

Event Analysis Report



Los Olivos – Property Damage

EIR No.: EI210606A

Date of Event: June 6, 2021

Date Reported to the CPUC: June 22, 2021

CAP Issue No(s): [121587977](#)

Report Rev: 01

 <hr/> Leadership Approver	 <hr/> Signature	<hr/> 5/12/2022 Date
--	---	-------------------------

 <hr/> Incident Investigator	 <hr/> Signature	<hr/> 5/12/2022 Date
--	---	-------------------------

TABLE OF CONTENTS

1. Executive Summary	3
2. Problem Statement	5
3. Extent Of Condition	5
4. Observations and Event Analysis.....	5
4.1 Field Observations	6
4.2 Santa Barbara Fire Department Fire Report Review.....	14
4.3 SmartMeter Analysis.....	14
4.4 Transformer Analysis	15
4.5 Patrol and Inspection Records	16
5. Cause & Contributing Causes.....	17
6. Corrective/General Actions (CA/GA) Summary	18
7. Potential Non-Conformances and Non-Compliances	18
8. Attachments.....	18
9. References	19
10. Previously Completed Reports and Data Requests	19

1. EXECUTIVE SUMMARY

On June 6, 2021, a PG&E SmartMeter associated with a commercial structure at [REDACTED] in Los Olivos (“Incident Location”) detected an outage and powered down. The Incident Location is served by the Zaca 1101 12kV Distribution Circuit with a 120/240V underground conduit which connects to a riser pole holding an open delta transformer bank. PG&E dispatched a troubleman to the location. Upon arrival, the troubleman observed Santa Barbara Fire Department (“SBFD”) was on scene and had suppressed a fire inside the refrigerated wine storage warehouse. The troubleman coordinated with SBFD personnel to determine the source of the ignition but neither could find an obvious cause.

On June 22, 2021, a third-party subrogation attorney notified PG&E’s Law Claims Department by email of the fire incident that occurred on June 6, 2021 at the Incident Location. The PG&E SmartMeter was retained as evidence by the Law Claims Department on June 25, 2021. The third-party alleged that the PG&E SmartMeter may have been a factor to the causation of the incident and property damages were estimated at greater than \$50,000. This incident was then reported in a timely manner to the CPUC on June 22, 2021, at 1735 hours under the property damage criterion, initiating an investigation by the Electric Incident Investigations (“EII”) team. This report reviews the findings of that investigation.

PG&E conducted an event analysis which included field observations, a review of the SBFD Fire Report, SmartMeter data analysis, and transformer analysis. Based on all information available, EII was unable to identify the exact cause of the fire; however, it is unlikely PG&E equipment was related to the start of the fire due to the following:

- Extensive fire patterns viewed on the exterior of the building near the Air Conditioning (“AC”) unit servicing the structure which the customer stated had been under repairs recently. This AC unit is at least six feet away from the customer’s electric panel.¹

¹ Observed during site visit on July 19, 2021

- The customer panel was not sealed at the bottom which allows for small animals/rodents to enter. Two frogs were found inside the panel which may have cause cross phasing and blew the “C” phase of the three-phase service.²
- The terminal block connections inside the customer panel near the unsealed opening showed damage consistent with arcing.³
- The areas indicated by the SBFDF fire report to be considered fire origin/cause of ignition come under the customer’s responsibility.⁴
- PG&E SmartMeter sustained minimal damage - slight melting on the exterior surface and no visible damage to the associated prongs on the connection side of the meter. Additionally, there were no exterior fire patterns above the electric meter.⁵
- There were no blown fuses or any damage to the transformer.

A Causal Factor Tree was created, and no corrective actions were identified that could have prevented this incident. A potential non-compliance, unrelated to the cause of the incident, was identified for failing to inspect assets during the required cycle as per General Order (“GO”) 165. In July of 2021, PG&E determined that two of the poles on the property of the Incident Location, Pole #101922014 (“Pole #1”) and Pole #101859117 (“Pole #2”) should have had detailed inspections in 2020 to remain in compliance with GO 165.

