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

Incident Investigation Report

Report Date: April 29, 2019

Incident Number: E20171013-01

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

Date and Time of Incident: October 8, 2017 between 2230 and 2300 hours

Location of the Incident: 167 Darby Road Bangor, CA County: Butte

Fatality / Injury: None reported

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

Utility Facilities involved: Bangor 1101, 12 kV Circuit

Violation: None identified

I. Summary

On October 8, 2017, at approximately 2230 to 2300 hours, a seven-inch diameter Valley Oak tree limb failed and fell onto the overhead conductors of PG&E's Bangor 1101, 12 kV two-phase circuit at 167 Darby Road in the city of Bangor in Butte County. As a result, the pole-to-crossarm attachment failed, which dislodged the crossarm and one of the 12 kV conductors. The dislodged 12 kV conductor made contact with the ground, which caused an energized fault to ground and ignited the La Porte Fire. The La Porte Fire burned 6,151 acres, destroyed 74 structures, and damaged 2 structures. No fatalities or injuries were reported.

A. Rules Violated

Based on SED's investigation described herein, SED did not identify any General Order violations by PG&E.

B. Witnesses

No.	Name	Title
1	Brandon Vazquez	CPUC Lead Investigator
2	Ivan Garcia	CPUC Investigator
3	Charles Filmer	PG&E Compliance & Risk Specialist
4		PG&E Vegetation Program Manager Supervisor
5	Tom Kluge	CAL FIRE Lead Investigator

C. Evidence

No.	Source	Description	
1	PG&E	Initial Online Incident Report, 10/13/17	
2	CPUC	Field Investigation, 10/26/17	
3	PG&E	20-day Incident Report, 11/13/17	
4	PG&E	Field Investigation Follow-up Response, 11/20/17	
5	CPUC	Data Request #1, 11/21/17	
6	PG&E	Data Request #1 Response, 12/29/17 through 6/29/18	
7	CPUC	Follow-up Data Request #1, 5/17/18	
8	CAL FIRE	Investigation Report and Attachments, 5/25/18	
9	PG&E	Follow-up Data Request #1 Response, 6/8/18	
10	CPUC	PG&E Evidence Viewing, 6/11/18	
11	CPUC	Follow-up Data Request #2, 6/22/18	
12	PG&E	Follow-up Data Request #2 Response, 6/29/18	
13	CPUC	CAL FIRE Evidence Viewing, 7/13/18	
14	CPUC	Data Request #2, 7/19/18	
15	PG&E	Data Request #2 Response, 8/3/18 through 9/21/18	
16	CPUC	Data Request #3, 8/16/18	
17	PG&E	Data Request #3 Response, 8/31/18 through 9/21/18	
18	CPUC	Data Request #4, 10/19/18	
19	PG&E	Data Request #4 Response, 11/15/18 through 12/14/18	
20	CPUC	Data Request #5, 1/3/19	
21	PG&E	Data Request #5 Response, 1/25/19 through 2/6/19	
22	CPUC	Data Request #6, 2/8/19	
23	PG&E	Data Request #6 Response, 2/15/19 through 3/18/19	
24	CPUC	Data Request #7, 2/25/19	
25	PG&E	Data Request #7 Response, 3/18/19	

II. Background

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

On October 8, 2017 at approximately 2230 to 2300 hours, a seven-inch diameter Valley Oak tree limb failed and fell onto the overhead conductors of PG&E's Bangor 1101, 12 kV two-phase circuit; consequently, the pole-to-crossarm attachment failed, which dislodged the crossarm and one of the 12 kV conductors. The dislodged 12 kV conductor made contact with the ground. This caused an energized fault to ground and ignited the La Porte Fire. The fire caused power interruptions to 377 customers.

The La Porte Fire was managed as part of the Wind Complex (Cascade, La Porte, Lobo and McCourtney fires). The La Porte Fire burned 6,151 acres, destroyed 74 structures, and damaged 2 structures. PG&E recorded approximately \$3 million in restoration costs for its North Valley Division. No fatalities or injuries were reported for the La Porte Fire.

Weather station BNGC1, located approximately 2.7 miles south-south-west from the incident location, recorded a temperature of 69 degrees Fahrenheit, east-north-east wind speeds of 4 to 6 mph, wind gusts up to 30 mph, and a relative humidity of 10-12% around the time of the incident.¹

¹ Weather conditions per MesoWest (www.mesowest.utah.edu)



Figure 1: Fire Origin/ Incident Location (Source: Google Maps)

III. SED's Review and Analysis

A. PG&E's Distribution Facilities Inspection Program

Rural areas, such as the incident area, are defined by General Order (GO) 165 as "those areas with a population of less than 1,000 persons per square mile". GO 165 requires biennial patrol inspections and detailed inspections at five-year intervals for rural areas.

GO 165 defines a patrol inspection as a "simple visual inspection" meant to identify "obvious" structural problems and hazards (e.g., leaning poles, loose crossarms, etc.) and may be carried out during other company business. For the incident area, SED reviewed PG&E's November 2015 and October 2017 distribution patrol inspection records.² PG&E documented no abnormal conditions or issues during these patrol inspections.

² Bates PGE-CPUC_00008209_CONFIDENTIAL and PGE-CPUC_00008215_CONFIDENTIAL

GO 165 defines a detailed inspection as one where facilities are "carefully examined" to gather and record conditions of overhead facilities. A detailed inspection is meant to identify "obvious" structural problems and hazards, in addition to issues such as loose hardware, transformer oil leaks, contaminated insulators, etc. SED reviewed PG&E's December 2008 and November 2013 detailed inspection records in proximity to the incident area.³ One work order (EC tag #107511521) on the subject conductor span for a pole with a missing high voltage sign resulted from the 2013 detailed inspection; it required completion by November 25, 2018. There was one work order⁴ (EC tag #107529918) open at the time of the incident for the subject circuit requiring completion by November 24, 2018 for a pole with missing high voltage signs and vegetation contact above the anchor guy insulator. PG&E categorized these two work orders as Priority F. Priority F requires completion by the next detailed inspection, which would be five years after the inspector identified the issue. Additionally, in 2017, Osmose Utility Services, Inc. conducted an infrared (IR) inspection of the subject circuit, which resulted in the replacement of a dead-end shoe connector.

Based on PG&E's 2015 and 2017 distribution patrol inspection records and 2008 and 2013 detailed inspection records, SED did not identify any PG&E violations of applicable GO 95 and 165 rules regarding its distribution facilities inspection program.

B. PG&E's Vegetation Management Program

The GO 95 rules applicable to Vegetation Management (VM) include:

- 1. Rule 31.1 Design Construction and Maintenance.
- 2. Rule 35 Vegetation Management.
- 3. Rule 37 Minimum Clearances of Wires above Railroads, Thoroughfares, Buildings, Etc., Table 1 Cases 13 and 14.

