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January 26, 2023

Mr. Terence Eng

Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Re: General Order (GO) 112-F Gas Inspection of PG&E’s Storage Fields

Dear **Mr. Eng:**

Pacific Gas and Electric Company (PG&E) submits this response to SED’s inspection findings summary letter, dated December 29, 2022, stemming from the inspection of our McDonald Island and Los Medanos underground gas storage facilities conducted from October 10 to 14, 2022.

For clarity, each of the five findings (one (1) Unsatisfactory Result and (4) four Concerns) will be repeated followed by PG&E’s response.

Unsatisfactory Result 1:

Question Text Do records indicate that field piping and related storage field facilities are cathodically protected?

References 192.491(c) [192.455(a), 192.457(a), 192.465(a)]

Issue Summary McDonald Island (88724 (45200001)):
SED reviewed PG&E’s Cathodic Protection Monitoring records that PG&E provided pursuant to GSRB’s pre-audit data request GS#15. SED noted that multiple CP read points were out of tolerance for consecutive years starting from 2018 through 2021. The following CPA read points were out of tolerance and exceeded the 60-day remediation timeline from the discovery date as prescribed in PG&E’s gas standard TD-4181P-201 for CP pipe-to-soil reads that are out of tolerance: 41391795, 41391807, 41391814, 41391821, 41391838, 41391845, 41391853, 41447287, 41454357, 41454364, 41454401, 41454410, 41454416, 41454439, 41454447, 41454454, and 41454463.

PG&E’s gas standard TD-4181P-201, section 3.0 “Cathodic Protection Restoration”, paragraph 3.1.1.c states in part: “Restore CPAs within 60 calendar days from the date they are found to be below adequate levels of protection, barring extenuating circumstances.”

Also, PG&E's gas standard TD-4181S section 8.2 states in part that “CP Areas must be restored within 60 calendar days from the date they are found to be inadequately protected, barring extenuating circumstances.”.

Furthermore, section 8.3.1 of the gas standard states in part: “IF the CPA restoration work will exceed 60 days due to extenuating circumstances, THEN within 60 calendar days from the date the CPA is found below adequate levels of protection, local corrosion operations must document the activity needed to restore the CPA...”. Also, Section 8.3.2 of the gas standard states that for CPA restoration work over 60 days:” “The documentation must include the following information, as applicable: Extenuating circumstances to the extent known”.

Examples of acceptable extenuating circumstances may include personnel safety, public safety, population density, environmental concerns, climatic conditions, material availability, government permitting processes, and land acquisition requirements

The G.O. 112-F Reference Title 49 CFR, Part 192 Section 192.605(a) **General** states in part: "Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response....."

PG&E failed to restore and/or provide the necessary documentation of extenuating circumstances that prevented it from remediating the out of tolerance CPA's within 60 days as outlined in TD-4181S and TD-4181P-201.

Therefore, PG&E is in probable violation of G.O. 112-F Reference Title 49 CFR, Part 192 Section 192.605(a).

Response to Unsatisfactory Result:

PG&E recognizes the need to improve its documentation of the extenuating circumstances preventing Cathodic Protection Area (CPA) restoration within 60 days, in alignment with the requirements of TD-4181S and TD-4181P-201. To boost awareness of the importance of such documentation and prevent reoccurrence, the corrosion mechanics supporting McDonald Island have undergone refresher training on the latest CPA restoration and documentation requirements contained within both TD-4181S and TD-4181P-201 ([Att#01](#)).

Please note that the cathodic protection (CP) system associated with these 17 monitoring points had been intentionally and temporarily disabled when these low reads were taken. This was done in conjunction with planned work being performed at McDonald Island including well inspections and conversions triggered by the new CalGEM regulations issued in 2018, which have resulted in a large amount of project work requiring CP to be removed for safety purposes while those assets are being worked on. Upon completion of the work, the CP System at McDonald Island was fully restored.

Concern #1:

Question Text	Do field observations confirm that design and construction of additional compressor station safety equipment meet the requirements of 192.171?
References	192.171 (192.141, 192.143)
Issue Summary	<u>McDonald Island (88724 (45200001))</u> : SED was concerned that some bolts on the Valve flange WS-9-E, on a well at Whisky Slough, did not have full thread engagement.

PG&E's gas standard B-45.4, Section 2.1, Part E, states in part: "Bolts/studs must be fully engaged and extend completely through the nuts, with a recommended minimum of one thread exposed. Any excess thread protruding beyond the nut face should be minimized with a recommendation, not to exceed 1/2 inch (in.) beyond nut face..."

PG&E is aware of SED's concern that some Bolts/studs on valve flanges were not fully engaged and did not extend completely through the nuts at its McDonald Island Storage Field and Compressor Station. PG&E's crew informed SED that it will work on reengaging the bolts as they discover those that are not fully engaged as prescribed in its gas standard.

Los Medanos (88725 (43003001)):

SED was concerned that some bolts on the flange of the compressor suction inlet and Valve flange V-102, did not have full thread engagement.

PG&E's gas standard B-45.4, Section 2.1, Part E, states in part: "Bolts/studs must be fully engaged and extend completely through the nuts, with a recommended minimum of one thread exposed. Any excess thread protruding beyond the nut face should be minimized with a recommendation, not to exceed 1/2 inch (in.) beyond nut face."