The potential non-compliance was reported to the CPUC by other means through Data Request 4485.08⁶ submitted to the CPUC on December 28, 2021.⁷

This report concludes PG&E’s investigation into this incident. Unless otherwise noted herein, where there are conflicts between this report and previous PG&E reports related to this incident, this report shall take precedence. If additional information becomes available with the potential

² Observed during site visit on July 19, 2021

³ Observed by troubleman on date of incident

⁴ Santa Barbara Fire Report

⁵ Observed by Claims during evidence collection site visit on June 25, 2021

⁶ PGE - Data Request 2 - EI210606A - Los Olivos - Property Damage_CONF.pdf

⁷ Decision 18-05-023 specifically states “A potential violation is not reportable by gas or electrical corporations under this Rule if it results from facts contained in reports already provided to SED by other means. (e.g., for electric, an Incident Report or GO 165, 166 or 174 Reports) or which have come to the SED’s attention in audits or data requests.”

to affect the conclusions of this investigation, PG&E reserves the right to re-open this investigation. All times, customer counts, and measurements in this report are approximate.

2. PROBLEM STATEMENT

On June 6, 2021, a PG&E SmartMeter associated with a commercial structure detected an outage and powered down. PG&E dispatched a troubleman to the location and, upon arrival, the troubleman observed the SBFDF was on scene and had suppressed a fire inside the refrigerated wine storage warehouse.

This event was reported to the CPUC under the Property Damage criterion, triggering the investigation by the EII group. This report summarizes the findings of the investigation.

3. EXTENT OF CONDITION

A search of the Electric Incident Reportables (“EIRs”) Database shows a total of 65 reportable structure fire incidents between 2016 and 2021, only one related to PG&E SmartMeters. This amounts to less than 2% of all EIRs in this time period.

PG&E conducted a search of its Corrective Action Program (“CAP”) Database over the last five years, identifying 47 instances related to structure fires, with three of those occurrences associated with PG&E electric SmartMeters. This amounts to 6% of CAP issues related to SmartMeters.

4. OBSERVATIONS AND EVENT ANALYSIS

Analysis for this event included field observations, SBFDF Fire Report review, SmartMeter analysis, transformer analysis, and patrol and inspection record review. The exact cause of the fire is unknown, but there are several issues related to customer-owned equipment which may have contributed to the incident.

4.1 Field Observations

On June 6, 2021, the troubleman arrival at the Incident Location and observed several engines from SBF D were on scene and had contained a fire in a warehouse area of the property. The troubleman began surveying the structure along with SBF D personnel, but neither could find an obvious cause to the fire. The troubleman tested both the SmartMeter at the Incident Location and the voltage. Both tested ok, however the troubleman observed some abnormalities with the panel: the customer panel was unsealed at the bottom and the conduit had some cracking above the joint. The troubleman stated that these signs indicate there may have been some tampering to the panel area.

On July 19, 2021, PG&E EII and Law Claims took part in a joint scene inspection, requested by the property owner's insurance company's legal counsel. The site visit included an examination of the interior and exterior of the property's wine cold storage building. The Incident Location is a 3,000 square foot refrigerated wine storage building which contained pallets and cardboard boxes of wine in addition to an attached living quarters (Figure 1). The exterior of the Incident Location building showed the darkest area of charring in the vicinity of the area where the AC unit was housed (Figure 2). The customer's panel is several feet to the right of the AC, fed by underground service to a riser pole with a transformer. There were no external fire patterns above the electric panel (Figure 3); however, there was charring at the perimeter base of the building in that area which likely caused damage to the exterior base of the conduit (Figure 4). Additionally, the conduit had a visible crack just above the joint, which did not appear to be related to the fire (Figure 5). The PG&E SmartMeter displayed slight melting on the exterior surface and no visible damage to the associated prongs (Figures 6 and 7).

Upon opening the customer's panel, a terminal block with six connections underneath was viewed (Figure 8) with the connections on the right-side displaying damage. The damage appears to have been caused by arcing. Also visible was an open, unsealed area at the bottom of the panel which would allow for small animal entry – two burnt frogs were found at the base of the panel, leading to the theory that they may have caused cross phasing inside the area which would cause arcing to the terminal connections.