In order to comply with the applicable GO 95 rules, PG&E's Distribution Vegetation Management Standard⁵ (DVMS) outlines the general strategy used to identify:

- 1. Conductor radial clearance issues;
- 2. Trees that will encroach PG&E's minimum distance requirements; and
- 3. Hazard trees that have the potential to strike conductors.

In order to implement their strategy, PG&E's DVMS prescribes annual vegetation patrols and completion of identified vegetation work for all primary and secondary distribution facilities.

³ Bates PGE-CPUC_00008194-00008198_CONFIDENTIAL and PGE-CPUC_00008202_CONFIDENTIAL

⁴ Bates PGE-CPUC_00015807_CONFIDENTIAL

⁵ Bates PGE-CPUC_00005827_CONFIDENTIAL. Utility Standard TD-7102S, Published on 9/4/15. Rev 1.

PG&E's VM contractors, specifically Pre-Inspection (PI) personnel, work with VM Vegetation Program Managers (VPM) to create an annual plan for routine patrols (i.e., PIs). Vegetation work is prescribed during PIs by PI personnel. PG&E's VPM then schedules vegetation work to be completed on an annual basis by the Tree Contractor (TC) personnel. PG&E also uses a combination of LiDAR⁶ and spectral imagery to allow VM to identify hazardous trees in high fire danger areas. Trees identified using these technologies are then inspected from the ground and abated as necessary. However, PG&E also allows the use of aerial patrols in place of ground patrols.

For the incident area, PG&E contracted Western Environmental Consultants, Inc. (2013-2014 & 2016-2017) and ACRT, Inc. (2015) for pre-inspections and Davey Tree, Inc. for vegetation work (i.e., trimming and removal). No vegetation work was subcontracted in the incident area.

Vegetation PIs are performed by a Consulting Utility Forester (CUF), an individual qualified by PG&E, who inspects all vegetation that has the potential to grow into or fall into the distribution primary conductors before the next inspection and identify vegetation that is currently causing strain/abrasion of secondary conductors.

PG&E's PI contract specification⁷ requires a CUF to have at least two years' experience in line clearance tree pruning work, or equivalent experience as determined by PG&E. The PI contract specification also notes that PG&E desires that a CUF have an associate's degree in forestry, arboriculture or a related field; however, an associate's degree is not a requirement. The CUF should be "familiar with the Contractor's work practices, proper arboricultural techniques and practices, proper integrated pest management practices, PG&E's Tree Pruning Specification, PG&E's Pre-Inspection Specification and requirements, and all applicable legal and regulatory requirements."⁸

SED reviewed PG&E's VM records from 2013 to 2017. SED focused on reviewing documented PIs and accompanying vegetation work orders. From August 23, 2013 to December 21, 2016: PG&E's contractors identified no facility protect trees, no third parties denied vegetation work requests at the incident location, and the subject tree was not prescribed for vegetation work. Furthermore, there was no pending vegetation work scheduled at the incident location at the time of the fire. No enhanced PIs were conducted at the incident location due to the Drought State of Emergency declaration or Commission Resolution ESRB-4.

Applicable PG&E VM Procedures

⁶ LiDAR (an acronym of Light Detection And Ranging) is a surveying technology that measures distance by illuminating a target with a laser light. (Source: Wikipedia.)

⁷ Bates PGE-CPUC_DR-071918_General_Q04. PG&E Pre-Inspection contract specification. Section 3.2.

⁸ Id.

PG&E's Distribution Routine Patrol Procedure⁹, Section 2.6 "Hazard Trees/Facility Protection Trees", describes trees that should be identified as hazard trees/facility protection trees during VM patrols and/or pre-inspections as, "(T)rees or portions of trees that are dead, show signs of disease, decay or ground or root disturbance, AND may fall into or otherwise impact primary or secondary conductors, THEN PRESCRIBE work to make tree Facility Safe per Facility Protect and work Difficulty Classification Procedure."

PG&E's Vegetation Management Hazard Tree Rating and Scoring Procedure¹⁰ aids inspectors in prescribing work for potentially hazardous trees. The procedure indicates a Valley Oak as a tree with a "Very High" failure potential.

PG&E's VM Quality Control (VMQC) program audits PI and TC personnel for any vegetation work that is missed or not performed correctly. PG&E does not require routine VMQC audits and PG&E describes selected VMQC audit locations as "computer-generated" and "randomized". PG&E did not conduct a VMQC audit of the incident area.

PG&E conducts annual VM Quality Assurance (VMQA) audits for each division. VMQA audits are required to be performed annually by PG&E's VMQA standard. PG&E's VMQA program audits PG&E facilities for any compliance violations (e.g., GO 95 or Public Resource Code (PRC) Section 4293). The incident location is part of PG&E's North Valley Division. SED reviewed PG&E's 2012, 2013, 2014, 2015, 2016, and 2017 North Valley VMQA audits. A total of 14 audits were conducted from 2012 to 2017. The most recent audit was conducted from May 19 to July 26, 2017 during which PG&E found 23 non-compliant trees, 16 trees with potential to become non-compliant within 90 days, and four facility protect trees.¹¹

Based on PG&E's 2012-2017 VM records, SED did not identify any PG&E violations of applicable GO 95 rules regarding its vegetation management program.

C. Condition of PG&E's Infrastructure

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

i. CAL FIRE's Field Observations

CAL FIRE observed that the top of the subject pole had failed due to the fire (See

⁹ Bates PGE-CPUC_00005468_CONFIDENTIAL. PG&E Distribution Routine Patrol Procedure. Utility Procedure TD-7102P-01. Rev: 1. Published: 10/27/15.

¹⁰ Bates PGE-CPUC_00005426_CONFIDENTIAL. PG&E Vegetation Management Hazard Tree Rating and Scoring Procedure. Utility Procedure: TD-7102P-07. Rev: 1. Published: 10/13/2014.

¹¹ Bates PGE-CPUC_00007131_CONFIDENTIAL

Figure 2), that the subject crossarm had failed and that the subject conductor was in contact with the ground (See Figure 3). The subject conductors, installed in 1945, were #4 AR (Aluminum Conductor – Steel Reinforced). On March 4, 2008, PG&E's contractor Utility Pole Technologies conducted a visual sound and pull test and internal fume treatment on the subject pole and identified no issues.¹²



Figure 2: Subject Pole (Source: CAL FIRE)



Figure 3: Crossarm and Conductor (Source: CAL FIRE)

ii. SED's Field Observations

On October 26, 2017 at 1307 hours, SED conducted a field investigation with PG&E Liaisons Charles Filmer and **Sector 1**. PG&E had completed repairs prior to SED's field investigation. SED observed that PG&E had installed a new pole to replace the damaged subject pole (See Figure 4). SED also observed two splices installed prior

¹² Bates PGE-CPUC_00006221_CONFIDENTIAL

to the incident on the roadside conductor located adjacent to the west of Darby Road (See Figures 5 & 6).



