

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

**Incident Investigation Report**

**Report Date:** 2/12/2020

**Incident Number:** E20191030-01

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

**Date and Time of the Incident:** 10/27/2019, 0310 hours

**Location of the Incident:** 3505 Gateway Road  
Bethel Island, CA  
County: Contra Costa County

**Summary of Incident:**

At approximately 0310 hours on October 27, 2019, PG&E responded to a fire involving its facilities. Upon arrival, PG&E Troublemaker observed a large vegetation fire burning underneath PG&E's powerlines. PG&E de-energized the lines for safety. East Contra Costa Fire Protection District contained the fire at approximately 0420 hrs. The fire burned approximately 3 acres and resulted in minor property damage.

**Fatality / Injury:** None

**Property Damage:** Property damage less than \$50,000; PG&E reported the incident due to significant public attention and media coverage

**Utility Facilities involved:** Brentwood 2112, 21 kV Primary Circuit

**Witnesses and Investigators:**

<i><b>Name</b></i>	<i><b>Title</b></i>
1 Rickey Tse	CPUC Investigator
2 Jeremey Crowe	PG&E Event Strategy & Analysis Electric Investigator
3 Mike George	PG&E Field Supervisor (Diablo District)
4 Arthur Stigile-Wright	PG&E Business Analyst, Expert

**Evidence:**

	<i><b>Source</b></i>	<i><b>Description</b></i>
1	PG&E	Initial Utility Report

2	PG&E	Final Utility Report
3	CPUC	Data Request #1
4	PG&E	Data Request #1 Response – DR1912171
5	PG&E	Supplemental Data Request #1 Response – DR1912171
6	ECCFPD	Fire Investigation Report
7	PG&E	Photographs
8	CPUC	Photographs

**Observations and Findings:**

On October 27, 2019 at approximately 0310 hours, PG&E received a call from the East Contra Costa Fire Protection District (Fire Department) requesting PG&E’s assistance on a fire (Santiago Fire) involving its facilities at the address of 3505 Gateway Road in Bethel Island, Contra Costa County.<sup>1</sup> At approximately 0330 hours, a PG&E Troubleman arrived on scene. Upon arrival, the Troubleman observed a large vegetation fire adjacent to the Gateway Gas & Mart. The fire was burning underneath PG&E’s powerlines that were still energized at the time. Due to the active fire amid high winds, PG&E decided to de-energize the lines. At approximately 0336 hours, PG&E opened Line Recloser 34690 and de-energized the lines for safety. This resulted in an outage that affected approximately 910 customers.

At approximately 0420 hours, the Fire Department fully-contained the fire. The fire burned approximately 3 acres and resulted in minor damage to the Gateway Gas & Mart. And at least one model home on the south side of Gateway Road that was under construction at the time was also damaged. PG&E’s facilities were damaged as well. Pole #100457718, which was located within the burn area, suffered char and burn damage. The service drop that served the Gas & Mart from the pole was also damaged.

On October 28, 2019 at approximately 1505 hours, PG&E performed switching operations and restored power to the affected customers.

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<sup>1</sup> The incident location is not located in Tier 3, Tier 2, or Zone 1 High Fire Threat Districts.