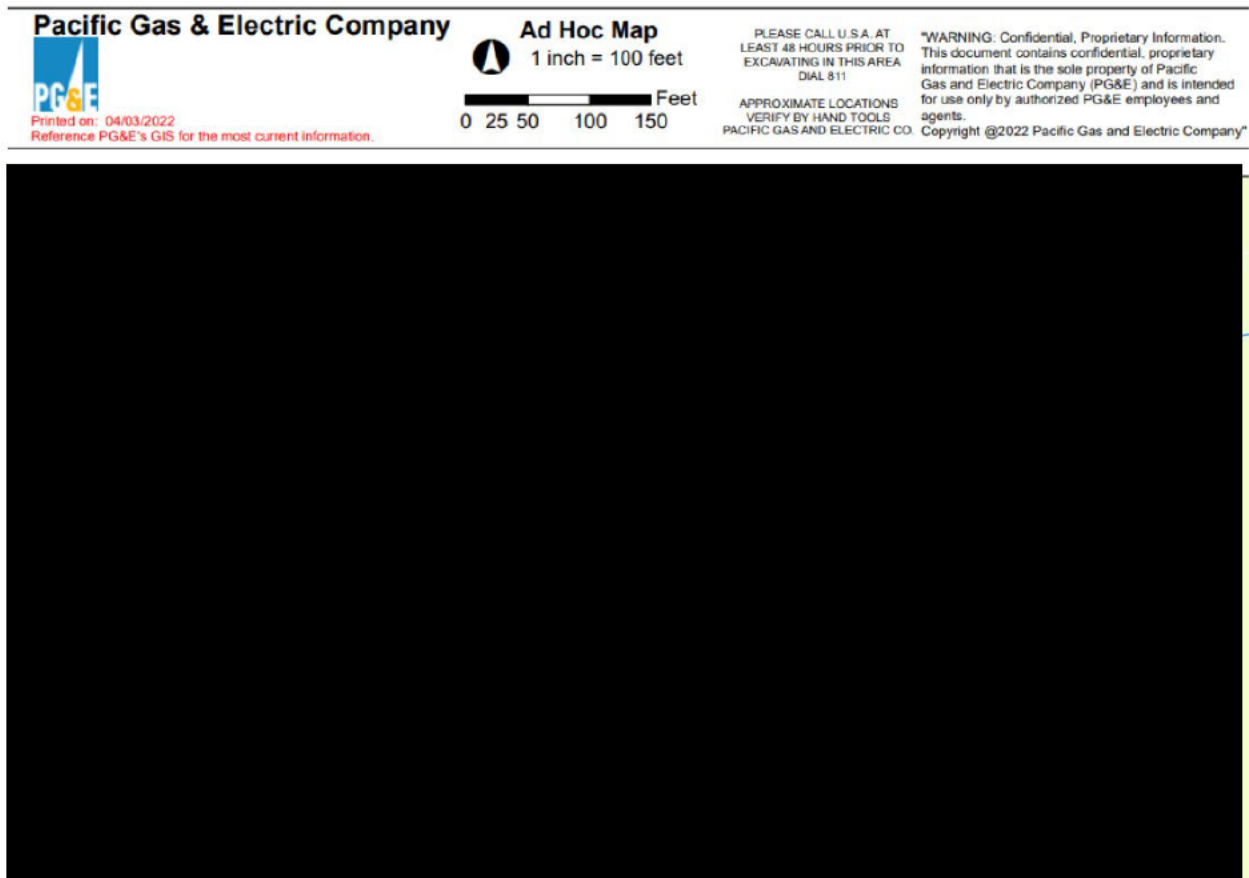


Figure 1: Incident Location.



Figure 2: Exterior of Incident Location - charred area adjacent to AC unit and down along perimeter base of building. Customer panel on right side of building. Photo taken during site visit on July 19, 2021.



Figure 3: Customer panel. Photo taken during site visit on July 19, 2021.



Figure 4: Service conduit–base melted from heat of fire. Photo taken during site visit on July 19, 2021.



Figure 5: Crack on conduit exterior above joint. Photo taken by meter tech on July 1, 2021.



Figure 6: Minimal damage to exterior of SmartMeter. Photo taken by Law Claims on June 25, 2021.



Figure 7: No damage to prongs of SmartMeter. Photo taken by Law Claims on June 25, 2021.



Figure 8: Terminal Block under meter – right side shows damage. Opening in bottom of panel is visible. Taken on site visit July 19, 2021.



Figure 9: Roll up door accessed by first responders. Photo taken by meter tech on July 1, 2021.

