

**PACIFIC GAS AND ELECTRIC
COMPANY**

GENERAL ORDER 174

2018 ANNUAL ELECTRIC SUBSTATION REPORT

June 26, 2019

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I. GENERAL

Pursuant to Section IV, Paragraphs 40.1 and 40.2 of the California Public Utilities Commission's (Commission) General Order (GO) 174, adopted in Decision 12-10-029, Pacific Gas and Electric Company (PG&E) transmits its Annual Substation Report, which includes:

- PG&E's Substation Inspection Program Summary; and
- A report summarizing PG&E's completed and past due substation inspections for 2018.

II. SUBSTATION INSPECTION PROGRAM SUMMARY

Accompanying this report as Appendix A is a copy of PG&E's Substation Inspection Program Summary, which complies with Section III of GO 174. This summary is effective as of June 26, 2019. There have not been any changes made to the Program since the prior version of the Program Summary.

III. SUMMARY OF COMPLETED AND PAST DUE SUBSTATION INSPECTIONS

A. SUMMARY OF SUBSTATION INSPECTIONS

As required by GO 174, Table 1 below summarizes completed and past due inspections for the 2018 calendar year. The data presented in Table 1 is a point-in-time

reporting of inspections and, as of the date of submittal to the Commission, is the most accurate data available. As described in PG&E’s GO 174 Substation Inspection Program Summary, infrequently there may be special circumstances out of PG&E’s control that prevent performing of a substation inspection as planned (such as inclement weather, lack of access due to snow, fire, or other natural causes). For these circumstances, the substation inspection will be performed when conditions are safe and equipment is accessible. Any planned inspection that is missed will be reflected as Past Due in the GO 174 Annual Report, along with the reason(s) why the inspection was missed.

Table 1 – 2018 Substation Inspection Summary

Type of Inspection	Completed	Past Due
Substation Inspections	6481	1

Notes:

- 1) Definition of Reporting Unit Basis
 - A. Substation Inspection: PG&E defines a substation inspection as a planned basic evaluation, performed using visual and auditory senses (if applicable) to identify abnormal conditions.
 - B. Definition of a Substation: PG&E defines a substation as an assemblage of equipment from 4 to 500kV, secured via perimeter fence, wall or building and under the control of qualified personnel, through which electric energy is passed for the purposes of switching or modifying its characteristics. This includes facilities with transformers, switching stations, PG&E-owned equipment inside a third-party- owned facility, and 12/4kV (or 21/4kV) unit substations. Note the term “control” does not imply continuously manned operation.
 - C. Count of Substation Inspections Completed or Past Due: PG&E’s count of inspections for substation inspections is a count based on substations which serve distribution customers. The count excludes customer substations and transmission substations not serving

distribution customers.

2) Definition of “Completed”

Data in this column represents the units due to be inspected and actually inspected during the entire reporting period, which is the calendar year of 2018. Thus, if applicable, the Completed column can also include inspections that were scheduled within the reporting calendar year but Past Due. The data does not include outstanding inspections from prior reporting calendar years that may have been inspected in 2018.

3) Definition of “Past Due”

Data in this column represents the total units scheduled for inspection within the reporting period, but the inspection was not performed by the set due date. The data does not include any outstanding inspections from prior reporting periods.

B. EXPLANATION OF PAST DUE SUBSTATION INSPECTIONS

Through a verification of data while preparing its GO 174 Annual Report, PG&E identified one past due substation inspection that occurred in 2018. This substation inspection is reflected in the “Past Due” column of Table 1.

The past due inspection was attributed to human error punctuated by a lack of validation for corrective action when the potential for a missed inspection was first identified as a risk in January of 2018.

New transmission and distribution substation equipment, at the same location; was being released into service at different phases of construction. New transmission equipment was energized and released for service on December 21, 2017. New distribution equipment was released for service on March 28, 2018. The inspection cycle for the affected substation is on an every-other-month basis and should have begun in February of 2018 following the December 2017 release of the transmission equipment into service. While the possibility of a missed inspection was identified as a

risk in January 2018 following the December 2017 release of the new transmission equipment, corrective action was not taken to mitigate the risk to ensure the inspection was not missed. The first station inspection plan in 2018 for this site was not released for action until April, and the inspection was completed on April 27, 2018. On the month that the substation inspection cycle began (April 2018), no abnormal conditions requiring repair were identified.

PG&E is reviewing its internal process that identified this noncompliance risk in January of 2018. The current process is reliant on human intervention to take the necessary corrective action(s) to mitigate the risk before it becomes a missed station inspection. Initial communication has been completed with those responsible for releasing equipment maintenance plans, which include station inspections after equipment has been released for service.

APPENDIX A

Substation Inspection Program Summary

Meeting Section III of CPUC General Order 174 (adopted October 25, 2012)

Rules for Electric Utility Substations

PG&E Substation Inspection Program Summary

1. Scope

This document provides the general requirements for the inspection of substation facilities that are owned by Pacific Gas and Electric Company (PG&E). This document is prepared to ensure compliance with California General Order ("GO") 174 "Rules for Electric Utility Substations".

