

PUBLIC UTILITIES COMMISSION

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June 29, 2018

Mr. Sumeet Singh, Vice President  
Pacific Gas and Electric Company  
Portfolio Management & Engineering  
6111 Bollinger Canyon Road, Room 4590-D  
San Ramon, CA 94583

GI-2018-03-PGE-29-08

SUBJECT: General Order 112-F Inspection of PG&E's Transmission Integrity Management Program (TIMP)

Dear Mr. Singh:

On behalf of the Safety and Enforcement Division (SED) of the California Public Utilities Commission, Paul Penney, Sikandar Khatri, Joel Tran and Alan Wehrman conducted a General Order 112 inspection of Pacific Gas & Electric Company's (PG&E) Transmission Integrity Management Program (TIMP) on March 19-23, 2018. The inspection included a review of procedures and records related to TIMP protocol D.

SED's findings are noted in the Summary of Inspection Findings (Summary) which is enclosed with this letter. The Summary reflects only those procedures and records that SED inspected during the inspection.

Within 30 days of your receipt of this letter, please provide a written response indicating the measures taken by PG&E to address the violations, concerns and recommendations noted in the Summary, as well as the additional questions and follow up requests related to PG&E's Internal Review Summary.

If you have any questions, please contact Paul Penney at (415) 703-1817 or by email at Paul.Penney@cpuc.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Kenneth A. Bruno".

Kenneth Bruno  
Program Manager  
Gas Safety and Reliability Branch  
Safety and Enforcement Division

Enclosure: Summary of Inspection Findings

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## Summary of Inspection Findings

### A. PG&E's Internal Audit Findings

During the audit, PG&E provided SED staff with its findings from the internal review it conducted of the TIMP program. **Error! Reference source not found.** below lists all findings from PG&E's internal review. All of PG&E's internal review findings are violations or potential violations of PG&E's standards, and are therefore violations of Title 49 Code of Federal Regulations (CFR), §192.13(c) as appropriate.

*Table 1: PG&E's TIMP Internal Review Summary Findings (IRSF)*

Item	Finding Description	# of findings	# of Corrections (as of 3-13-18)	Remediation Date
1	<p><b>Missed corrosion monitoring on 111 Transmission casings.</b> Original issue was entered into CAP in 2014. Due to these assets being in GIS and not in SAP or checked in the field, we do not know if the assets are still in the field, need to be maintained, are a duplicate, already being maintained, etc. [T]</p>	111	20	12/31/18 (Estimated)
2	<p>TD-4186S states that we need to conduct maintenance on pipeline drips either annually or bi-monthly (depending on the results of the maintenance). So far, PG&amp;E has identified only 52 of the 273 items with a maintenance item and only 5 actual maintenance plans for the entire transmission system. [T]</p>	273	?	?
3	<p>A Post Assessment Integrity Report (PAIR) is supposed to be completed within 180 days of the project completion and when all applicable data is available per TD-4810P-17 for specific assessments and events. This date was missed for T-051-12 hydrotest which was due on 12/13/17 [T]</p>	1	1	2/20/18

Please answer the following questions and provide follow-up requests for the findings noted above.

1. For item 1, please provide quarterly updates on the progress in identifying and documenting which casings are still in service, and need to have maintenance plans in SAP.
2. For item 1, TIMP FAQ #250 discusses the issue of no previous monitoring data. This FAQ states:

***No Previous Monitoring Data: If an operator has cased pipe that has not been monitored on an annual basis (no annual C/S readings) because casing wires and vents were not installed, but the operator has documentation on the construction, including the original pressure test, of the cased pipe and the indirect inspection results show that the casing is not shorted to the carrier pipe, what must the operator do to assess and monitor the pipeline during future assessments.***

*If the segment of pipe was properly tested on an annual basis, and the operator can demonstrate that the annual testing would identify a short, those annual tests can be used as monitoring data for the cased crossing. If the operator cannot demonstrate that no shorts exist (or existed in the past), the priority of this cased crossing should be raised. Such an increase in priority should indicate that the cased crossing be directly examined under step 3 of the ECDA process.*

For casings in HCAs where PG&E has used ECDA as the assessment technique, please provide a list of casings needing additional direct examinations per this FAQ (if any), and an estimated timeline for completion for the additional direct examinations as applicable.

