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August 31st, 2021

Mr. Dennis Lee, P.E.
Program and Project Supervisor, Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
505 Van Ness Ave, 2nd Floor
San Francisco, CA 94102

Dear Mr. Lee:

On behalf of the Safety and Enforcement Division (SED) of the California Public Utilities Commission, Paul Penney, Randy Holter and Sann Naing conducted a **General Order 112-F inspection of Southern California Gas Company (SoCal Gas) and San Diego Gas and Electric Company (SDG&E) Transmission Integrity Management Programs (TIMP)** the weeks of 3/15/21-3/19/21 and 3/22/21-3/26/21. The inspection included a review of records related to the TIMP in-line inspection (ILI) program and follow-up from the 2020 TIMP inspection.

SED staff identified one (1) notice of probable violation.

A summary of the inspection findings documented by SED, SoCalGas and SDG&E's response to SED's findings, and SED's evaluation of SoCalGas and SDG&E's response for the one violation documented are below.

Attached is SoCalGas and SDG&E's written response to the supplemental items.

Please contact Troy A. Bauer at (909) 376-7208 if you have any questions or need additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Troy A. Bauer", with a stylized flourish at the end.

Troy A. Bauer
Pipeline Safety and Compliance Manager
CC:

Gwen Marelli, SoCalGas
Terence Eng, SED
Paul Penney, SED
Claudia Almengor, SED

Post-Inspection Written Findings

Dates of Inspection: 3/15→3/19/21 and 3/22→3/26/21

Operator: SoCal Gas/SDG&E

Operator IDs: 18484 (primary) 18112

Inspection Systems: The entire system where ILI is used

Assets (Unit IDs) with results in this report: SoCal Gas Main Office Inspection (5305)

System Type: GT

Inspection Name: (2021) SoCal Gas/SDG&E TIMP Inspection - ILI Focused

Lead Inspector: Paul Penney

Operator Representative: Alex Hughes, et all (see attendance sheet)

Unsatisfactory Results

Assessment and Repair: Stress Corrosion Cracking Direct Assessment (SCCDA) (AR.SCC)

Question: 6. Do records demonstrate that an assessment was performed using one of the methods specified in ASME B31.8S-2004 Appendix A3?

References: 192.947(g) (192.929(b)(2))

Assets Covered: SoCal Gas Main Office Inspection (5305)

With regard to the white paper from Southern California Gas Company (SoCal Gas)/San Diego Gas & Electric Company (SDG&E), Gas Safety and Reliability Branch (GSRB) staff has the following comments:

1. The paper clearly demonstrates Electro-Magnetic Acoustic Transducer (EMAT) is an In-Line-Inspection (ILI) technology and is consistent with most code requirements (See item 3 below).
2. The paper also demonstrates EMAT is equivalent in detecting cracking defects that would result in immediate or safety related indications.
3. Nonetheless, American Society of Mechanical Engineers (ASME) B31.8S-2004, Section A3.4 states that if a pipeline segment experiences an in-service leak or rupture attributable to stress corrosion cracking, the particular segment shall be subjected to a hydrotest. SoCal Gas/SDG&E's procedures should include this possibility.
4. As noted by SoCal Gas/SDG&E in the white paper, procedures for the use of EMAT must be developed (Section 7 of the white paper).

SoCal Gas/SDG&E wrote the white paper as a result of GSRB staff having a concern about EMAT being used on Line 6902. As stated above, SoCal Gas/SDG&E has convinced GSRB staff that EMAT is covered in ASME B31.8S-2004, Section 6.2.

5. ASME B31.8S-2004, section 6.2.5 states in part (this reference was cited in the white paper):

"Generally, representatives from the pipeline operator and the ILI service vendor should analyze the goal and objective of the inspection, and match significant factors known about the pipeline and expected anomalies with the capabilities and performance of the tool. Choice of tool will depend on the specifics of the pipeline section and the goal set for the inspection. The operator shall outline the process used in the integrity management plan for the selection and implementation of the ILI inspections."