Figure 4: New Pole



Figure 5: Splice One



Figure 6: Splice Two

Based on field observations, SED did not identify any PG&E violations of applicable GO 95 requirements regarding its physical infrastructure.

D. PG&E Equipment Operations and Maintenance

SED investigated compliance with GO 95, Rule 31.1 during their review of PG&E distribution equipment operations and maintenance records. The incident span was protected upstream by Fuse 1851, Line Recloser 1804, and the Bangor 1101 Circuit Breaker (See Figures 7 & 8).



Figure 7: Single-line diagram of the Bangor 1101 Circuit. It shows the protective devices upstream of the incident location/area of interest. Not to Scale. (Source: PG&E)







Legend 1: Legend for the single-line diagram. (Source: PG&E)

Device ID	Brand	Туре
Bangor 1101 CB	Alstom	MCGG
LR 1804	Cooper	Form 6 - PV4
Fuse 1851	Part 63	25E

Table 1: List of the brand and type of the protection devices. (Source: PG&E)

i. Event Timeline

While the circuit was energized, the Bangor 1101 CB and LR 1804 had data recording capability prior to and for a limited time during the fire. SED reviewed the Supervisory Control and Data Acquisition (SCADA) load data recorded at the Bangor 1101 CB and LR 1804 for October 8, 2017 until both devices stopped recording. Bangor 1101 CB and LR 1804 did not record data at consistent time intervals. SED also reviewed records from smart meters on the Subject Circuit located downstream of Fuse 1851.

October 8, 2017

At 2244 hours and from 2244 to 2320 hours, a smart meter downstream of Fuse 1851 and 25 smart meters downstream of the incident location, respectively, recorded a series of power off/on events and/or zero volt readings¹³. This coincides with CAL FIRE's incident start time between 2230 to 2300 hours.

The Colgate-Palermo 60 kV transmission line that feeds the Bangor Substation experienced momentary outages at 2308, 2316, 2318, and 2320 hours. Subsequently at 2322 hours, the Bangor Substation de-energized due to a fire impacting a transmission line, thus de-energizing the subject circuit and incident location.

At 2316 hours, there was a spike in load on all phases, with a maximum load of 162.3 Amps recorded on Phase A (See Figure 9). Then the load subsequently decreased on all phases. At 2322 hours, an outage was recorded on all phases, which coincides with PG&E records (See Figure 9).

¹³ A "zero volt reading" occurs when a smart meter is partially energized, between 25% to 75%, at the time of the reading (Source: PG&E).



Figure 9: SCADA plot of load data recorded at the Bangor 1101 CB on October 8, 2017 from 2202 to 2323 hours.

October 9, 2017

At 0905 hours, the Bangor 1101 CB was remotely opened via SCADA on a dead line. At 1958 hours, the Bangor Substation was re-energized.

October 10, 2017

At 1220 hours, LR 1804 was manually opened on a dead line. At 2020 hours, the Bangor 1101 CB was remotely closed via SCADA.

October 11, 2017

At 1850 hours, Fuse 1851 was reported open. At 2024 hours, LR 1804 was remotely closed via SCADA, thus restoring power to 349 customers. The incident location remained de-energized since Fuse 1851 was open.

<u>October 12, 2017</u>

At 1450 hours, a PG&E foreman manually opened the jumpers for the conductor span serving the incident location. At 1856 hours, a PG&E foreman replaced the blown fuse and then closed Fuse 1851, thus restoring power to 26 customers.

October 17, 2017

At 1856 hours, a PG&E foreman closed the jumpers for the conductor span serving the incident location, thus restoring power to the remaining 2 customers and the incident location.

Based on PG&E's outage reports, smart meter data, and SCADA load data, SED did not identify any PG&E violations of GO 95, Rule 31.1 regarding its equipment operations and maintenance.

E. Other Field Observations and Review of Physical Evidence

CAL FIRE observed that the subject Valley Oak was rooted approximately 15 feet from the 12 kV conductors (See Figure 10). CAL FIRE determined that the subject tree limb failed at the break point identified in Figures 10 and 11.



Figure 10: Subject Pole and Tree (Source: CAL FIRE)



Figure 11: Enlarged View of Break Point (Source: CAL FIRE)

During SED's field investigation on October 26, 2017, SED observed Mountain Enterprises Inc. conducting hazard tree mitigation (See Figure 12). SED also observed clean cuts on tree branches near the subject conductor span, which indicates that VM work had been conducted at the incident location (See Figure 13).



Figure 12: Mountain Enterprises Inc. conducting hazard tree mitigation



Figure 13: Clean cuts on tree branches near incident conductor span

On June 11, 2018 at 0900 hours, SED met with Ryan McLean of Iron Mountain to view evidence PG&E had collected for each incident location. SED observed the burnt and broken subject crossarm, the top few feet of the subject pole, a section of the subject conductor, a whole insulator, and a section of a broken and partially burnt crossarm (See Figures 14-17). SED identified no abnormal conditions or issues.



Figure 14: La Porte Evidence



Figure 15: Bottom of Pole Top



Figure 16: Top Portion of Burnt Pole Top



Figure 17: Partially Broken and Burnt Crossarm

On July 13, 2018 at 0930 hours, SED met with Tom Kluge of CAL FIRE. SED observed the subject conductor that contacted the ground and the subject limb. There were burn marks on the subject conductor from the ground fault (See Figures 18 & 19). The subject limb showed no obvious outward signs of decay or disease (See Figure 20).



Figure 18: Burn Marks on Subject Conductor



Figure 19: Burn Marks on Subject Conductor



Figure 20: Subject Limb

Based on field observations and evidence that SED reviewed, SED's investigation determined the following:

The subject limb showed no obvious outward signs of decay or disease. The internal decay and possible crack likely weakened the base of the subject limb and caused it to fail when exposed to high winds on October 8, 2017.

GO 95, Rule 35 Vegetation Management states in part:

"When a supply or communication company has actual knowledge, obtained either through normal operating practices or notification to the company, that dead, rotten or diseased trees or dead, rotten or diseased portions of otherwise healthy trees overhang or lean toward and may fall into a span of supply or communication lines, said trees or portions thereof should be removed."

GO 95, Rule 35 requires supply and communication companies to remove trees or portions of trees when they acquire knowledge that a tree or portion of a tree is dead,

rotten, or diseased. Per GO 95, Rule 35, since PG&E did not have actual knowledge of the decay and possible crack at the base of the subject tree limb, due to there likely being no visible outward signs of failure or weakness that could have been identified during a routine VM PI, SED did not identify any PG&E violation of GO 95, Rule 35.

