Pacific Gas and Electric Company

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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 Operations and Maintenance (O&M) plans, Emergency plans, Design and Construction standards, and Part 191 related plans

Dear Mr. Eng:

Pacific Gas and Electric Company (PG&E) submits this response to the SED's inspection report stemming from the inspection of PG&E's O&M plans, Emergency plans, Design and Construction standards, and Part 191 related plans. The inspection took place from January 9 through January 13, 2023, and on January 27, 2023, the SED submitted their inspection report. The SED identified three (3) concerns, below is PG&E's response to the SED inspection report.

Please contact [redacted] at [redacted] or [redacted]@pge.com for any questions you may have regarding this response.

Concern 1: Assessment and Repair: Integrity Assessment Via Pressure Test - References 192.503(a) (192.503(b), 192.503(c), 192.503(d), 192.505(a), 192.505(b), 192.505(c), 192.505(d), 192.507(a), 192.507(b), 192.507(c), 192.513(a), 192.513(b), 192.513(c), 192.513(d), 192.921(a)(2))

Issue Summary 1:
SED reviewed PG&E's A-34 " Piping Test Design Requirements" that PG&E provided pursuant to Gas Safety and Reliability Branch's (GSRB's) pre-audit data requests #1-#9. SED also reviewed PG&E's TD-4138P-01 "Leak Testing Procedure for Facilities Operating at 100 psig or Less" that PG&E provided pursuant to GSRB's pre-audit data request #15. SED found in A-34, Piping Test Design Requirements, Appendix A, Table A-3 and Table A-4, minimum test duration which were not included in TD-4138P-01, Leak Testing Procedure for Facilities Operating at 100 psig or less. There is no minimum test duration in General Order (G.O.) 112-F or 49 Code of Federal Regulations (CFR) 192, but PG&E has established minimum test durations in A-34.

SED recommends including minimum test durations from A-34 be noted in TD-4138P-01 in order to ensure leak tests are carried out correctly.

SED reviewed PG&E's A-34, and in Section 6, Figure 1. Leak Test Stamp, there is a checkmark for "Verified acceptable plastic pipe surface temperature per TD-4138P-01".

PG&E's Response: PG&E appreciates the SED's recommendation, however, the general policy of PG&E's Gas Standards Engineering team is to have a single document as the governing standard for given content. A-34 is the governing standard for test duration and is referenced multiple times in TD-4138P-01 as the source for test parameters, including test pressures and durations. It is an established process for Field personnel to reference A-34 for pressure test requirements. Maintaining a single governing standard helps

to maintain version control and accurate data by having a single point of reference. In addition, this practice of not duplicating long established compliance content mitigates management of change risks and decreases the likelihood of error and non-compliance.

Issue Summary 2:
Pipeline and Hazardous Materials Safety Administration's (PHMSA's) 77 FR 26822, "Pipeline Safety: Verification of Records", states the following: "Verifiable records are those in which information is confirmed by other complementary, but separate, documentation." The checkmark provided in the current A-34 Leak Test Stamp cannot be confirmed against the requirements of TD-4138P-01, Section 4.6, Table 1 Maximum Allowable Surface Temperature of Plastic Pipe during Pressure Test and is considered unverifiable by SED.

SED recommends requiring the documentation of the surface temperature during the pressure test after stabilization (as noted in TD-4138P-01 rev 0a, Section 5.3) has occurred. The documentation of the surface temperature during the pressure test will allow for the confirmation of the temperature against a complementary, but separate, document.

PG&E's Response: PHMSA's 77 FR 26822 states that traceable, verifiable, and complete (TVC) records are required for "information needed to support establishment of MAOP and MOP [as] identified in § 192.619, § 192.620 and § 195.406." The surface temperature of plastic pipe during leak testing is not required to determine the MAOP of the pipeline. Furthermore, 49 CFR 192 requires TVC records only for onshore steel transmission lines (as described in § 192.607, § 192.624, and § 192.632), not for plastic pipe. Therefore, a TVC record is not required for the temperature of plastic pipe during leak testing or in any other instance, rendering a complementary, but separate, document as unnecessary.