Therefore, SoCal Gas/SDG&E is in violation of Title 49 Code of Federal Regulations (49 CFR), §192.907(b) and ASME B31.8S-2004, section 6.2.5 for not having procedures in place prior to using EMAT on Line 6902. Please indicate how SoCal Gas/SDG&E will resolve the lack of having procedures in place prior to EMAT being used on Line 6902.

Please provide a copy of these procedures to GSRB staff so that we can review and provide comments.

The procedures should include all sections in the new 49 CFR, § 192.712 related to cracks (i.e., how Charpy V-Notch toughness values without traceable verifiable and complete records will be determined if the conservative values are not used)

2021 TIMP Inspection
3/15/2021 to 3/26/2021

Notice of Probable Violation(s)

Do records demonstrate that an assessment was performed using one of the methods specified in ASME B31.8S-2004 Appendix A3? - References: 192.947(g) (192.929(b)(2))

With regard to the white paper from Southern California Gas Company (SoCal Gas)/San Diego Gas & Electric Company (SDG&E), Gas Safety and Reliability Branch (GSRB) staff has the following comments:

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Therefore, SoCal Gas/SDG&E is in violation of Title 49 Code of Federal Regulations (49 CFR), §192.907(b) and ASME B31.8S-2004, section 6.2.5 for not having procedures in place prior to using EMAT on Line 6902. Please indicate how SoCal Gas/SDG&E will resolve the lack of having procedures in place prior to EMAT being used on Line 6902.

Please provide a copy of these procedures to GSRB staff so that we can review and provide comments.

The procedures should include all sections in the new 49 CFR, § 192.712 related to cracks (i.e., how Charpy V-Notch toughness values without traceable verifiable and complete records will be determined if the conservative values are not used).

SoCalGas/SDG&E Response:

1. GSRB Statements 1, 2 and 3:

SoCalGas/SDG&E agree with the statements provided. For Statement 3, it should be noted that SoCalGas/SDG&E have not experienced an in-service leak or failure attributable to stress corrosion cracking. For the Statement 3 responsive action, refer to corrective actions section of this document.

SED’s Evaluation of SoCal Gas/SDG&E’s Response to Statements 1, 2, & 3:

SDG&E/ SoCal Gas response to statements 1, 2 and 3 is adequate as well as the correct actions section listed at the end of this letter.

SoCalGas/SDG&E Response:

2. GSRB Statement 4:

Pipeline 6902 does not exist in SoCalGas/SDG&E’s Assessment Plan.

Requirements for the use of EMAT (as noted in the position paper) were incorporated into the gas standards (i.e., procedures) listed in the table below.

EMAT ILI Position Paper		SoCalGas/SDG&E Gas Standard		
Section	Title	Document Number	Title	Section
7.1	Personnel Qualification	167.0220/G8161	In-Line Inspection Surveys Standard	2.6
7.2	In-line Inspection System Selection	167.0210/G8180	In-Line Inspection Procedure	5.7
7.3	Qualification of Performance Specification and System Results Validation	167.0210/G8180	In-Line Inspection Procedure	6.2
7.4	Response to EMAT ILI Crack-Like Anomalies	167.0235/G8168	Response to Assessment Findings	4.2

Additionally, SoCalGas would like to clarify the EMAT white paper was not written in response to any concerns made by GSRB. The purpose of the white paper was to document SoCalGas/SDGE’s continuous improvement efforts with regard to the assessment element within TIMP:

- Provide the rationale for classifying electromagnetic acoustic transducer (EMAT) as an in-line inspection (ILI) tool rather than “other technology,”;
- Show EMAT ILI can detect critically sized crack anomalies in natural gas pipelines like traditional crack detection ILI technologies;
- Demonstrate EMAT ILI can provide an equivalent understanding of crack defects compared to pressure testing; and
- Identify the changes SoCalGas and SDG&E must implement to incorporate EMAT ILI into its Integrity Management (IM) Program.

The initial version of the white paper was completed in July 2019. During the TIMP Audit in April 2020, the lead auditor inquired about the Company’s usage of EMAT and whether SoCalGas/SDGE submitted a notification to PHMSA for usage of EMAT as “other technology”. SoCalGas/SDGE communicated our position and stated a written document that detailed our rationale was drafted. The lead auditor requested a copy of the white paper for review. The white paper was updated shortly after the request and submitted for internal review, which was later provided to SED in July 2020.