IV. CAL FIRE's Investigation

CAL FIRE investigator, Tom Kluge, determined the following:

"The La Porte was caused when the valley oak limb fell upon energized conductor wires. The pole supporting the conductors catastrophically failed, causing an energized fault to ground. The fault to ground occurred within a receptive fuel bed and started the fire."

In addition, Mr. Kluge stated the following regarding the report by contracted arborist, Mark Porter:

"... the subject valley oak did show signs of decay. The arborist report stated there may have been a crack at the base of the limb. The arborist report states it is possible there were no visible outward signs of failure or weakness that would have been discovered with a normal assessment."

SED's investigation correspondingly found that the subject Valley Oak limb failed and brought down the subject conductors, which subsequently arced due to a ground fault and started the fire. SED's SCADA load plot confirms that a spike in load and subsequent power outage occurred near the time of the incident; in addition, SED's review of PG&E's outage reports found that Fuse 1851 (located immediately upstream of the incident location) had blown. Furthermore, SED's investigation correspondingly found that the subject limb showed no obvious outward signs of decay or disease that could have been identified during a routine VM PI.

CAL FIRE did not identify any violations by PG&E.

V. Conclusion

Based on the investigation described herein, SED did not identify any General Order violations by PG&E.

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

VI. Attachments

Attachment A – CAL FIRE Investigation Report – Case No. 17CABTU015954 Attachment B – PG&E La Porte Incident Description & Factual Summary

ATTACHMENT A

CAL FIRE Investigation Report Case Number 17CABTU015954





CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION CAL FIRE / Butte County Fire Department

176 Nelson Avenue Oroville, CA 95965 (530)538-7888

INVESTIGATION REPORT

17CABTU015954

CASE NUMBER:

CASE NAME:

DATE:

INCIDENT TYPE:

INCIDENT INVESTIGATOR:

NOBENT THE.

October 8, 2017

Vegetation Fire

La Porte

Tom Kluge - Fire Captain Specialist - BTU

- 1 1 - VIOLATION:
- 2 None Observed
- 3

LE80 (Rev. 7/2011)

La Porte

October 8, 2017

1 2 - SUMMARY: 2 On October 8, 2017, between the hours of 10:30 pm to 11:00 pm, a vegetation fire (La 3 Porte Fire) started near the community of Bangor, CA. The La Porte Fire burned 6,151 acres and burned into the Cascade Fire (Yuba County). The La Porte Fire was 4 5 managed as part of the Wind Complex, a series of fires that began burning within 24 6 hours of each other in the foothills of Northern California. 7 8 The La Porte Fire was a wind driven fire influenced by both terrain and fuels. My origin 9 and cause investigation led me to the property located at 167 Darby road. It is a mostly 10 wooded parcel with a natural drainage bisecting the property from west to east. PG&E 11 distribution lines follow the drainage through the property and terminate at 171 Darby 12 Road. 13 14 Near the origin area, as determined by methods described in the narrative of this 15 document and the Origin and Cause LE-71 supplemental report, I observed a broken 16 distribution pole with a broken cross arm and bent cross arm support. I also observed 17 distribution conductors that had fallen to the ground. The conductors were covered by a 18 seven-inch diameter limb that had broken off a nearby Valley Oak tree. The oak limb 19 had been charred by fire but did not burn. I observed a tall standing oak tree with 20 minimal fire damage at the base of the tree. The tall standing oak had a new break 21 which appeared from the ground to match the broken limb on the conductor wires. 22 23 The La Porte Fire was caused when the valley oak limb fell upon energized conductor 24 wires. The pole supporting the conductors catastrophically failed, as did one of the 25 conductor wires, causing an energized fault to ground. The fault to ground occurred 26 within a receptive fuel bed and started the fire. 27

Officer Initials

3 - SUSPECT: 1

None identified at the time of this report. 2

3

LE80 (Rev. 7/2011)

4

Officer Initials

La Porte	October 8, 2017	Case#17CABTU0015954-103
4 - VICTIMS & WITNESSES:		
Home:		
Owners of the property where	the fire started	
Cell:		
Was home when fire started.	Stepped outside between	10:30 and 11:00 pm and saw
fire in the drainage to the north	west of his house	
See attachment f for list of victi	ims	
	La Porte 4 - VICTIMS & WITNESSES: Home: Owners of the property where Cell: Was home when fire started. fire in the drainage to the north See attachment f for list of vict	La Porte October 8, 2017 4 - VICTIMS & WITNESSES: Image:

	La Porte	October 8, 2017	Case#17CABTU0015954-103
1	5 - EVIDENCE:		
2	E1 - Length of cond	uctor wire with several arc burn	s along its length
3	E2 - Section of tree	branch that fell onto the energiz	zed conductors including point of
4	failure.		
5	E3 - Photographs o	f the fire origin area	
6			

Officer Initials

La Porte

1	6 – CONDITIONS:		
2	The weather was hot, dry with high winds recorded at over 30 miles per hour. North		
3	winds in the region had blown for several days and the relative humidity was low and		
4	had been low for several days (see attachment j). Night time fuel moisture recovery		
5	was minimal with the dew point, well below ambient temperatures.		
6			
7	The area around Darby Road has limited cellular/ mobile telephone coverage limiting		
8	the ability for people to report the fire once telephone lines were compromised.		
9			
10	Suppression efforts	were hampered by limited telephone and cellular access. Butte	
11	County and surrounding counties had multiple fires burning at the same time as the La		
12	Porte Fire limiting the number of available resources to respond. The Cascade Fire had		
13	been burning in Yuba County near the Butte County line prior to the start of the La Porte		
14	Fire. The La Porte Fire was mistaken for the Cascade fire by local residents and fire		
15	officials.		
16			
17			
18	Weather		
19	From Bangor RAW	S station (BNGC1) located at N39.380747 W121.386228	
20	Descriptive location	is 446 Los Verjeles Rd Bangor, CA 95914	
21	Approximately 2.70	miles SSW from the fire origin area.	
22	Recorded on 10/08	/2017 23:51 PDT (attachment i)	
23	Temperature:	68 Degrees Fahrenheit	
24	Relative Humidity:	13 percent	
25	Winds:	ENE 6 miles per hour, gusts to 30 miles per hour	
26	Dew Point:	15 Degrees Fahrenheit	
27			
28			
29			

7

October 8, 2017

1 7 – VEHICLE/EQUIPMENT:

2 No vehicles were identified as being a factor in the ignition of the fire.

3

- 4 Distribution power lines were in the origin area. The energized conductors were
- 5 damaged because of mechanical failure and provided a heat source that started the La
- 6 Porte Fire.
- 7



1 8 - PROPERTY:

- 2 167 Darby Road
- 3 Bangor, CA 95914
- 4 Location where the fire originated. In the drainage, just east of Darby road, north of the
- 5 residence located on the property. Property is rolling hills with a steep drainage running
- 6 through the north half of the property from west to east
- 7

LE80 (Rev. 7/2011)

Officer Initials

La Porte

9 - NARRATIVE:

1

October 8, 2017

2 On October 9, 2017 at approximately 10:00 am, I responded as a Fire Investigator to an 3 actively burning vegetation fire in uniform while driving my department marked vehicle. 4 The fire was in the community of Bangor, CA. I arrived at the Incident Command Post 5 (ICP) at Butte County Fire Station 55 in Bangor at approximately 11:00 am. I met with 6 the Incident Commander, Division Chief (DC) Garret SJOLUND (D2104), and received 7 fire history information. SJOLUND told me the following in summary: 8 9 The fire was first confirmed by responding firefighters around 12:15 am on October 9. 10 The fire was moving at a critical rate of spread from the north, north east to the south, 11 south west. The fire had already destroyed an unknown number of structures and was still burning at a critical rate. No firefighting personnel had yet identified an origin area. 12 13 Firefighters observed extreme fire behavior and high wind speeds. 14 15 Battalion Chief (BC) Jason MORRIS (B2109) was also with SJOLUND and I at the ICP. 16 MORRIS told me the following in summary: 17 18 MORRIS had first observed the fire's edge 200 feet east of the low water crossing on 19 Vierra Road at South Honcut Creek. The fire was burning erratically, driven by turbulent 20 winds. At one point in the evening, MORRIS used the intersection of La Porte Road 21 and Los Verjeles Road as a safety zone. MORRIS saw the roof of the Bangor Feed 22 Store was pulled up and cast off by the wind. Darby Road was in the geographical area 23 referred to as Division A, supervised by the operator on CAL FIRE Engine 2165 24 (E2165). 25 26 After speaking with SJOLUND and MORRIS I proceeded towards the intersection of 27 Darby and Vierra Roads in my department vehicle. As I drove north on La Porte Road, I 28 observed several macro indicators such as angle of char, foliage freeze, and protection, 29 indicating the fire advanced (head fire) through the area. As I drove, I observed

30 changes in the spread pattern that indicated the fire transitioned several times from an

31 advancing fire to a lateral fire. LE80 (Rev. 7/2011)

10

Officer Initials

La Porte

October 8, 2017

1 The La Porte Fire had not crossed the La Porte Road as I approached Gold Pan Court. 2 I noted the road was spray painted with the word "CELL" at the top of the rise. As I 3 approached Darby Road, I saw E2165. I stopped and talked to the operator, Fire Captain Kevin FLEMMING. I confirmed he was Division A Supervisor and notified him 4 5 that I would be working in his division for accountability. FLEMMING told me he had 6 just transitioned into the position having relieved the previous Engine Company Officer. 7 FLEMMING told me he was waiting for the La Porte Fire to burn towards this section of 8 road and was hoping to hold the fire in the area. He asked if I would assist in holding 9 traffic on the road as it had become dangerous for firefighters with low visibility and no 10 restrictions imposed on civilian traffic. I assisted for approximately one hour after which, 11 local law enforcement assumed control of the traffic control point.

12

13 As I continued onto Darby Road, south from La Porte Road I observed macro indicators 14 (angle of char, depth of char, protection) indicating I was in the lateral progression area 15 of the fire. As I continued south on Darby Road, I observed two distribution conductor 16 wires hanging low across the road approximately one guarter mile south of La Porte 17 Road. I observed indicators indicating the fire had made an advancing run from the 18 drainage towards the southwest following topographical features. I set out on foot 19 towards the drainage. I observed a distribution pole, in line with the conductor wires, 20 that was broken and burning at the top of the pole but was not burning at the base. As I 21 approached the area, I observed micro indicators such as protection, stem fall, staining, 22 and sooting as well as macro indicators that directed me to an area 20 feet northeast of 23 the broken and burned power pole. I noted the area and continued walking beyond it. I 24 walked to the next power pole and followed a power line south towards the structures at 25 167 Darby Road, subsequently returned to my vehicle and continued driving to the east 26 side of the fire. I noted the location as 167 Darby Road and continued to Vierra Road. 27

28 As I approached the location indicated by MORRIS, 200 feet past the low water

29 crossing on Vierra Road, I observed macro indicators (angle of char, depth of char,

30 sooting and staining) that indicated that I was in a backing fire progression. I parked my

31 vehicle and set out on foot, recording my path on a Garmin Global Positioning System, LE80 (Rev. 7/2011) Officer Initials 11
La Porte

October 8, 2017

(GPS) hand held module. I observed many micro indicators including cupping, sooting, 1 2 staining and stem fall. I considered the totality of several indicators to determine the 3 fire's path and progression across hundreds of points along the path. The fire had 4 burned in many directions transitioning from backing, to lateral, and advancing fires 5 which is consistence with turbulent winds. 6 7 The fire's path of progression led me back the property at 167 Darby Road. To ensure I 8 was being objective. I returned to Vierra Road and traveled further north east to 15460 9 block of Vierra Road and set out on foot again, observing the macro and micro 10 indicators. Again, the fire's progression led me back to 167 Darby Road. In all, seven 11 hours were spent observing the indicators to determine the general origin area (GOA). 12 13 I returned to my truck and drove to an access gate located at the property on 167 Darby 14 Road. The gate was locked and I made vehicle access by lifting the gate off the hinges. 15 I noted there were no foot prints or vehicle tracks in the area. I followed the micro and 16 macro indicators to the specific area of origin. Within the specific origin area (SOA) was 17 a conductor wire with blue and white burn marks indicating electrical discharge from the 18 conductor. Near the SOA, I observed a distribution pole that was broken with a broken 19 wooden cross arm still dangling from one of the conductor wires (photo 1). The cross 20 arm was still partially intact, but split along the mounting bolt holes. On the ground was 21 a bent metal cross arm support. On the ground east of the distribution pole, I observed 22 a seven-inch diameter oak branch that had a recent break at the base of the branch 23 (photo 7). I observed the break in the branch did not appear to be weathered. The oak 24 branch was partially scorched however mostly undamaged with leaf foliage still intact. 25 The oak branch was positioned on top of the conductor wire that was observed in the 26 SOA. I photographed the area and secured access to the GOA. 27 28 I ordered a Light Detection And Ranging (LIDAR) team to survey the area including the

29 broken limb and the tree from where I believed the broken limb came from. I ordered an

30 arborist to examine the oak tree that had broken to evaluate the health of the tree. The

31 arborist was also to determine whether the tree should have been assessed and LE80 (Rev. 7/2011) 12 Officer Initials