4.2 Santa Barbara Fire Department Fire Report Review

Santa Barbara Fire Department (“SBFD”) issued a report which confirms an alarm sounded at 1320 hours on June 6, 2021, with an arrival time to the Incident Location of 1347 hours. First responders arrived to a “fully involved contents fire in a metal building with only light smoke from exterior showing.” Utilities were shut down by firefighters; crews made entry into the storage building and started fire suppression action. The SBFD fire report lists the Area of Fire Origin to be “heat from a powered equipment” with the Cause of Ignition as “failure of equipment” and Contributing Factors to Ignition as “mechanical failure, malfunction”. Electrical wiring from the meter box to circuit breaker is marked as “Equipment Involved in Ignition”.⁸

4.3 SmartMeter Analysis

The SmartMeter at the Incident Location transmitted a Last Gasp at 1315 hours. The SmartMeter sustained minimal external damage; only slight melting from the heat of the fire with no damage to the prongs that attach the meter to its housing. The SmartMeter was changed out in December 2020 due to issues with the meter read. The usage voltage reads on the SmartMeter were within acceptable thresholds, with peak loads reading at 29.4kVa.

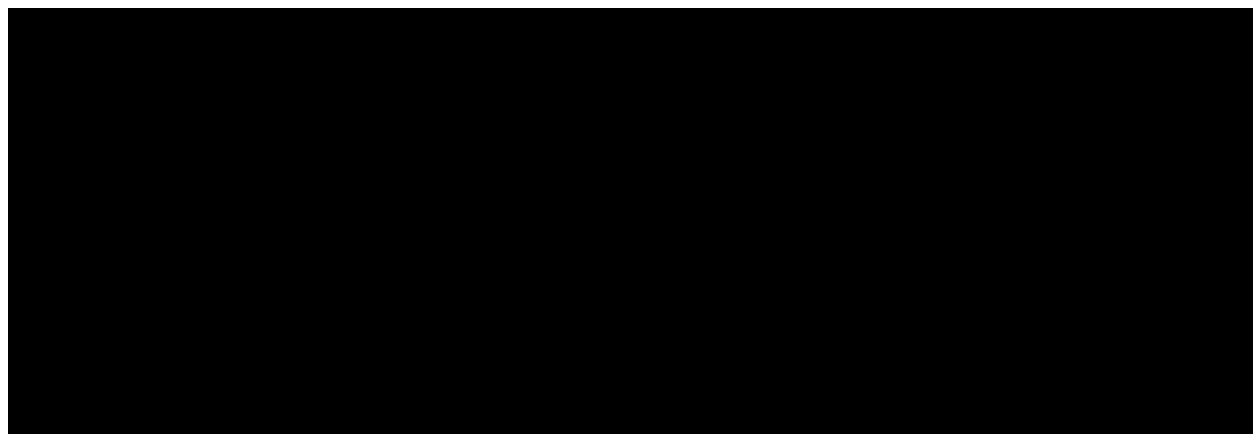


Figure 6: Smart meter voltage data – MTR [REDACTED] – December 2020 – June 6, 2021

⁸ Source: Santa Barbara Fire Report

The voltage reads show some sags below Rule 2 limits with regularity – the SmartMeter recorded voltage as low as 110.5V.⁹ While it is impossible to pinpoint a specific cause for the low voltage readings, one possibility could be due to customer equipment malfunctioning which would draw too much current on startup or possibly due to the transformer in use being close to its loading capacity.¹⁰