3. For item 2, please provide the following information:
  - 3.1. Quarterly updates on the progress in identifying each drip still in service, and the breakdown of those needing to be maintained either on a bi-monthly or yearly basis.
  - 3.2. Please include in the quarterly reports the amount of liquid pulled out of the drips initially (i.e., for drips that have not been maintained) and the amount of liquid pulled out on a cumulative yearly basis (i.e., for bi-monthly maintenance, please provide the cumulative total) for those drips that are already being maintained.
  - 3.3. Please identify which currently active drips are in HCAs, or on a segment that would affect HCAs (i.e., would have liquids transported further downstream into an HCA), and if the HCAs have the Internal Corrosion (IC) threat turned on based on the latest snapshot of the assessment plan.
  - 3.4. Please include an analysis of the liquids for each drip that is in an HCA or would affect an HCA in terms of the corrosive content and by-products of corrosion. If such an analysis has not been done, please explain PG&E's rationale in not doing an analysis of the liquids.
  - 3.5. Please provide a listing of drips still in service that have already been integrity assessed and the results for each integrity assessment at the drip location.
  - 3.6. As part of PG&E's normal process of data integration and risk assessment, please provide a plan for integrity assessing these drips, as applicable, during the next

assessment cycle if the data integration and risk assessment identifies a high risk for internal corrosion.

**B. Follow up for 65 ECDA projects**

This is a follow up to the 2016 Integrity Management inspection. From that inspection, PG&E responded as follows:

*“PG&E incorrectly reported 78 total ECDA projects during the 2013-2015 timeframe. The discrepancy was due to inclusion of projects in the 78 count which had a compliance date in later years but may have been started in 2013-2015. As a result, 13 projects were omitted and a total of 65 projects were contracted for review.*

*All 65 ECDA projects have been reviewed by EN Engineering; however, the recently reviewed 45 ECDA projects have not yet gone through PG&E’s internal multi-stage analysis. The findings from EN Engineering’s review, in Excel format, are attached. PG&E plans to complete its internal review by the end of the first quarter of 2018. Attached, please find attachment 1 – “EN Engineering 2013-2015 ECDA Project Review - 45 Projects”.”*

As of the date of this audit, PG&E did not complete the internal review of the EN Engineering findings for the additional 45 projects. Therefore, please provide quarterly updates on PG&E’s progress in completing the review. Once complete, please provide PG&E’s analysis of each EN Engineering finding.

**C. PHMSA’s Integrity Management Protocols (D & G)**

**Violations Identified in Protocol Area D: DA Plan**

**D.02.c.** Verify that the operator complies with all requirements for appropriate indirect inspection tools selection: [NACE RP0502-2002, Section 3.4, NACE RP0502-2002, Table 2, and 192.925(b)(1)(ii)]

- i. A minimum of 2 complementary tools must be selected such that the strengths of one tool compensate for the limitations of the other tool. (Note: The operator must consider whether more than two indirect inspection tools are needed to reliably detect corrosion activity.)
- ii. Tools are able to assess and reliably detect corrosion activity and/or coating holidays.
- iii. Verify that the operator documents the basis for its tool selection.
- iv. If the operator utilizes an indirect inspection method not listed in NACE RP0502-2002, Appendix A, verify that the operator justifies and documents the method’s applicability, validation basis, equipment used, application procedure, and utilization of data. [§192.925(b)(1)(ii)]

**Issue Identified:**

192.13(c) states:

*(c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.*

Three ECDA projects reviewed during the audit did not have consequence levels identified on Report D: EC18-1501, EC18-142, EC18-307B. TD-4810P-91, Section 7 states: “*Once determined, the consequence levels shall be appended to ““Report D -- Indirect Inspection Tool Selection.”””* Since the reports were signed off, it appears the time to append consequence levels has passed. Please update the Report D’s with the consequence level.

**Violation:**

PG&E is in violation of 192.13(c) for not following its procedures.

**D.03.b.** Verify that the operator properly aligns indications and compares the data from each indirect examination to characterize both the severity of indications and urgency for direct examination in accordance with NACE RP0502-2002, Section 4.3 and NACE RP0502-2002, Section 5.2.

- i. Verify the operator specifies criteria for identifying and documenting those indications that must be considered for excavation and direct examination. Minimum criteria include
  1. Known sensitivities of assessment tools
  2. The procedures for using each tool
  3. The approach to be used for decreasing the physical spacing of indirect assessment tool readings when the presence of a defect is suspected. [§192.925(b)(2)(ii) and NACE RP0502-2002, Section 4.3.1.1]
- ii. Verify that the operator specifies and applies criteria for classification of the severity of each indication. [NACE RP0502-2002, Section 4.3.2],
  1. Verify that the operator considers the impact of spatial errors when aligning indirect examination results. [NACE RP0502-2002, Section 4.3.1.2]
  2. Verify that the operator compares the results from the indirect inspections and determines the consistency of indirect inspections results to resolve conflicting or differing indications by the primary and secondary tools. [NACE RP0502-2002, Section 4.3.3]
  3. Verify that the operator compares indirect inspection results with pre-assessment results to confirm or reassess ECDA feasibility and ECDA Region definitions. [NACE RP0502-2002, Section 4.3.4]
- iii. Verify that the operator specified and applies criteria for defining the urgency level (i.e., immediate, scheduled, or monitored) with which excavation and direct examination of indications will be conducted based on the likelihood of current corrosion activity plus the extent and severity of prior corrosion. [§192.925(b)(2)(iii) and (iv) and NACE RP0502-2002, Section 5.2]
- iv. Verify that the operator’s ECDA procedures have a process to address pipeline coating indications. The procedures must provide for integrating ECDA data with encroachment and foreign line crossing data to evaluate the covered segment for the threat of third party damage, and to address this threat as required by §192.917(e)(1) (See Protocol C.02 and Protocol C.03). [§192.917(b), §192.917(e) and §192.925(b)]