	La Porte	October 8, 2017	Case#17CABTU0015954-103
1	maintained by the responsible	nower company Pacific	Gas and Electric crew workers
י ר	in the erected methic was an	o of their poles	Cas and Electric crew workers
2	In the area told the this was on	e of their poles	
3			
4	The report provided by the con	tracted arborist, Mark Por	ter, stated the subject valley
5	oak did show signs of decay.	The arborist report stated	there may have been a crack at
6	the base of the limb. The arbo	rist report stated it is poss	sible there were no visible
7	outward signs of failure or wea	kness that would have be	en discovered with a normal
8	assessment.		
9			
10	I reviewed the report timeline fi	rom CAL FIRE Butte Unit	Emergency Command Center
11	that included 911 calls and rad	io transmissions. The firs	t 911 report of the fire was at
12	11:18 PM on October 8, 2017.	There was conflicting info	ormation based on several fires
13	in the area as to whether it was	s a new fire.	
14			
15	Based on witnessed reports, ol	bserved facts, specialist re	eports, historical data available,
16	and my training and experience	e, I conclude the following	:
17			
18	The La Porte fire started betwe	en 10:30 p.m. and 11:00	p.m. on October 8, 2017 in the
19	drainage on the property locate	ed at 167 Darby Road, Ba	ngor CA. The fire started when
20	gusty winds caused a tree limb	to break and fall onto ene	ergized distribution powerlines.

- In falling, the limb caused the power pole cross member to break along with other 21
- 22 crucial components of the pole resulting in a catastrophic failure of the pole. The failure
- 23 of the pole resulted in the failure of a conductor that discharged electrical energy
- 24 providing a heat source that resulted in a fire. The fire started upon natural vegetation
- 25 and forest ground litter that grew into a wildland fire.
- 26 27

Officer Initials

October 8, 2017

1 10 - ATTACHMENTS:

- a. Photo Log
- b. Google Earth aerial view of fire origin location (pre-fire)
- c. La Porte Fire Damage Assessment Map
- d. Google Earth aerial view with final fire perimeter overlaid
- e. Google Street view of origin area showing subject tree, pre-fire
- f. Damage Assessment parcel spreadsheet
- g. LE-71 Origin and Cause report by Tom Kluge #3970
- h. LIDAR report
- i. BNGC1 weather observations from October 8-9, 2017
- j. BNGC1 weather observations from October 2-9, 2017

Tom Kluge Peace Officer #3970 CAL FIRE Butte 176 Nelson Ave. Oroville, CA 95965 (530)538-7888

LE80 (Rev. 7/2011)



LA PORTE FIRE 17CABTU015954-103 October 8, 2017

Photograph 1 General Origin Area (GOA)



Photograph 2 Subject tree in GOA



Photograph 3 Closer view of subject tree in GOA



Photograph 4 Closer view of subject tree in GOA



Photograph 5 Subject limb break of subject tree



Photograph 6 Close up broken limb



Photograph 7 Broken oak limb in GOA



Photograph 8 close up view of broken cross arm





La Porte 049

Google Maps 75 Darby Rd



Bangor, California

Google, Inc.

Street View - Apr 2012



Image capture: Apr 2012 © 2018 Google

SOLDANO, DONNA C Destroyed	
PARDINI, DAVID Destroyed Destroyed	Outbuilding Single Family Residence
HEADLEY, ANDREW Destroyed Destroyed	Outbuilding Single Family Residence
GOMEZ, MICHAEL F Destroyed	Single Family Residence
LEE, SYLVA K 10-25%	Single Family Residence
LODHI, SANAM Destroyed	Single Family Residence
	Single Family Residence
AULT. LAWRENCE G	Single Family Residence
Destroyed SMITH, MICHAEL W	Mobile Home -
ARNOLD, FORREST W	Mobile Home -
Destroyed Destroyed	Mobile Home - Garage
Destroyed	Mobile Home - Single Wide Mobile Home - Single Wide
DALEY, GARRETT Destroyed	Single Family Residence-
DALEY, ROBERT M Destroyed Destroyed	Outbuilding gt 10'X12' Single Family Residence

WHEATLEY, MATTHEW	
Destroyed	Mobile Home - Double Wide
Destroyed	Outbuilding gt 10 X12 Outbuilding gt 10'X12'
NICHOLS, GEORGE E	Mahila Hama Daubla Wida
Destroyed	Outbuilding gt 10'X12'
,	
ARNOLDSEN, KATHLEEN F	Outbuilding at 10'Y12'
Destroyed	Single Family Residence
QUESADA, DAVID	Mabile Home - Double Wide
Destroyed	
SMITH, LINDSEY	
Destroyed	Non-habitable-Shop Outbuilding at 10'X12'
Destroyed	Outbuilding gt 10 X12 .
Destroyed	Outbuilding gt 10'X12'
Destroyed	Single Family Residence
CASSIANO, MAYRA	
Destroyed	Mobile Home - Double Wide
Destroyed	Outbuilding gt 10'X12'
MILLER, LYNN M	
Destroyed	Outbuilding gt 10'X12'
MORSE. ANDREW	
Destroyed	Mobile Home - Single Wide
Destroyed	Single Family Residence
BROWN, MARY LYNN	
Destroyed	Commercial Building 20 X 20
Destroyed	Commercial Building - 30 X 20
Destroyed	Commercial Building - 30 X 40 Commercial Building - Retail Feed store
95914	
Destroyed	Mobile Home - Triple Wide
Destroyed	Non-habitable-Shop
Destroyed	Mobile Home - Double Wide
Destroyed	

RICH, KATHLEEN	
Destroyed	Mobile Home - Double Wide
ALAEI, ALIREZA J	Cincle Family Residence
Destroyed	Single Family Residence
MOUTON MARY Y	
Destroyed	Garage-Shop
,	
BLACKSON, THOMAS B	
10-25%	Single Family Residence
WAUGH, JAMES	Outhuilding at 101/121
Destroyed	Outbuilding gt 10X12
Destroyed	
LEONARD, CAROL	
Destroyed	Detached Garage
Destroyed	Single Family Residence-Single Story
Destroyed	Shop 500 sq ft
FOX, GARY P	
Destroyed	Outbuilding shop
/5-100%	Carport- metal
LONG, DAVID M	
Destroyed	Outbuilding gt 10'X12'
FELLOWSHIP, MARANATHA C	HURCH
Destroyed	Outbuilding gt 10'X12'
THOMAS, ARTHUR SCOTT	
Destroyed	Mobile Home
BROWN MARY LYNN	
Destroyed	Non-hahitable-Shon
pesticyeu	
BARICKMAN, FRED	
Destroyed	Outbuilding gt 10'X12'
	· · · · ·
BICKFORD, ROY M	
Destroyed	Outbuilding gt 10'X12'
IVIETZ, DAVID C	Single Family Residence
Desitoyeu	Single Failing Residence
GOULD, DENISE SS	
Destroyed	Outhuilding at 10 ¹ V12 ¹

