSIP Substation tags are excluded from Table 8 as we expect to complete them within the timeframe of PG&E’s program to comply with GO 174.

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Table 8: WSIP Tags that Exceed or Forecast to Exceed Compliance Timelines by Year

	Total Tags (Table 3)	Status	Tag Resolution Year				
			2019	2020	2021	2022	2023
Distribution (D)*	176,949	**Outstanding**	176,949	141,674	68,426	5,344	2,847
		Completed	35,275	73,248	63,082	2,497	2,847
		On Time	*28,981*	*14,991*	*701*	-	-
		Past Due	*6,294*	*58,257*	*62,381*	*2,497*	*2,847*
Transmission (T)**	97,100	**Outstanding**	97,100	26,800	16,500	-	-
		Completed	70,300***	10,300	16,500	-	-
		On Time	*66,700*	*5,800*	*4,900*	-	-
		Past Due	*3,600*	*4,500*	*11,600(+)*	-	-
Totals: (D) +(T)		**Outstanding**	274,049	168,474	84,926	5,344	2,847
		Completed	105,575	83,548	79,582	2,497	2,847
		On Time	*95,681*	*20,791*	*5,601*	*0*	*0*
		Past Due	*9,894*	*62,757*	*73,981*	*2,497*	*2,847*

* Distribution forecast is based on an estimated rate of 6,000 tags completed per month. Also, for post 2021, distribution tag forecast completion is based on system hardening projects
** Transmission forecast is based on an estimated rate of 4,200 tags completed per month.
*** Completed tags may include cancelled or deleted tags, in addition to physically completed work. For transmission line, this 2019 total also includes 300 tags that were completed or cancelled in 2018.
(+) Completion year is approximate for tags bundled with existing capital projects expected to complete construction between 2019-2021. It is anticipated that this population of tags will be completed within the three-year timeframe.

V. Compliance Plan

For tags exceeding their compliance dates, on an annual basis, PG&E will monitor annually the field condition of these tags for any change of risk to safety or reliability. Across distribution, transmission and substation facilities, PG&E is prioritizing the forecasted backlog of repair to develop a work plan that addresses both risk and efficiency to correct and close the identified low and medium risk non-conformances.

A. Risk Ranking Methodologies

PG&E has developed and performed additional quantitative analysis for all its electric assets to assist in identifying and locating risk across the PG&E system, as described below. More specifically, PG&E has developed an electric circuit risk ranking methodology that ranks those electric circuits by their risk of igniting a wildfire and its associated consequence. In addition, PG&E has also developed an EC/LC Tag risk ranking methodology to rank EC/LC Tags by fire ignition risk scope. Both methodologies are further described below in more detail.

B. Circuit Risk Scoring

PG&E has developed a circuit (e.g. distribution or transmission line) prioritization model for both distribution and transmission assets to determine a wildfire risk score for each circuit based

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upon different components of risk. Wildfire Risk is calculated using three components: likelihood of failure, likelihood of spread and consequence, and egress. These three components are defined as follows:

1. **Likelihood of failure**: Relative risk of a circuit causing an outage and ensuing ignition
2. **Likelihood of wildfire spread and consequence score**: Relative ability ignition spread and quantity of homes or timber affected if ignition occurs
3. **Egress score:** Ease of access to a community exit and extent of exit, for a mass evacuation

For transmission assets, additional factors were also considered when developing a transmission circuit (e.g. line) risk scoring. This includes the consideration of the Operational Priority list of transmission lines from PG&E's Grid Operations and Transmission Planning, the list of the Top 20 Fire Index Areas (FIAs), and the Transmission Operability Assessment (OA) model, which considers the likelihood of a specific transmission asset failure under certain wind loading conditions. Because of these other factors to consider, transmission assets were prioritized in the following order:

1. Transmission Lines that met three critical conditions: a) High Operational Priority (as defined by PG&E's Grid Operations and Transmission Planning), b) High Wildfire Risk area, and c) Within the top 20 FIAs based on weather conditions.
2. Transmission Lines with both a) High Operational Priority and b) High Wildfire Risk.
3. Transmission Lines that are within the top 20 FIAs and High Wildfire Risk areas. Ranking follows the results of the Operability Assessment (OA) model by asset and wind speed percent de-rate.
4. Remaining Transmission Lines in High Wildfire Risk areas ranked by wildfire risk score.

C. Tag Risk Scoring

PG&E has developed a tag prioritization model for both distribution and transmission assets in Tier 3 and Tier 2 HFTD and Zone 1 areas to determine a wildfire risk score for each tag. Tag Risk scores are calculated using four components: Asset failure ignition risk, historical asset ignition frequency, likelihood of spread and consequence, and egress. These four components are defined as follows:

1. **Asset failure ignition risk**: Relative risk of an asset's failure causing an ignition
2. **Historical asset ignition frequency**:

a. For Distribution, PG&E's 2014-2019 ignition frequency caused by an identified asset class.
b. For Transmission, PG&E's 2013-2018 ignition frequency caused by an identified asset class.