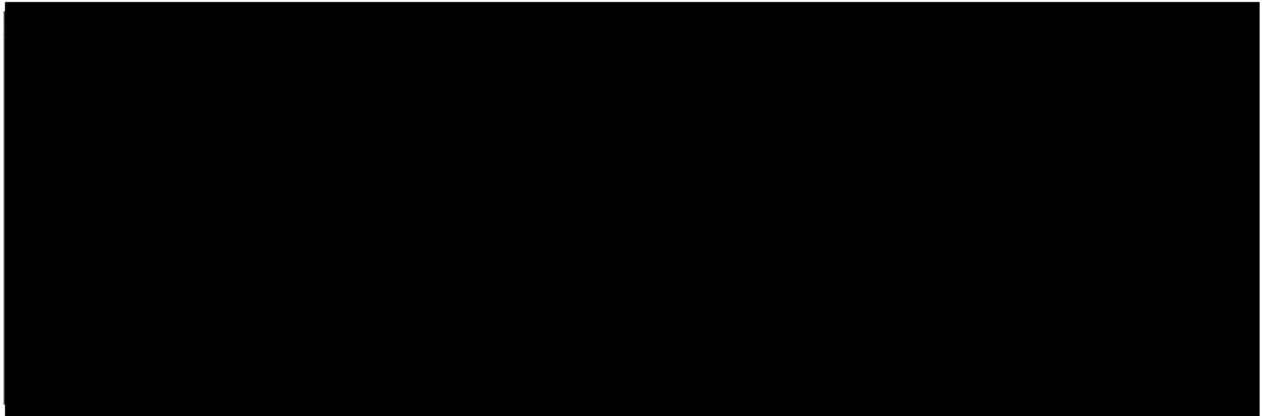


Figure 7: SmartMeter usage data – MTR: [REDACTED] – December 2020 – June 6, 2021

4.4 Transformer Analysis

The Incident Location is served by the Zaca 1101 12kV Distribution Circuit with a 120/240V underground conduit which connects to a riser pole holding an open delta transformer bank.

At the time of the incident, the bank consisted of two transformers: one 10kVa and one 15kVa. Of the 29.4kVa peak load, 25kVa was three phase and the other 4.4kVa was one phase. The 15kVa transformer can handle 23kVa of load and in this case had 18.9kVa so it was not overloaded.¹¹

⁹ The National Electrical Manufacturers Association (NEMA) standards dictate that electrical equipment should be manufactured to be able to function normally with voltage between +/- 10 percent, which indicates that voltage should be able to get down to 110V.

¹⁰ Source: PG&E's Voltage Reliability Team

¹¹ Source: PG&E's Voltage Reliability Team

A 10kVa transformer can handle 15kVa of load, so in this case, the 10kVa was carrying 14.4kVa of total load, so while it was not overloaded, it was nearing its capacity. This fact likely contributed to some of the low voltage readings on the SmartMeter data.

4.5 Patrol and Inspection Records

Overhead patrols were conducted in August of 2020 and June of 2021 and overhead inspections in October of 2010 and March of 2015, with no issues found at the Incident Location.

A Wildfire Safety Inspection Program (“WSIP”) inspection occurred on April 9, 2019 on Pole #14 and an Electric Corrective (“EC”) tag (116455196) was created.¹² The WSIP program is a comprehensive inspection program focused on identifying and repairing non-conformances on facilities that posed an ignition, safety, or reliability risk, however the inspections did not meet all the GO 165 inspection requirements that came due in 2020.¹³

In July of 2021, PG&E determined that two of the poles on the property of the Incident Location, Pole #1 and Pole #2 should have had detailed inspections in 2020 to remain in compliance with GO 165.

A list of poles that were not inspected were reported in the Self-Report Letter submitted to the CPUC on May 7, 2021, however, Pole #1, which contained the open delta bank transformer connected to the Incident Location, and Pole #2 were not included in that letter.

PG&E identified and corrected a gap in the methodology used to establish the list of poles reported. The gap affected a small group of poles located in Santa Barbara including Pole #1 and Pole #2 which were incorrectly flagged as having detailed inspections instead of patrols in 2017. As a result of this investigation, PG&E also found Pole #2 was also omitted in the Self Report Letter of May 7, 2021.

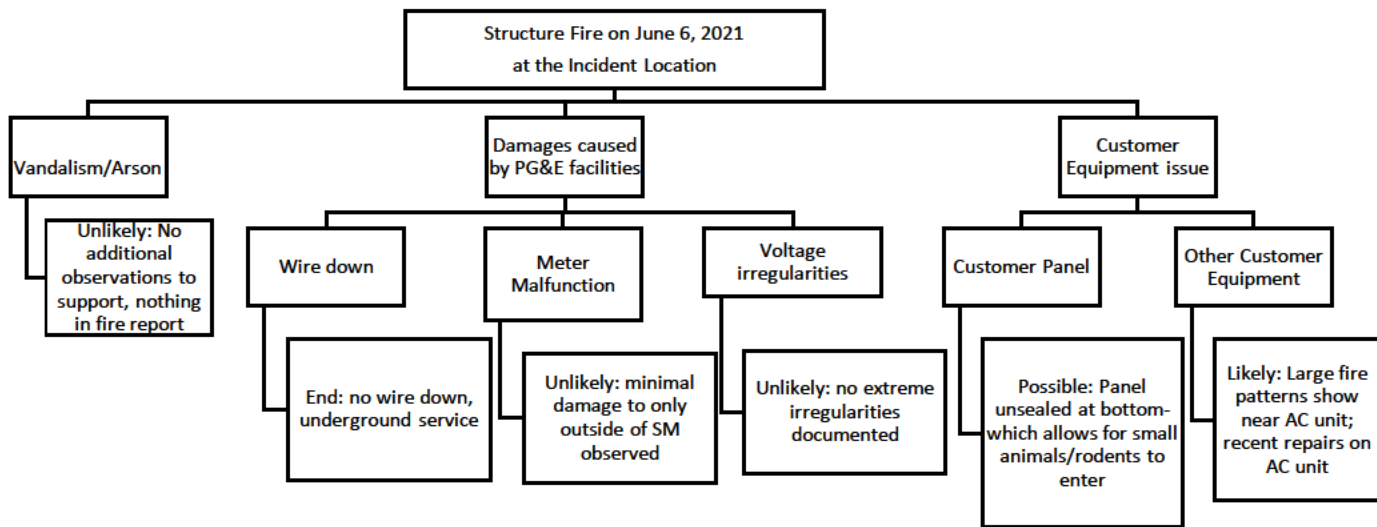
¹² Attachment 01_WSIP Inspect 20190409_CONF.pdf