In addition, § 192.513 states that "during the test, the temperature" must be below the "temperature at which the material's long-term hydrostatic strength has been determined under the listed specification." This means that the value is either a pass or fail value (either below or over). PG&E procedures require that the plastic pipe's surface temperature be below a specified temperature before beginning a leak test. If the value is above, TD-4138P-01 provides guidance to cool the pipe before beginning the test. At this point a recorded value would always be below the specified temperature (pass) or the test would not be able to begin. Furthermore, a record of the plastic pipe temperature is unnecessary for integrity management or operations, would not be used in any future decisions affecting pipeline safety, and is not required by any applicable regulations.

Concern 2: Maintenance and Operations: Gas Pipeline Operations - References 192.605(a) (192.605(b)(3))

Issue Summary:
SED reviewed PG&E's TD-4460P-10 "Gas Operations Operating Maps and Operating Diagrams" that PG&E provided pursuant to GSRB's pre-audit data requests #1-#9. In TD-4460P-10, section 2.2.2, it is stated that the Operating Diagram requirement for "facilities within the GT system that do not contain control valves or regulation devices, such as a valve lot" is "optional".

SED believes the lack of a requirement (i.e., it is optional) to produce an Operating Diagram for non-pressure control facilities may lead PG&E to miss potential rupture control valves and valves that fall under annual inspection (G.O. 112-F Reference Title 49 CFR, Part 192 Section 192.745(a)) for inspection due to misidentification. PG&E has shown in prior audits to not have the correct labels on their valves and have used operational diagrams to verify the mislabeled valves. If there is no operating diagram associated with the mislabeled valve to verify the label, a mislabeled valve has the potential of remaining uninspected.

G.O. 112-F Reference Title 49 CFR, Part 192 Section 192.605(b)(3) states: Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations. Making construction records, maps, and operating history available to appropriate operating personnel.

SED recommends including rupture control valves and annual inspection valves as part of TD-4460P-10 Section 2: OM and OD requirements. This recommendation will help verify the location of rupture control valves and annual inspection valves in the field, ensuring proper maintenance and safe operations of the Gas Transmission system.

PG&E's Response: PG&E currently requires that automatic shutoff valves (ASVs) are mapped in an operating diagram (OD).

For all maintained transmission valves, of which ASVs are a subset, PG&E maps them in either an operating map (OM) and OD or in the GIS system. Valves are validated before maintenance per Utility Procedure TD-4521P-01, "Gas Valve Maintenance," by checking the mapped location in either:

- OMs and ODs, if one exists; or
- Through GIS system (ARCGIS or Maps Plus), which normally applies for a singular transmission valve that is not part of a valve lot.

Maintained valves can also be verified in other systems, such as SAP, by equipment characteristics, and by functional locations, as applicable. In most cases it makes more sense to map singular valves in GIS rather than create an OM and OD, thus the requirement to create an OM and OD is optional and left to the discretion of the engineer.

Utility Standard TD-4551S, "Station Critical Documentation," requires operating diagrams for any facility with automated valves (i.e., rupture mitigation valves). PG&E has added this requirement in TD-4460P-10 for clarity, which will be published on or before April 10 concurrent with other updates to the procedure as a result of the Valve Rule.

When valve maintenance, required by §192.745 is dispatched out of SAP, TD-4521P-01 requires that the maintenance technician verify the valve number. Any mislabeled valves will become apparent when the technician arrives on site.

Concern 3: Training and Qualification: Qualification of Personnel - Specific Requirements - References 192.227(a) (192.225(a), 192.225(b), 192.328(a), 192.328(b), 192.805(b))

Issue Summary:
SED reviewed PG&E's TD-4160P-51 "Welding Procedure Selection - API 1104 Procedures" that PG&E provided pursuant to GSRB's pre-audit data request #33. In TD-4160P-51, section 1.4, Figure 1. Thickness Determination for Dissimilar Wall Thickness Joints, the selection of wall thicknesses for joining dissimilar wall thickness joints, is very vague and unclear. There is no recourse in determining the welding process used in the weld. The samples provided are not labeled with any of the approved welding process. The samples are also not labeled with the grade of pipe or the individual wall thickness. This makes the selection of the proper wall thickness to use for further welding process selection nearly impossible.

G.O. 112-F Reference Title 49 CFR, Part 192 Section 192.225(b) states: Each welding procedure must be recorded in detail, including the results of the qualifying tests. This record must be retained and followed whenever the procedure is used.