The intent of PG&E's Inspection Program is to help ensure the safe delivery of reliable power in a cost-effective manner and comply with all applicable regulatory requirements.

2. Definitions

Annual – A calendar year.

Customer Substation – A Substation that functions as the main source of electric power supply for a single customer, including those that provide feed through for additional customers.

Good Utility Practice – FERC issued Order 890 (February 16, 2007) and defined Good Utility Practice as: "Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region, including those practices required by Federal Power Act section 215(a)(4)."

Monthly – Once per calendar month.

Substation – An assemblage of equipment from 4 to 500kV, secured via perimeter fence, wall or building and under the control¹ of qualified personnel, through which electric energy is passed for the purposes of switching or modifying its characteristics. This includes facilities with transformers, switching stations, PG&E-owned equipment inside a third-party-owned facility, and 12/4kV (or 21/4kV) unit substations.

¹ Note the term "control" is used in GO 174, but is not meant to imply continuously manned operation.

Substation Inspection – A planned basic evaluation, performed using visual and auditory senses (if applicable) to identify abnormal conditions.

Substation Inspection Type – PG&E developed substation inspection types to determine the frequency of inspection. Initially the categorization of a substation type is based on a PG&E-developed model that takes into account the risk each substation may have for public and employee safety, system criticality, security, and environmental risk . Then, field conditions or current activities (e.g., specific equipment or public issues) not represented in the model are taken into account, and the final substation type categorization is then made. Type 1 substations are inspected monthly and Type 2 substations are inspected on an every other month cycle.

General

- a. Substation Inspections – PG&E’s Substation Inspection Program is based on a time-based trigger. Substation Inspections are scheduled to be performed based on the substation type. For example Type 1 is monthly and Type 2 is every other month.

Note: Infrequently there may be special circumstances out of our control which prevent performing the substation inspection as planned, such as inclement weather, or lack of access due to snow, fire, or other natural causes. For these circumstances, the substation inspection will be performed when conditions are safe and equipment is accessible. Any planned inspection that is missed will be reflected as past due in the GO 174 Annual Report, along with the reason(s) why the inspection was missed.

The Substation Inspection Program activities include:

- i. Inspecting the substation and equipment for damage or abnormal conditions.
- ii. Inspecting all other items appropriate to the substation and its equipment.
- iii. Documenting and reporting any abnormal conditions found in the substation and documenting any repairs, services or other work performed.

Note: The Program doesn’t include readings of equipment meters or environmental activities, though PG&E may perform these during the same planned visit; nor does the program include other maintenance items such as unplanned or corrective maintenance, on-line condition monitoring, infrared and corona camera inspection, or testing.

- b. Qualified Personnel – Substation Inspections are performed by qualified personnel who have the training and experience to perform inspections, repairs, and other services to substation equipment.
- c. Facilities – At a minimum qualified personnel perform a visual and/or auditory (if applicable) inspection of the following substation equipment and facilities, whether in service or not:
- Batteries
 - Buses
 - Support structures
 - Capacitor banks
 - Circuit breakers
 - Fire detection and suppression system (where applicable)
 - Grounding system
 - Insulators/bushings/arrestors
 - Perimeter Fencing and Gates
 - Transformers
 - Reactors
 - Voltage Regulators

- d. Records – Upon completion of a substation inspection, the following information (at a minimum) is captured via electronic check sheet records
- Inspector name or identification
 - Date the inspection was completed
 - Brief description of identified discrepancies
 - Condition rating (where applicable)
 - Estimated Date of Corrective Action (whenever applicable), determined with a timeframe from the date a corrective action notification is created
- e. Record Retention – Records of completed substation inspections are retained for not less than 5 years.
- f. Reporting – On July 1 of each year, PG&E will submit an Annual Report to the Safety and Enforcement Division of the CPUC summarizing the number of completed and past due substation inspections for the prior calendar year.

Consistent with GO 174, PG&E's Annual Report excludes Customer Substations and transmission substations not serving distribution customers.

The Annual Report will include a matrix showing the following:

Type of Inspection	Completed ⁽¹⁾	Past Due ⁽²⁾
Substation Inspection	X,XXX	X

⁽¹⁾ Data in this column represents the units due to be inspected and actually inspected during the entire reporting period, which is the calendar year of YYYY. Thus, if applicable, the Completed column can also include inspections that were scheduled within the reporting calendar year but Past Due. The data does not include outstanding inspections from prior reporting calendar years that may have been inspected in YYYY.

⁽²⁾ Data in this column represents the total units scheduled for inspection within the reporting period, but the inspection was not performed by the set due date. The data does not include any outstanding inspections from prior reporting periods.

Revision Log

Revision Number	Date Effective	Description of Change(s)
0	7/1/2014	Issued Original Substation Inspection Program Summary
1	6/29/2015	Minor changes. Removed Criticality Matrix terminology and replaced it with Substation Inspection Type. Also made non-substantial changes in the Definitions Section.
1	12/31/2016	No Changes were made to the Substation Inspection Program
1	12/31/2017	No Changes were made to the Substation Inspection Program
1	12/31/2018	No Changes were made to the Substation Inspection Program