¹³ General Order 165

As a result of these findings, these two poles were added to the 2021 Workplan on July 21, 2021, with a due date of July 31, 2021. The poles were inspected on July 23, 2021. ¹⁴

5. CAUSE & CONTRIBUTING CAUSES

Based on the data collected and the event analysis performed, PG&E was unable to confirm what caused incident. A Causal Factor Tree was created and concluded that this incident was most likely caused by malfunctioning customer equipment.



¹⁴ Attachment 01 Q 08_SAP ID 101859117 OH INSP July 23, 2021_CONF
Attachment 02 Q 08_SAP ID 101922014 OH INSP July 23, 2021_CONF

6.

6. CORRECTIVE/GENERAL ACTIONS (CA/GA) SUMMARY

No corrective actions were identified for this incident.

7. POTENTIAL NON-CONFORMANCES AND NON-COMPLIANCES

A potential non-compliance was identified for failing to inspect assets during the required cycle as per GO 165. Please refer to section 4.5 for the details.

The potential non-compliance was reported to the CPUC by other means through Data Request 4485.08 submitted to the CPUC on December 28, 2021.¹⁸

Regulation	Requirement	Reason for Potential Non-Compliance
General Order 165	Each utility subject to this General Order shall conduct inspections of its distribution facilities, as necessary, to ensure reliable, high quality, and safe operation.	PG&E failed to inspect assets during the required cycle.

8. ATTACHMENTS

Attachment 01_WSIP Inspect 20190409.pdf

¹⁸ Decision 18-05-023 specifically states "A potential violation is not reportable by gas or electrical corporations under this Rule if it results from facts contained in reports already provided to SED by other means. (eg., for electric, an Incident Report or GO 165, 166 or 174 Reports) or which have come to the SED's attention in audits or data requests."

9. REFERENCES

Internal Documents

- WSIP Inspections

External Documents

- Fire Report
- General Order 165

10. PREVIOUSLY COMPLETED REPORTS AND DATA REQUESTS

20-Day Report

20-Day Report_EI210606A - Los Olivos - Property Damage_CONF.pdf, submitted to the CPUC
July 21, 2021

Attachment 01_2020 GO165 patrol records_CONF.pdf

Attachment 02_2021 GO165 patrol records_CONF.pdf

Attachment 03_2010 GO165 inspection records_CONF.pdf

Attachment 04_2015 GO165 inspection records_CONF.pdf

Attachment 05_OIS_1366957_CONF.pdf

Attachment 06_Photos_CONF.pdf

Attachment 07_Fire Report_CONF.pdf

Attachment 08_Incident Map-Diagram.pdf

20-Day Report_EI210606A - Los Olivos - Property Damage_Amended_CONF.pdf, submitted to the CPUC October 13, 2021

Attachment 04_2015 GO165 inspection records_Amended_CONF.pdf

Attachment 08_Incident Map-Diagram_Amended_CONF.pdf

Data Request

PGE - Data Request 1 - EI210606A - Los Olivos - Property Damage.pdf, submitted to the CPUC September 20, 2021

Attachment 01_Q01_Basic_Map_Symbology.pdf

PGE - Data Request 2 - EI210606A - Los Olivos - Property Damage_CONF.pdf, Data Request- 4485, submitted to the CPUC December 28, 2021

Attachment 01 Q 08_SAP ID 101859117 OH INSP July 23, 2021_CONF

Attachment 02 Q 08_SAP ID 101922014 OH INSP July 23, 2021_CONF