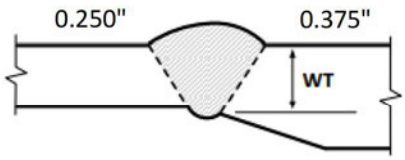
SED recommends labeling the dissimilar wall thickness samples in TD-4160P-51, section 1.4, Figure 1 with proper pipe grades and wall thicknesses in order for the correct welding procedure to be followed.

PG&E's Response: PG&E appreciates SED's recommendation but believes the labeling recommendation by SED is impractical to implement in Figure 1 of TD-4160P-51, Section 1.4 due to the number of combinations in pipe grade and wall thickness at each joint. TD-4160P-51, Section 1 references Table 1, which provides a direct correlation to those possible combinations. As described in the procedure summary for TD-4160P-51 shown below the process outlined in TD-4160P-51 includes six steps that must be followed to determine the appropriate welding procedure specifications to apply.

Procedure Summary: "This utility procedure describes the process for selecting welding procedure specifications (WPSs) qualified in accordance with American Petroleum Institute (API) Standard 1104, "Welding of Pipelines and Related Facilities," for project and maintenance work within PG&E."

TD-4160P-51 provides steps to select the correct weld procedure specification (WPS) according to the required variables of the joint to be welded. Every section in TD-4160P-51 coincides with a column in Table 1, "WPS Selection Matrix," and provides instruction to the user on how to select the proper variable. Section 1.4 applies to Column D, Applicable wall thickness, and the excerpt of Figure 1 below shows how to determine the applicable wall thickness based on the engineered joint design. For example, when joining 0.250" to 0.375" the correct wall thickness to use in Table 1 would be determined per Figure 1, "Column B" (weld throat thickness).

Figure 1 Column B



WT = weld throat thickness

As stated above, there are different sections in TD-4160P-51 for each required variable. The following list walks through each section and aligns with an excerpt of Table 1 (process-flow added at the bottom).

- Section §1.1 describes the steps to select the material grade (Column A),
- Section §1.2 covers pipe diameter (Column B),
- Section §1.3 describes the welding process selection, raised in the concern above (Column C),
- Section §1.4 describes the wall thickness determination, which is specific to the joint and independent of the grade (Column D),
- Section §1.5 describes the joint design (Column E), and
- Section §1.6 results in selection of the proper WPS.

Table 1. WPS Selection Matrix

A	B	C	D	E	F
Base Metal Grade Group	**Pipe OD**	**Welding Process – Filler Metal Combination**	**Applicable WT (inches)**	**Joint Design Group**	**WPS**
SMYS ≤ X60	All	SMAW Process – Cellulosic Filler Metal	WT ≤ 0.750	Groove Weld Groove Weld - Rolled	10-Sc-G 10-Sc-GR
				Wide-Gap Groove Weld	10-Sc-WG
				Branch Weld	10-Sc-BR
				Long-Seam Weld	10-Sc-LS[1]
		SMAW Process – Cellulosic + Low Hydrogen Filler Metal	0.188 to 1.250	Groove Weld Groove Weld - Rolled	12-ScLH-G 12-ScLH-GR
				Wide-Gap Groove Weld	12-ScLH-WG
				Branch Weld	12-ScLH-BR
				Long-Seam Weld	12-ScLH-LS[1]
		GMAW Process	WT ≤ 0.375	Groove Weld Groove Weld - Rolled	14-G-G 14-G-GR
				Wide-Gap Groove Weld	NA
				Branch Weld	14-G-BR
			WT ≤ 0.750	Long-Seam Weld	14-G-LS[1]
SMYS = X65 or X70	All	SMAW Process – Cellulosic Filler Metal	0.188 to 0.750	Groove Weld	30-Sc-G
				Wide-Gap Groove Weld	30-Sc-WG
				Branch Weld	30-Sc-BR
				Long-Seam Weld	30-Sc-LS[1]
		SMAW Process – Cellulosic + Low Hydrogen Filler Metal	0.188 to 1.250	Groove Weld	32-ScLH-G
			0.188 to 0.750[2]	Wide-Gap Groove Weld	32-ScLH-WG
			0.188 to 1.250	Branch Weld	32-ScLH-BR
			0.188 to 0.750[2]	Long-Seam Weld	32-ScLH-LS
§ 1.1	**§ 1.2**	**§ 1.3**	**§ 1.4**	**§ 1.5**	**§ 1.6**

Sincerely,

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Director, Gas Regulatory & Risk

Cc: Dennis Lee, SED
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[redacted] PG&E
[redacted] PG&E