WOOD, CAMIEL F	
Destroyed	Mobile Home - Double Wide
Destroyed	Detached Garage
WARREN, FLOYD E	
Destroyed	Outbuilding Barn 30 X 200
Destroyed	Outbuilding gt 10'X12'
Destroyed	Outbuilding gt 10'X12'
DALEY, GARRETT B	
Destroyed	Mobile Home
Destroyed	Outbuilding gt 10'X12'
Destroyed	Single Family Residence - single story
Destroyed	Mobile Home - Single Wide
DAWSON, DARIAN W	
Destroyed	Single Family Residence-Single Story
	F
Destroyed	Mobile Home - Double
Destroyed	Outbuilding 40'X12'
Destroyed	Shop/Garage 30 X 40
Destroyed	Detached Garage
Destroyed	Single Family Residence
RISSLER, ERNEST R	
Destroyed	Non-habitable-Shop
Destroyed	
MICHAEL, LISA	
Destroyed	Outbuilding gt 10'X12'

.



DAY SUN

SUPPLEMENTARY INVESTIGATION REPORT

STATE OF CALIFORNIA

DEPARTMENT OF FORESTRY AND FIRE PROTECTION LE 71 (REV. 7/2011)						CASE NAME LA PORTE	
	MONTH	DATE	YEAR	COUNTY	REGION	UNIT	CASE NUMBER
	OCT	8	2017	BUTTE	CNR	BTU	17CABTU015954-103

On Monday, October 9, 2017 I responded to the La Porte fire in the community of Bangor CA. I 1 2 responded in my law enforcement uniform a fire investigator in my marked department vehicle. I 3 arrived at scene at approximately 11 am.

4

5 I met with the B2109 (Jason MORRIS) at Butte County Bangor Fire Station 55. MORRIS told me 6 that when he arrived at scene, the fire was backing on Vierra Road 220 feet east of the low water 7 crossing at Vierra and Darby Road. D2104 (Garrett Sjolund) was the Incident Commander and 8 showed me a crude sketch of the fire. SJOLUND also told me the initial reports of the La Porte fire 9 were mistaken for the Cascade Fire that was in Yuba County close by. Chief SJOLUND also told 10 me all power lines had been de-energized per Pacific Gas and Electric (PG&E). I collected Global 11 Positioning Satellite (GPS) data from Chief MORRIS and drove into the fire area. As I turned north 12 onto La Porte Road from Oro Bangor Highway, I became aware of the vast devastation and the loss 13 of property.

14

15 As I continued north on La Porte Road I observed several Macro indicators such as angle of char, 16 depth of char, foliage freeze, ash deposits, and protection. The macro indicators clearly showed the 17 fire advanced from north east to south west. I traveled to the intersection of Darby Road and La 18 Porte Road and observed macro indicators that showed lateral movement of the fire with lower 19 intensity. I knew by the indicators I was on the right flank of the fire (looking from the heel towards 20 the head). Near the address of 167 Darby road, I observed powerlines that were sagging across 21 Darby Road. I set out on foot and walked towards a broken and burned power pole in the same 22 location adjacent to 167 Darby road.

23

24 As I approached the area, I observed micro indicators such as protection, stem fall, staining, and 25 soot deposit as well as macro indicators that pointed to an area 20 feet north east of the broken and 26 burned power pole. I noted the area and continued walking past. I walked to the next power pole 27 and followed the branch line up towards 167 Darby Road and subsequently returned to my vehicle 28 and continued driving to the east side of the fire.

INCIDENT NUMBER 17CABTU015954

I parked at the location given to me by Chief MORRIS, 34° 24.260N 121° 21.450W in Vierra Road. 2 3 Using the macro and micro indicators I determined I was on the left flank of the fire (looking from the heel towards the head). I walked north from this location into the fire area observing and following 4 5 the macro and micro fire progression indicators. The fire progression through the area was very 6 erratic and consistent with the wind patterns reported during the time of the fire as it passed through the area. I followed the indicators across Robinson Ravine to the home of 7 8 I spoke with at his home. He told me the following in summary: 9

11 was at his home when he heard the roar of the fire around 11 p.m. He went outside 12 and saw from his front porch, the fire travel from the north east to the south west. He said he 13 observed the fire sheeting across the field next to his drive way. If told me he thought 14 the fire must have started about a quarter mile north of this driveway on Darby Road based on his 15 observations of the fire.

16

10

1

I walked back to the east from property and observed macro and micro indicators
that lead me to determine I was in the outside heel of the fire and the fire had backed into the area
from the origin.

20

Using the three points of reference and the macro and micro indicators I determined the fire started
in the area of the powerlines that run through the property at 167 Darby Road owned by

23 area, I observed the following facts:

25

26 There were powerlines that were down in the area. A power pole had been broken and burned. 27 One of the metal supports for the cross beam was bent in an ell where it should have been straight. 28 One conductor was broken. The insulators for one of the conductors was broken. The cross beam 29 was split into two pieces at the point where the bolt holes were drilled through. There was a seven 30 inch diameter oak branch laying on the broken conductor. The oak branch had most of it leaves still 31 intact. There was a valley oak near the broken branch that had one of the top limbs broken off. The 32 diameter and distinct features of the failed limb of the tree were very similar to the broken limb on the 33 ground. There were signs of arcing on the broken conductor wire.

OFFICERS INITIALS

1	On October 12, 2017, I met , 171 Darby Road, Bangor CA. told me he was home
2	with his wife at the time the fire started. said the lights dimmed in the house sometime
3	between 10:30 pm and 11:00 pm. said he stepped outside and saw the glow in the drainage
4	behind his neighbor's house (167 Darby Road).
5	to notify everyone he could as he evacuated. said Darby Road was overrun by fire blocking his
6	egress to the north.

7

8 Based on the facts observed, witness statements, and my training and experience of 20 years in the 9 fire service, I believe the La Porte fire started between 10:30 p.m. and 11:00 p.m. on October 8, 10 2017 in the drainage on the property located at 167 Darby Road, Bangor CA. The fire started when 11 abnormally high gusty winds did cause an otherwise healthy tree to be broken at a high limb and did 12 fall onto energized distribution powerlines. In falling, the limb did cause the power pole cross 13 member to break along with other crucial components of the pole resulting in a catastrophic failure of 14 the pole. The failure of the pole resulted in the failure of a conductor that did discharge electrical 15 energy providing a heat source that resulted in a fire upon natural vegetation and forest ground litter 16 that grew into a wildland fire.