SED’s Evaluation of SoCal Gas/SDG&E’s Response to Statement 4:

SoCal Gas/SDG&E is correct as stated in the first sentence of your response. The transmission line in question is 293 and not 6902. Transmission line 293 was identified in SoCal Gas/SDG&E’s response to DR #13 from the 2020 audit. At the time, transmission line 293 was the only line where EMAT was used as an assessment technique.

Follow-up Data request:

1. Please identify when transmission line 293 began its EMAT assessment and if the assessment is still being completed for all HCA segments on line 293.

SoCalGas and SDG&E Response:

The EMAT ILI for Pipeline 293 was completed on January 29, 2019. The inspection and validation have been completed. There were no anomalies identified by the EMAT tool in the HCA. Third-party metallurgical testing on pipe samples extracted from non-HCAs is still pending. These analyses have been delayed because of inaccessibility to the pipeline due to inclement weather and the COVID-19 pandemic. Testing is anticipated to be completed by the end of Q1 of the 2022 calendar year.

Follow-up Data request:

2. When was the last assessment of transmission line 293 completed prior to the most recent integrity assessment where EMAT was used?

SoCalGas and SDG&E Response:

The last reassessment of Line 293 was completed on October 4, 2012.

Follow-up Data request:

3. For question 2 above, please identify all HCA segments on transmission line 293, the threats applicable to each HCA segment on transmission line 293 and when all HCA segments on this transmission line had their assessments complete prior the most recent EMAT assessment. In other words, please provide the assessment plan for transmission line 293 in a spreadsheet format for the most current EMAT assessment and the prior assessment(s).

SoCalGas and SDG&E Response:

Please see document, “*IA_History_L293*” containing information requested. It has been uploaded into the TIMP SharePoint Site

SoCal Gas/SDG&E stated in its response to SED’s statement 4:

Requirements for the use of EMAT (as noted in the position paper) were incorporated into the gas standards (i.e., procedures) listed in the table below. [Underline Added]

This statement appears to be incorrect, since the White Paper (T-POS.0907) states in Section 7, page 12 of 16 states:

The SoCalGas and SDG&E ILI program was written in accordance with the requirements of 49 CFR Part 192, Subpart O, ASME B31.8S-2004, API 1163 and NACE SP0102-2010 to establish minimum requirements for the use, application and validation of the selected ILI technology. However, the following changes are required within SoCalGas Standard 167.0210 and SDG&E Standard G8180, In-line Inspection Procedure and SoCalGas Standard 167.0220 and SDG&E Standard G8164, In-line Inspection Survey (referred to hereafter as ILI Standards) to incorporate the use of EMAT ILI into the program.

As noted above, changes were required to incorporate the use of EMAT ILI into the program based on the White Paper.

Follow-up Data request:

4. Please explain in detail why the statement made above in the White Paper is incorrect for transmission line 293.

SoCalGas and SDG&E Response:

The statement that GSRB referenced in the supplemental request is correct. Updates were needed to the ILI procedure, but the items identified in §§ 7.1 through 7.4 of the position paper did not preclude the use of EMAT ILI because the special considerations for the use of ILI tools listed in §6.2.5 of B31.8S-2004 were present in SoCalGas Gas Standard 167.0210 at the time of the EMAT ILI. In addition, the position paper states that the response to EMAT ILI reported findings (§7.4) was not addressed in existing SoCalGas/SDG&E procedures at the time of the EMAT ILI run on Pipeline 293. However, SoCalGas/SDG&E used guidance from

API 1176 to determine the response criteria for anomalies resulting from the EMAT ILI and wrote those requirements into the position paper to serve as interim guidance until the response requirements could be fully incorporated into the appropriate Company procedures.

Follow-up Data request:

5. As part of SoCal Gas/SDG&E’s response, please provide all revisions to the White Paper, including the revision date, effective date (if different from the revision date) and a table showing when each element of SoCal Gas/SDG&E’s EMAT program was incorporated into the program. Please include all elements identified in the table above as well as the reference below to Gas Standard 182.0053, PFP Analysis of Cracks and Crack-Like Defects and when it became effective.

