PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

October 10, 2025, GI-2025-04-SCG-43-15

Mr. Neil Navin
Senior Vice President and Chief Infrastructure Officer
Southern California Gas Company
555 West 5th Street, GT21C3
Los Angeles, CA 90013

Email: nnavin@socalgas.com

Dear Mr. Navin:

The Safety and Enforcement Division (SED) of the California Public Utilities Commission (CPUC) reviewed **Southern California Gas Company's (SoCalGas)** response letter, dated July 3, 2025, that addressed three (3) areas of concern identified during the **General Order (G.O.) 112-F Comprehensive Operations and Maintenance (O&M) Inspection of the Aliso Canyon Natural Gas Storage Facility (Inspection Unit)** conducted April 21 through 25, 2025. The Inspection Unit covered SoCalGas' O&M activities for calendar years 2021 through 2024. Attached is a summary of SED's inspection findings, SoCalGas' response to SED's findings, and SED's evaluation of SoCalGas' response to the findings.

This letter serves as an official closure of the 2025 Comprehensive Operation and Maintenance Inspection of SoCalGas' Aliso Canyon Natural Gas Storage Facility audit. Any matters that are being considered for enforcement will be processed through the Commission's Citation Program or a formal proceeding.

Thank you for your cooperation in this inspection. If you have any questions, please contact Randy Holter PE, Senior Utilities Engineer-Specialist at (818) 821-4309 or by email at randy.holter@cpuc.ca.gov.

Sincerely,

Mahmoud (Steve) Intably, P.E.
Program and Project Supervisor
Gas Safety and Reliability Branch
Safety and Enforcement Division

cc: See next page.

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2025 SoCalGas Aliso Canyon Storage Audit Response and SED Responses

Concern(s):

Facilities and Storage: Compressor Stations (FS.CS)

1. Question Title, ID	Compressor Stations - Gas Detection and Alarms, FS.CS.CMPGASDETECT.O (also presented in: DC.COCMP)
Question	22. Do field observations confirm that compressor buildings have a fixed gas detection and alarm system installed according to 192.736?
References	192.303 (192.736(a), 192.736(b))
Assets Covered	Aliso Canyon - Storage Facility (87036 (43))
Issue Summary	During a field inspection on 4/23/2025, SED observed several control panels in the Electric Driven Compressor (EDC) Station's compressor room displayed a time that was ahead of the actual time. These panels were adjacent to EDC units 1 and 2 and kept track of alarm summaries. SED asked Aliso Canyon Storage personnel whether the alarm summaries displayed on the panels were time-stamped based on the local terminal time or were synchronized with SoCalGas' Operations Room and/or the actual time. SoCalGas' Aliso Canyon Storage personnel stated they would investigate the matter further. Title 49 CFR §192.736(c) states in part: *" Each gas detection and alarm system required by this section must be maintained to function properly."* SED requests SoCalGas to examine the discrepancy and to implement the necessary changes to ensure the control panels are configured to synchronize with a reliable time server to help maintain accurate timing throughout the EDC Station, including alarm summaries, per 49 CFR §192.736(c).

Response & Actions:

SoCalGas respectfully refers Safety and Enforcement Division (SED) to the preliminary response submitted by SoCalGas on May 15, 2025:

> *SoCalGas has a fixed gas detection system. Alarms generated by the gas detectors and other equipment are sent to the iFIX server which is the official time for the monitoring system at Aliso Canyon. Local HMI panels such as those in the KVS and EDC buildings allow for on-site viewing of information by operators and do not affect the time tracking of the facility alarm history.*

Although the time displayed on the HMI panels in question do not link to the gas detection and alarm system as stated in our preliminary response, SoCalGas was able to reconfigure the HMI panels by adding a software tool and synchronizing the PLC clocks to the workstation. The HMI panel's clock will now synchronize with the PLC based on a trigger in the PLC. The workstation will now get its time from a Corp domain controller that is also a time server and will synchronize with the PLCs on a daily basis. All HMI panels in EDC Station are now displaying the correct date and time.

SED Response – HMI Time Display:

SED has reviewed SoCalGas' above time displayed on the HMI panels responses which show the HMI panel's clock will now synchronize with the PLC and SED accepts the corrective actions that have been performed as adequate. SED considers these issues to be closed.

Facilities and Storage: Gas Storage Field (Aboveground) (FS.GS)