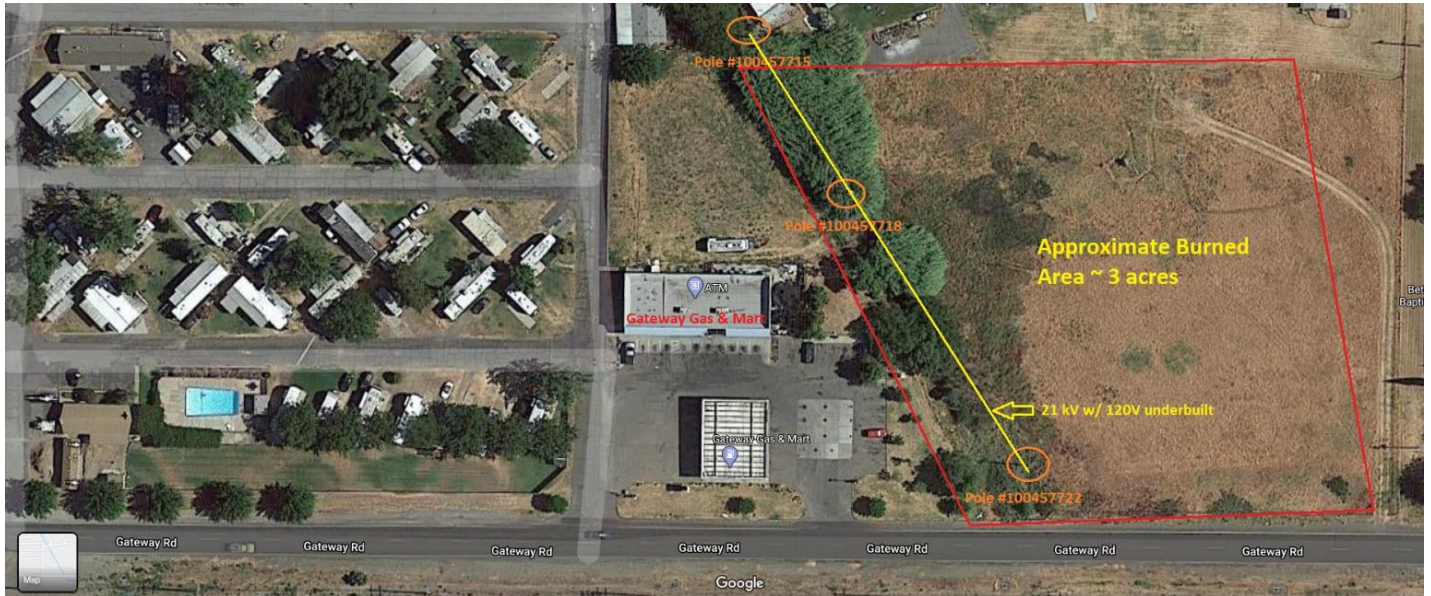


Figure 1: Google satellite image of the Gateway Gas & Mart and adjacent burned area.

PG&E's Brentwood 2112 is a 21 kV 3-phase overhead distribution circuit that spans across the burned area (see Figure 1). The circuit has a single split-phase 120/240V secondary underbuilt in rack configuration (see Figure 2). Several wooden poles, including Pole #100457718, were in the burned area. Pole #100457718 has two transformers. The large transformer steps power down from 21 kV to 3-phase 120/240V to serve the Gas & Mart via a quadplex service drop (three-phase neutral); the Gas & Mart has commercial refrigerators with large motor load that would require 3-phase power (instead of single-phase). The small transformer steps power down from 21 kV to a single split-phase 120/240V secondary (two hot legs plus neutral) to serve homes at the Santiago Mobile Home Park to the north of the incident location.



Figure 2: Pole #100457718 suffered char and burn damage from the fire. However, the two transformers were serviceable and put back into service after the fire.

After the fire, PG&E inspected Pole #100457718 and its two transformers. PG&E determined the equipment remained serviceable. The equipment was later put back into service. PG&E, however, had to replace the quadplex service drop that served the Gas & Mart.<sup>2</sup> PG&E also observed damage on the secondary conductors. The conductors had breaks approximately five feet from Pole #100457718 and exhibited signs of beading near the midspan. PG&E collected and retained the secondary span of conductors as evidence.

In addition to PG&E's facilities being damaged, the Gateway Gas & Mart also suffered fire damage (see Figures 3 & 4). And Fire Department reported minor damage on model homes under construction located atop the levee on the south side of Gateway Road.

<sup>2</sup> During my field inspection on October 31, 2019, I observed the service drop to be newly installed.



*Figure 3: East side of the Gateway Gas & Mart suffered fire damage.*



Figure 4: Closeup of damage at the Gateway Gas & Mart.

ESRB obtained links to two video footages related to the fire.<sup>3</sup> The first video showed fire fighters battling the blaze, which at the time, had already spread to the Gas & Mart and jumped across Gateway Road to a levee near new homes under construction. The second video showed sparking of overhead conductors followed by sparking near a power pole.<sup>4</sup> ESRB determined that pole to be Pole #100457715 (see Figures 1 & 7).