17				
18				
19			9	
20				
21				
22				
23				
24				
25				
	PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE
	TOM KLUGE	mahr	3970	5/20/1x





PLOT DATE: May 07, 2018 - 12:40PM PROJECT PATH: F:\data\Tech Services\Lands\ncidents\2017 - October Seige\2017 - LaPorte\2017 - LaPorte.dwg

STATION: BNGC1

STATION NAME: BANGOR

LATITUDE: 39.380747

LONGITUDE: -121.386228

ELEVATION [ft]: 803

STATE: CA

Station_ID	Date_Time	air_temp	RH	wind speed	wind dir.	wind gust	peak wind	peak_wind	dew point	wind dir.
		Fahrenheit	%	МРН	Degrees	МРН	МРН	Degrees	Fahrenheit	Code
BNGC1	10/08/2017 07:51 PDT	57	49	1.01	14	5.99	5.99	315	37.88	NNE
BNGC1	10/08/2017 08:51 PDT	64.99	41	1.01	242	4	4	256	40.6	wsw
BNGC1	10/08/2017 09:51 PDT	66.99	37	2.01	260	7	7	241	39.75	W
BNGC1	10/08/2017 10:51 PDT	71.01	27	4	294	10	10	282	35.27	WNW
BNGC1	10/08/2017 11:51 PDT	75	22	5.99	306	14.99	14.99	284	33.56	NW
BNGC1	10/08/2017 12:51 PDT	79	18	5.99	305	15.99	15.99	271	31.94	NW
BNGC1	10/08/2017 13:51 PDT	80.01	16	8.01	292	21	21	299	29.89	WNW
BNGC1	10/08/2017 14:51 PDT	86	12	5.99	321	18.01	18.01	272	27.75	NW
BNGC1	10/08/2017 15:51 PDT	87.01	10	3	326	17	17	341	24.21	NW
BNGC1	10/08/2017 16:51 PDT	84	11	4	336	15.99	15.99	336	24.11	NNW
BNGC1	10/08/2017 17:51 PDT	80.01	11	3	359	14	14	309	20.98	N
BNGC1	10/08/2017 18:51 PDT	73.99	12	3	25	15.99	15.99	339	18.26	NNE
BNGC1	10/08/2017 19:51 PDT	71.01	14	4	60	14.99	14.99	81	19.43	ENE
BNGC1	10/08/2017 20:51 PDT	70	13	4.99	43	23	23	76	16.92	NE
BNGC1	10/08/2017 21:51 PDT	69.01	12	4	62	23	23	64	14.32	ENE
BNGC1	10/08/2017 22:51 PDT	69.01	10	4.99	69	25.99	25.99	83	10.26	ENE
BNGC1	10/08/2017 23:51 PDT	68	13	5.99	69	28.99	28.99	75	15.33	ENE
BNGC1	10/09/2017 00:51 PDT	66.99	14	4.99	30	23	23	99	16.2	NNE
BNGC1	10/09/2017 01:51 PDT	66	13	4.99	22	24	24	2	13.73	NNE
BNGC1	10/09/2017 02:51 PDT	66.99	12	4	5	18.99	18.99	352	12.72	N
BNGC1	10/09/2017 03:51 PDT	69.01	11	5.99	145	14	14	304	12.37	SE
BNGC1	10/09/2017 04:51 PDT	66	11	1.01	281	13	13	106	10.01	W
BNGC1	10/09/2017 05:51 PDT	66.99	11	7	343	12.01	12.01	347	10.79	NNW
BNGC1	10/09/2017 06:51 PDT	64	14	4.99	358	10	10	359	13.8	N



Ave Air Temperature



Ave Relative Humidity





Mean Wind Speed

Maximum Wind Gust





Solar Radiation

Precipitation



ATTACHMENT B

PG&E La Porte Incident Description & Factual Summary

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	<u>CPUC Bates Number Reference</u>
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-	PGE-CPUC_00013569
Palermo 60 kV transmission line feeding Bangor	
Substation experienced a momentary outage.	
October 8, 2017, 11:16 PM: Per PG&E records, Colgate-	PGE-CPUC_00013569
Palermo 60 kV transmission line feeding Bangor	
Substation experienced a momentary outage.	
October 8, 2017, 11:18 PM: Per PG&E records, Colgate-	PGE-CPUC_00013569
Palermo 60 kV transmission line feeding Bangor	
Substation experienced a momentary outage.	
October 8, 2017, 11:20 PM: Per PG&E records, Colgate-	PGE-CPUC_00013569
Palermo 60 kV transmission line feeding Bangor	
Substation experienced a momentary outage.	
October 8, 2017, 11:22 PM: Per PG&E records, due to a	PGE-CPUC_00013769 at 770
fire impacting the transmission line, the Bangor	
Substation was automatically de-energized, de-	
energizing the Bangor 1101 Circuit and the incident	
location.	
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	PGE-CPUC_00013769 at 770
Bangor 1101 Circuit Breaker was remotely opened via	
SCADA on a dead line.	
October 9, 2017, 7:58 PM: Per PG&E records, Bangor	PGE-CPUC_00013769 at 770
Substation was re-energized.	
October 10, 2017, 12:20 PM: Per PG&E records, Line	PGE-CPUC_00013769 at 770
Recloser 1804 was manually opened.	
October 10, 2017, at 8:20 PM: Per PG&E records, the	PGE-CPUC_00013769 at 770
Bangor 1101 Circuit Breaker was remotely closed via	
SCADA.	
October 11, 2017, 6:50 PM: Per PG&E records, Fuse	PGE-CPUC_00013532
1851 was reported open.	

La Porte			
Event	<u>CPUC Bates Number Reference</u>		
October 11, 2017, 8:24 PM: Per PG&E records, Line	PGE-CPUC_00013769 at 770		
Recloser 1804 was remotely closed via SCADA.			
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	PGE-CPUC_00013532		
electric crew foreman opened the jumpers for the span			
serving the incident location.			
October 12, 2017, 6:56 PM: Per PG&E records and the	PGE-CPUC_00013532		
same electric crew foreman, the electric crew foreman			
replaced one of two fuses and then closed Fuse 1851.			
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	PGE-CPUC_00013532; PGE-		
same electric crew foreman received permission to	CPUC_00015750		
complete repair work at the incident location. Repair			
work then was completed.			
October 17, 2017, 6:56 PM: Per PG&E records, jumpers PGE-CPUC_00013532			
closed to the incident location, restoring power to 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_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	10/13/17 Electric Incident Report
Incident Report	
La Porte 20-Day	11/13/17 20-Day Electric Incident Report
Electric Incident Report	
Response to Question	12/29/17 Response to CPUC's October 2017 Wildfire Data Request
35	
Response to Question	12/29/17 Response to CPUC's October 2017 Wildfire Data Request
36	
CAL FIRE Website	"La Porte (Wind Complex) Incident Information"
	http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_i
	d=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.

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 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.