Please make all standards downloadable from SoCal Gas/SDG&E’s SharePoint.

SoCalGas and SDG&E Response:

Copies of the various versions of the EMAT position paper have been uploaded into the TIMP SharePoint site, along with the additional gas standard (GS 182.0053) requested. Table 1 below provides a listing of each version of the position paper, date and a summary of changes made from the previous version. The main goal of the first or original version of the position paper was to document the rationale for not considering EMAT ILI as “other technology”, and to demonstrate it can effectively detect crack-like anomalies. The versions that follow expanded the scope as shown in Table 1, based on ongoing review, and resulted in multiple revisions up to and through the 2020 TIMP audit.

SoCalGas/SDG&E are available to discuss this matter with GSRB staff in person if any of the information provided is not clear.

Table 1

Version	Date	Summary of Changes
1	7/17/2019	Original version.
2	7/23/2019	Minor editorial changes made throughout.
3	8/2/2019	Expanded the Conclusion section.
4	8/16/2019	Additional content added to Section 3: Background
5	9/19/2019	Expanded Section 4: Response to EMAT ILI Indications
6	1/16/2020	No significant changes made
7	3/18/2020	Modified paragraph 3.2: Standards and Practices Incorporated by Reference Review
8	4/2/2020	Minor editorial changes made throughout.
9	4/2/2020	Minor editorial changes made throughout.
10	4/29/2020	Expanded Section 2: Introduction and made modifications to Section 5: Conclusion
11	5/1/2020	Major changes made to various sections and the overall structure of the paper.
12	5/1/2020	Minor editorial changes made throughout.
13	7/17/2020	Final version.

SoCalGas/SDG&E Response:

3. GSRB Statement 5:

SoCalGas/SDG&E disagree that it is in violation of §192.907(b) and ASME B31.8S-2004, section 6.2.5. SoCalGas/SDGE have a documented process that governs tool selection in the context of threats, operational and physical conditions of the pipeline, and these processes are performed prior to an inspection.

Sections 5.0 (Pre-Assessment) and 6.0 (In-Line Inspection) in Gas Standard 167.0210, *In-Line Inspection Procedure*, outline the required steps for selecting ILI tools and performing the subsequent inspection for any ILI project. Paragraph 5.7 states:

“The EPM and IE shall analyze the goals and objectives of the inspection and select the appropriate ILI tool or tools based on the anticipated pipeline anomalies. The IE shall adhere to the guidelines in ASME B31.8S-2004, §6.2 when selecting an ILI tool. Any tool selected shall address the threat(s) identified on the pipe segment.”

Copies of SoCalGas Gas Standards 167.0210 (*In-Line Inspection Procedure*), 167.0220 (*In-Line Inspection Surveys Standard*) and 167.0235 (*Response to Assessment Findings*) are included in the CPUC Gas Standard Library SharePoint for GSRB to review. Lastly, the requirements of 49 CFR, § 192.712, related to the analysis of predicted failure pressure for cracks and crack-like features, are contained in SoCalGas Gas Standard 182.0053, *PFPA Analysis of Cracks and Crack-Like Defects*. A copy is included in the CPUC Gas Standard Library SharePoint.

SED’s Evaluation of SoCal Gas/SDG&E’s Response to Statement 5:

SED will defer its evaluation of SoCal Gas/ SDG&E’s response until SoCal Gas/ SDG&E has responded to the data requests identified above and SED staff has reviewed SoCal Gas/ SDG&E’s response.

SoCalGas/SDG&E Corrective Actions:

4. GSRB Statement 3:

SoCalGas/SDG&E will update Gas Standards 167.0210, *In-Line Inspection Procedure* and 167.0216, *Stress Corrosion Cracking Direct Assessment Procedure*, to include language from ASME B31.8S-2004, Section A3.4, regarding a requirement to pressure test (i.e. hydrotest) a pipeline segment that experiences an in-service leak or rupture attributable to stress corrosion cracking.

SED’s Evaluation of SoCal Gas/SDG&E’s Corrective Actions:

SoCal Gas/ SDG&E’s response is adequate.

Concerns

No Concerns