

**PACIFIC GAS AND ELECTRIC COMPANY**  
**Wildfire Mitigation Plans Discovery 2022**  
**Data Response**

PG&E Data Request No.:	CalAdvocates_013-Q05		
PG&E File Name:	WMP-Discovery2022_DR_CalAdvocates_013-Q05		
Request Date:	March 4, 2022	Requester DR No.:	CalAdvocates-PGE-2022WMP-13
Date Sent:	March 9, 2022	Requesting Party:	Public Advocates Office
PG&E Witness:		Requester:	Miles Gordon

The following questions relate to your 2022 WMP Update submission.

**Note: if the report requested in question 1(a) contains a full response to any of the other questions or sub-parts, your responses thereto may consist of a citation to specific pages of the report.**

**QUESTION 05**

PG&E's 2022 WMP states:

After the initial positive tests, the Calistoga REFCL pilot demonstration was stalled due to the failure of the substation REFCL equipment. In addition, PG&E had difficulty obtaining replacement equipment from various overseas suppliers due to supply chain issues and the ongoing COVID-19 pandemic.<sup>1</sup>

- a) Please describe the nature of the "failure of the substation REFCL equipment".
- b) How long has the REFCL pilot been stalled?
- c) Has PG&E obtained the necessary replacement equipment from any suppliers in order to continue with the REFCL pilot?
- d) What is the status of the REFCL pilot as of the issuance date of this DR?
- e) What are PG&E's next planned steps regarding the REFCL pilot?
- f) Describe what an "elevated voltage stress test" involves.
- g) Describe what a "field ground fault test" involves.
- h) Is it correct that PG&E completed only a single field ground fault test?
- i) If the answer to (h) is yes, why was only one test conducted?

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<sup>1</sup> PG&E's 2022 WMP, p. 556.

## ANSWER 05

- a) Please refer to the report at page(s) 25-26 of Attachment “WMP-Discovery2022\_DR\_CalAdvocates\_013-Q01Atrch01.pdf” provided in response to Question 1(a).
- b) The field demonstration has been stalled since July 2021. Root cause analysis, offline simulations, and design changes have been ongoing.
- c) Yes, PG&E modified the design to eliminate the grounding transformer and use more standard design transformers with shorter lead times. PG&E has the replacement equipment on-site.
- d) PG&E is completing construction changes in the substation for a more robust design to prevent ferro-resonance which led to the failure of the grounding transformer. PG&E plans to complete REFCL field testing later in 2022.
- e) PG&E is preparing to test the new substation design changes, followed by REFCL system recommissioning and staged fault testing in the field expected to be complete by approximately mid-2022.
- f) An elevated voltage stress test is part of the REFCL commissioning to ensure all 12 kV primary connected equipment can withstand the increased voltages that occur on unfaulted phases during line to ground faults. Normally the line to ground voltage is 6.9 kV, but the stress test individually tests each phase at line to ground voltage of 12 kV for six minutes.
- g) Please refer to the report at page(s) 23, 34, 35. The field ground fault test involves applying momentary ground faults to the distribution line on REFCL protected circuits in a controlled manner. The field ground fault test consists of a mobile high voltage test resistor that is used to limit the fault current. Multiple tests are conducted at various test sites to verify REFCL system performance.
- h) Yes
- i) The grounding transformer in the substation failed after the first field ground fault test. This resulted in the REFCL being out of service, so no more field testing could be performed to-date.