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<sup>3</sup> <https://eastcountytoday.net/bethel-island-vegetation-fire-and-trailers-reported-on-fire/>  
<https://m.youtube.com/watch?v=h50w8cNPmbE&feature=youtu.be>

<sup>4</sup> The second video was shot by a security guard who was patrolling at the time and was shot near the intersection of Delta Coves Drive and Sea Gate Place.



Figure 5: Video image of the structural fire at the Gateway Gas & Mart at the time of the fire. Source: East County Today



Figure 6: Video image of vegetation fire next to the Gateway Gas & Mart at the time of the fire. Source: East County Today



Figure 7: Charred field next to the Gateway Gas & Mart. Pole #100457715 is the subject pole where arc sparks were observed in the video clip shot by a witness at the time.

ESRB obtained PG&E's patrol records for 2015 and 2017. The records showed that PG&E inspected the incident circuit and poles on February 6, 2015 and March 17, 2017. However, PG&E did not find any abnormal conditions at the location during those patrol inspections.

ESRB also obtained PG&E's records for detailed inspections conducted in 2014 and 2019. The 2019 inspection resulted in a work order tag on Pole #100457718 (EC# 115618419). The Priority E tag requested work to clear bamboo at the pole, replace anchor and guy wire, and to adjust service conductors. ESRB obtained and reviewed a copy of the work order notification. ESRB also obtained PG&E's vegetation management records on Brentwood 2112 in the past five years. Based on information on the records, ESRB does not believe the defects identified in the 2019 inspection would have contributed to the incident.

However, ESRB found compelling evidence that indicates PG&E's secondary conductors slapped and contacted each other under high winds. This resulted in sparking that likely provided an ignition source for the vegetation fire. This assessment is based on information gathered from the field, PG&E's records and documents, and data provided by the Fire Department.

Fire Department reported that at the time of the incident the area was imperiled by high winds



with gust up to 75 MPH.<sup>5</sup> Winds were out of the northwest and relative humidity was low at around 25%.<sup>6</sup> The secondary conductors were in a rack configuration. PG&E's standard of construction for rack configuration indicates just eight inches of vertical conductor separation (see Figure 8).<sup>7</sup> Indeed, PG&E conceded that the configuration resulted in the conductors having a smaller separation distance than that of a typical crossarm construction.<sup>8</sup> After the fire, PG&E observed breaks and signs of beading in the conductors that are consistent with line slapping.<sup>9</sup> Video footage taken by a security guard patrolling at the time showed sparking at locations consistent with where damage incurred on the conductors.<sup>10</sup> ILIS report showed Fuse Cutout #21611 (on Pole #100457722) operated due to a line-to-line fault around the time consistent with when sparking on the conductors were observed.<sup>11</sup> A witness who lives in the Santiago Mobile Home Park reported hearing crackling sound followed by a loud pop around the time of the incident, which is typical when fuses open.<sup>12</sup> Fire Department's investigation did not find other identifiable sources of ignition and determined the fire originated under PG&E's powerlines.<sup>13</sup> Based on these evidence, ESRB concludes that PG&E's secondary conductors slapped and contacted each other under high winds. Because the lines slapped, ESRB found PG&E in violation of General Order (GO) 95 Rule 31.1 for failing to design and construct its electrical system to enable the furnishing of safe, proper, and adequate service.

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<sup>5</sup> ECCFPD Investigation Report Case #19-114768

<sup>6</sup> PG&E DR1912171 response to question #11

<sup>7</sup> PG&E's standard of construction for conductors in rack configuration: Attachment 04\_Q05\_0157187A\_Extended\_Rack\_configuration\_CONF.pdf