**Issue Identified:**

192.13(c) states:

*(c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.*

For ECDA project EC18-210, the following issues were identified.

1. The scope of the project included some pipeline segments being assessed for the first time with ECDA. PG&E used three IITs on these segments: CIS, DCVG, and PCM. On Report Q (Urgency Level and Prioritization Analysis), the results from all three IITs were shown, but only the results from CIS and DCVG were used to determine priority, even when the PCM had the most severe reading.

This violates TD-4810P-92, section 6 (page 10): *Requirements for first-time assessment: In the event that more than two IITs are used to assess a section of pipe, the Project Engineer should determine indication prioritization based on the most severe inspection findings.*

2. As a result of the above item, dig prioritization may be flawed. At least one location in the first-time assessment segment was incorrectly prioritized as NRI instead of Monitored. Correcting this prioritization should affect the dig site locations noted on Report N (Dig Sheet).

**Violation:**

For item 1 above, PG&E is in violation of 192.13(c) for not following its procedures.

For item 2 above, please report on whether re-prioritization of dig locations was necessary based on the most severe IIT tool finding for first-time assessments.

**D.07.b.** Verify that the operator collects, as a minimum, the following **data and information:**

- i. All data elements listed in ASME B31.8S-2004, Appendix A2 [§192.927(c)(1)(i)]...

**Issue Identified:**

Part 192.927(c)(1)(i) states:

*(1) **Preassessment.** In the preassessment stage, an operator must gather and integrate data and information needed to evaluate the feasibility of ICDA for the covered segment, and to support use of a model to identify the locations along the pipe segment where electrolyte may accumulate, to identify ICDA regions, and to identify areas within the covered segment where liquids may potentially be entrained. This data and information includes, but is not limited to—*

- (i) All data elements listed in appendix A2 of ASME/ANSI B31.8S...*

PG&E's procedure TD 4810P-10, Table B-1, row 5.3 states "bacteria culture test results" are a "desired" data element. But 192.927 (c)(1)(i) refers to ASME B31.8S, Appendix A2 for this data element; A2.2 states this is one of the data elements that must be included.



**Violation:**

PG&E should change this item from “Desired” to “required”; this means when PG&E does not have this information available, PG&E needs to make conservation assumptions.

**Concerns Identified in Protocol Area D: DA Plan**

**D.02.a.** Verify that the operator **identifies and collects adequate data** to support ECDA pre-assessment. [[NACE RP0502-2002, Section 3.2](#)]

**Issues Identified:**

- (1) TD-4810P-91 under “Definitions” states that the “Required” data listed in Appendix A must be obtained. However, Section 2 of the same procedure states:

*“Missing Required Data: Required data elements are critical to the success of the ECDA program. At a minimum, data in the following five categories must be collected: pipe related, construction related, soils/environmental, corrosion control, and operational. Missing required data shall be documented on ““Report B – Data Analysis Report”” along with the reason for the missing data and an explanation as to why the data is not needed (if applicable).”*

PG&E also explained that for missing ‘Required’ data, if it is needed, then conservative assumptions are made.

**Recommendation:**

PG&E should revise the definition of “Required” in the “Definitions” section of the TD-4810P-10 procedure to include the exception process.

**Editorial Comment:**

- (2) ECDA procedure TD-4810P-91 (External Corrosion Direct Assessment – Pre-assessment) references SP0502-2008 instead of SP0205-2010 in 2 places. The current revision in Part 192.7 is 2010. SP0502-2008 is also referenced in TD-4810P-94 (External Corrosion Direct Assessment – Post Assessment). PG&E should correct these references and any others in the ECDA procedures.

**Violations, Concerns and Recommendations Identified in Protocol Area G: Confirmatory DA**

At the time of the audit, PG&E did not have Confirmatory DA procedures in place.