PG&E is aware of the SED's concern that some Bolts/studs on valve flanges were not fully engaged and did not extend completely through the nuts at its Los Medanos Storage Field and Compressor Station. PG&E informed SED that it will work on reengaging the bolts as it discovers those that are not fully engaged as prescribed in its gas standard.

Response to Concern #1:

Shortly after these field observations, compressor unit K-1 at Los Medanos entered an overhaul cycle. GPOM leadership raised awareness around this concern and incorporated correctives into the work plan to assure recommended stud/nut engagement. All studs on K-1 suction header identified during the inspection have been addressed ([Att#02](#)) and studs on V-102 are targeted to be addressed before K-1 is released back to operations on 02/01/2023. The stud/nut engagement concern observed at McDonald Island Whisky Slough well WS-9E has been addressed and now meets recommended exposed threads per B-45.4 ([Att#03](#)).

Concern #2:

Question Text	Do records document inspection of aboveground pipe located in storage fields for atmospheric corrosion?
References	192.491(c) (192.481(a), 192.481(b), 192.481(c))
Issue Summary	<u>McDonald Island (88724 (45200001)):</u> SED staff observed Atmospheric corrosion on the glycol dehydrator during field inspections. PG&E indicated it will remediate and incorporate more atmospheric corrosion controls. <u>Los Medanos (88725 (43003001)):</u> SED staff observed Atmospheric corrosion on the glycol dehydrator during field inspections. PG&E indicated it will remediate and incorporate more atmospheric corrosion controls.

Response to Concern #2:

PG&E's Facilities & Storage Engineering team investigated this field observation and concluded that the surface oxidation seen on the glycol bath was normal for surfaces exposed to high temperatures and the elements. The areas with the surface oxidation are located immediately around the burners, where such oxidation is expected. Any coating applied to that area will eventually bake off due to heat cycles and the high temperatures. The glycol bath is not a pressurized vessel nor is it carrying natural gas, so PG&E does not believe the observed surface oxidation is a cause for concern.

Concern #3:

Question Text	Are the cathodic protection practices for field piping and related storage field facilities adequate?
References	192.463(a)
Issue Summary	<p><u>McDonald Island (88724 (45200001)):</u> During the field inspection at McDonald Island Storage field, SED staff observed a rectifier (equipment ID's 44212259) pulsing. PG&E's field personnel could not determine the reason for the rectifier pulsing other than to offer theory that there might be on-going maintenance or the construction activity that was observed in the area.</p> <p><u>Los Medanos (88725 (43003001)):</u> During the field inspection at Los Medanos Storage field, SED staff observed a rectifier (equipment ID's 43597986) pulsing. PG&E's field personnel could not determine the reason the rectifier was pulsing but indicated that there might be related pipeline maintenance activities in the area. There were no visible signs of CP or construction activity noted during the facility inspection at Los Medanos. PG&E indicated that it will investigate.</p>

Response to Concern #3:

PG&E typically uses constant voltage rectifiers to provide cathodic protection to its gas pipelines. The two rectifiers referenced in the audit letter (SAP EQ# 43597986 and 44212259) are constant voltage rectifiers. These rectifiers will maintain the voltage set by the corrosion mechanic and are not intended to pulsate. The current output of the rectifier is determined by the rectifier voltage and the resistance of the overall CP circuit. The current output of the rectifier typically does not pulsate during normal operation unless the rectifier current output is interrupted by the remote monitoring unit. Recall that during the inspection, the corrosion supervisor explained that a technician from Accurate Corrosion was conducting an influence study. After conducting an investigation, PG&E determined that Accurate Corrosion's study activities were the cause of the observed pulsating of the rectifier current.

Concern #4:

Question Text	Are transmission line valves maintained as required?
References	192.745(a) (192.745(b))
Issue Summary	<p><u>Los Medanos (88725 (43003001)):</u> SED staff observed that some valves that are critical to safe operation at Los Medanos storage field were not tagged.</p> <p>PG&E's gas standard TD-4251S, states in part: "all maintained critical valves must be tagged.....". Although, these valves were classified as Critical valves. PG&E began the same day, tagging the valves that are critical to the operation that lacked tags. PG&E indicated it will continue to tag these valves that lacked tags. SED considers this concern resolved but may review during future inspections.</p>

Response to Concern #4:

PG&E agrees the newly converted wellhead valves lacked identification and were labeled the same day to align with guidance within TD-4521S, and considers this issue to be resolved.

Please contact Justin Leany at (415) 603–9552 or Justin.Leany@pge.com for any questions you may have regarding this response.

Sincerely,

/s/ Kristina Castrence
Director, Gas Regulatory & Risk

cc: Matthewson Epuna, SED
Claudia Almengor, SED
Angel Garcia, SED
Randy Fienberg, SED
Matthew Shaffer, SED
Mohammad Nouredine, SED
Frances Yee, PG&E
Susie Richmond, PG&E

Attachments:

Att#01_TD-4181S & TD-4181P-201 refresher_CONF.pdf
Att#02_Los Medanos K-1 - bolt-nut thread engagement.pdf
Att#03_WS-9E bolt-nut thread engagement.pdf