<sup>8</sup> PG&E's 20-Day Final Report

<sup>9</sup> PG&E's 20-Day Final Report and DR1912171 response to question #6

<sup>10</sup> <https://m.youtube.com/watch?v=h50w8cNPmbE&feature=youtu.be>

<sup>11</sup> PG&E DR1912171 response to question #3c

<sup>12</sup> PG&E's 20-Day Final Report

<sup>13</sup> ECCFPD Investigation Report Case #19-114768

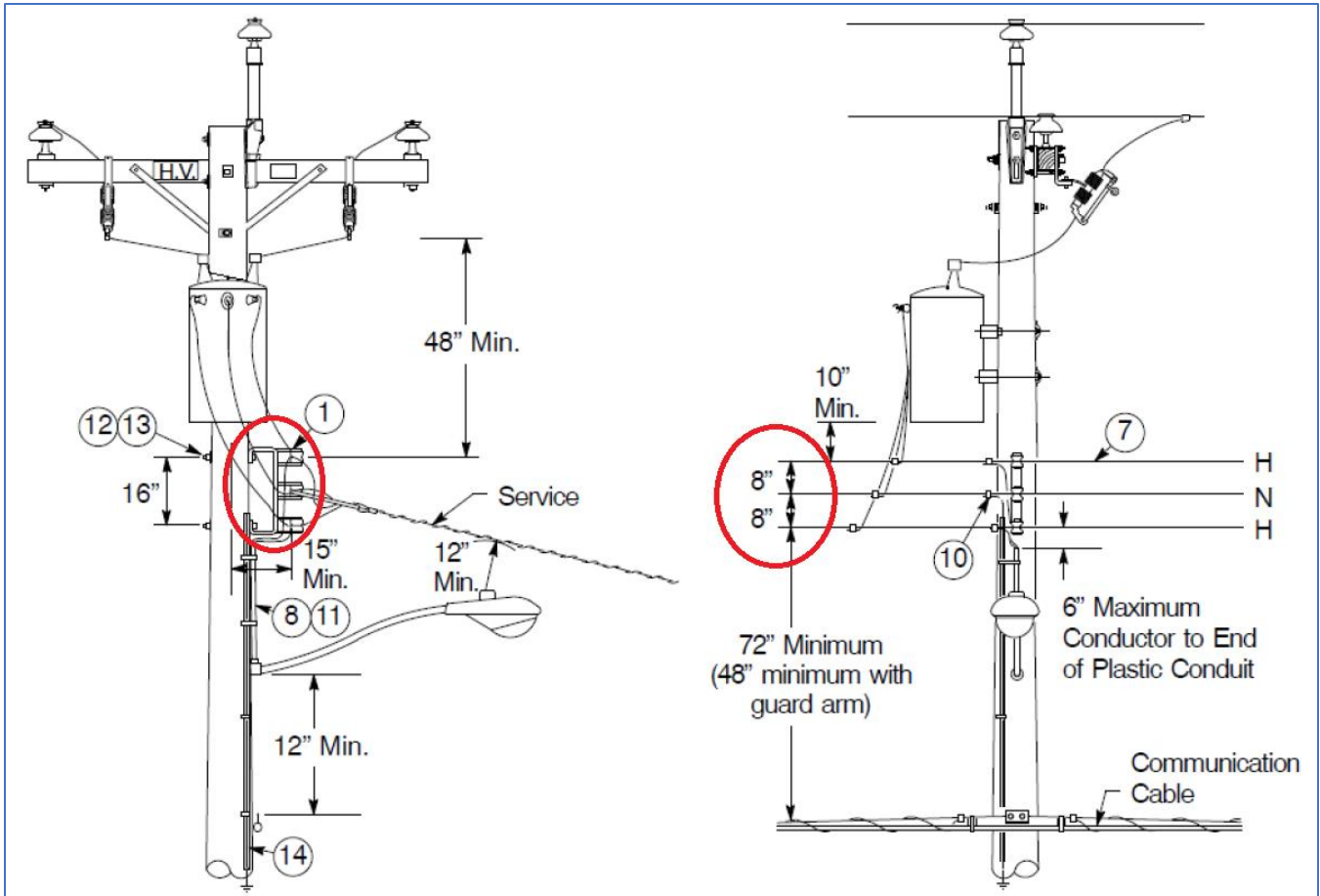


Figure 8: PG&E's standard of construction for conductors in rack configuration.

**GO 95, Rule 31.1: Design, Construction and Maintenance**, states:

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

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

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

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

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

	<i>Requirement</i>	<i>Rule</i>	<i>Violation</i>
1	GO 95	31.1	Yes

**Conclusion:**

PG&E is found to be in violation of GO 95 Rule 31.1. No other report will be prepared at this time unless significant evidence or third-party reports present themselves in the future.