3. **Likelihood of wildfire spread and consequence score**: Relative ability of ignition spread, and quantity of homes or timber affected if ignition occurs
4. **Egress score:** Ease of access to a community exit and extent of exit, for a mass evacuation

VI. Safety Reassessment Process and Interim Controls

PG&E's proposed safety reassessment process of the open priority E and F tags will include the following steps:

1. Identify Past Due/Open Tags
2. Determine Safety Re-Assessment Needed
3. Perform Safety Re-Assessment
4. Safety Re-Assessment Closure
5. QA/QC Monitoring and Reporting

These steps are further described in the following figure:

Figure 1: PG&E's Safety Reassessment Process for Open Priority E and F Tags

A. D-WSIP Safety Reassessment Process and Interim Controls

To field-verify that the non-conformance poses no additional risk to safety or reliability although the tag is in excess of its compliance date, PG&E will perform annual safety re-assessments of tags. A trained and qualified inspector will re-assess the field condition of the identified non-conformance and create a written record. The written record will document if there has been a change to the field condition of the non-conformance that poses an increased risk to safety or

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reliability repair of the asset sooner than planned. The re-assessment is planned before the beginning of fire season each year for all moderate and low risk non-conformances that are in excess of their compliance due dates.

Prior to fire season, all potential past-due notifications will be grouped by tranche as described in Table 9, and then re-prioritized based on relative ignition likelihood (per facility, damage, action code), REAX fire spread and egress scores.

Table 9: D-WSIP Past Due Priority E&F Tag Tranches

Tranche	Deterioration Risk	Interim Controls	Estimated Tag Count*	
Tranche 1 (High Risk)	Risk of change in asset field condition within 12 months	Perform annual re-assessment for Open tags by 5/31	Tier 3	38,824 Tags
			Tier 2	72,940 Tags
			Zone 1	518 Tags
Tranche 2 (Low Risk)	No risk of change in asset field condition within 12 months	No re-assessment to be conducted		

B. T-WSIP Safety Reassessment Process and Interim Controls

For higher risk tags in excess of their compliance dates, PG&E will follow the same methodology described in the Section above for Distribution tags. However, additional reassessment will be performed, additional steps such as de-energization may be taken, and additional factors will be applied in re-prioritizing work based on the field re-assessment.

Table 10: T-WSIP Past Due Priority E&F Tag Tranches

Tranche	Deterioration Risk	Interim Controls	Estimated Tag Count
Tranche 1 (High Risk) Tags on energized lines with time-dependent Facility, Damage, Action codes (FDAs) [8] associated with fire risk	Risk of change in asset field condition within 12 months	• Perform annual re-assessment for open tags by 5/31 • Reassess within 30 days after compliance date	10,600 Tags

[8] Facility, damage and action codes (FDAs) have been categorized as being time-dependent or time-independent. Time-dependent FDAs represent conditions that potentially could worsen over time, and therefore would benefit from re-inspection. For example, FDAs with damage codes “No good/out of standard” can involve a condition such as corrosion that could worsen over time. These FDAs remain in Tranche 1. Time-independent FDAs are moved into Tranche 2. An example of a time-independent FDA would be a component with a damage code of “missing”, since re-inspection still would show that the component is missing.

Tranche	Deterioration Risk	Interim Controls	Estimated Tag Count
Tranche 2 (Med Risk) Tags with time-independent FDAs associated with fire risk, and on lines that will be temporarily de-energized.	No risk of change in asset field condition within 12 months	• Reassess open tags prior to re-energization lines that were temporarily de-energized • No annual inspection of de-energized lines before each fire season since they are being reassessed before re-energization	2,800 Tags
Tranche 3 (Low Risk) Tags with an FDA not associated with fire risk.	No risk of change in asset field condition within 12 months	• No re-assessment or inspection to be conducted prior to fire season	4,100 Tags

C. S-WSIP Safety Reassessment Process and Interim Controls

For S-WSIP identified EC/LC tags with potential to exceed their compliance dates due to factors beyond our control such as clearance, permitting reviews or materials availability, PG&E will annually re-assess the field condition of the non-conformance to ensure that it poses no additional risk to safety or reliability. Once safety and reliability assessments are completed, a new due date, following PG&E's exemption process and based on the current conditions will be established.

In addition, PG&E will perform annual safety field re-assessments of substation-related EC/LC Tags. PG&E will follow the same methodology described in Section A, above, for Distribution tags.

VII. Monitoring & Reporting

To provide visibility and oversight for PG&E's internal and external stakeholders, PG&E will prepare quarterly reports of the status of non-conformances in excess of compliance dates. The content of these reports may include:

1. The number, status, and locations of open EC/LC Tags in excess of compliance dates.
2. The number and results of safety re-assessments completed before fire season (5/31).
3. Status overview of system hardening and other capital work that are projected to address open EC/LC tags in excess of compliance dates.
4. A table summarizing remaining tags open and completed compared to the total population of tags identified in this report.

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