2. Question Title, ID	Storage Field Controlling Gas Velocity - Internal Corrosion and Erosion, FS.GS.GASVELOCITY.R
Question	8. Have target flow rates been determined for the field piping system?
References	192.491(c) (192.475(a))
Assets Covered	Aliso Canyon - Storage Facility (87036 (43))
Issue Summary	During SED's record review, SoCalGas provided a document titled "Gas Velocities" which cites API RP 14E's erosional velocity equation. Utilizing a c-factor of 250 (i.e. c = 250) and assuming "intermittent" flow conditions, SoCalGas determined its maximum allowable erosional velocity (flow rate) is 200 ft/s. Per the second page of the document, the Schlumberger Line Sizing excerpt recommends "a minimum flow velocity between 10-15 ft/s ... to minimize liquid settling in low spots". However, the document appears to make several assumptions such as utilizing the API RP 14E single-phase or two-phase gas flow regime for the Aliso Canyon storage onshore pipeline, incorporation of data from "Table 2 - Line Sizing Criteria for Vapor" without a citation, and selection of a c-factor of 250 without written justification nor other equation inputs (namely the fluid density). Additionally, the Schlumberger Line Sizing excerpt and Table 2 footnote 5 recommend maximum allowable gas velocities lower than SoCalGas' maximum flow velocity to minimize noise, mechanical vibration, and CO2 corrosion. Title 49 CFR §192.475(a) states: *"Corrosive gas may not be transported by pipeline, unless the corrosive effect of the gas on the pipeline has been investigated, and steps have been taken to minimize internal corrosion."* Title 49 CFR §192.491(c) states in part: *" Each operator shall maintain a record of each test, survey, or inspection required by this subpart in sufficient detail to demonstrate the adequacy of corrosion control measures or that a corrosive condition does not exist."* SoCalGas Gas Standard (GS) 167.0229, Section 8.3 states: *"Records related to §192.475(a) analyses and determinations of whether or not corrosive gases are being transported as well as records related to mitigative steps taken to minimize internal corrosion."* SED requests SoCalGas to clarify whether it is utilizing the API RP 14E equation or another variant (e.g., Salama and Venkatesh's "Evaluation of API RP 14E Erosional Velocity Limitations for Offshore Gas Wells" 1983 equations) and provide its input variables and values based upon Aliso Canyon's operation which substantiate its maximum allowable erosional velocity. The latter should at a minimum include its nominal temperature ranges, nominal operating pressures, and nominal gas/liquid mixture density values used. In addition, if a comprehensive engineering threat review per GS 167.0229 Appendix A Section 1.2 or Internal Corrosion Environment Assessment per GS 167.0229 Appendix A

	Section 2.1 has been performed for Aliso Canyon's pipeline, please provide the corresponding document. SED also recommends SoCalGas to review NACE Technical Paper C2019-13206 "Review of the API RP 14E Erosional Velocity Equation: Origin, Applications, Misuses and Limitations" for further context on the application of API RP 14E's erosional velocity equation.

Response & Actions:

SoCalGas respectfully refers Safety and Enforcement Division (SED) to the preliminary response submitted by SoCalGas on May 15, 2025:

> *SoCal Gas uses API RP 14E, the industry recommended practice (RP), to calculate erosional velocity. The input data for our calculations and nominal ranges for Pressure (P), Temperature (T) and Density (ρ) are provided below.*

$$V_e = \frac{C}{\sqrt{\rho_m}}$$

Press [psig]	490	2911	Theoretical Limit
Temp [F]	50	140	50
Dens [lb/ft3]*	1.65	10.93	1.57
C**	250	250	250
V [ft/s]	195	76	200

Down Hole Reservoir pressure	
2911***	psig, typical max
1065	psig, typical min

Dehy Operating Pressure	
490	psig, inlet at dehy facility

** Density is derived from simulation using fluid properties, operating condition above and GOR from well test (ASTM D86)*

*** Intermittent flow only at low pressure conditions, low GOR (mostly gas)*

**** Currently limited to 2500 psig*

> *SoCalGas has no records of any comprehensive engineering threat review or corrosion environment assessment performed at Aliso Canyon as there were no pipeline segments that were identified as having an active internal corrosion threat during the audit period. SoCalGas appreciates the recommendation to review NACE Technical Paper C2019- 13206 and will review the technical paper and take it into consideration.*

SED Response – Erosional Velocity:

SED has reviewed SoCalGas' that uses API RP 14E, the industry recommended practice (RP), to calculate erosional velocity responses and that Aliso Canyon has had no active internal corrosion threats during the audit period. SED accepts the corrective actions that have been performed as adequate. SED considers these issues to be closed.

Maintenance and Operations: Gas Pipeline Operations (MO.GO)

3. Question Title, ID	Normal Operations and Maintenance Procedures - History, MO.GO.OMHISTORY.R
Question	17. Are construction records, maps, and operating history available to appropriate operating personnel?
References	192.605(a) (192.605(b)(3))
Assets Covered	Aliso Canyon - Storage Facility (87036 (43))
Issue Summary	SED reviewed SoCalGas records (MAXIMO work order reports of 2022 inspections, with printout date of 3/21/2025, were provided): • WORK ORDER #7895987 • WORK ORDER #7896012 • WORK ORDER #7897108 Title 49 CFR § 192.605(a) - Procedural Manual for Operations, Maintenance, and Emergencies states in part: *" General. Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response "* SoCalGas' *manual of written procedures,* Gas Standard *(GS) 184.12 - Inspection of Aboveground Pipelines and Pipeline on Bridges and Spans*, describes the policies and procedures for inspecting Transmission, Storage, and Distribution above ground piping. Records show that SoCalGas inspected aboveground pipelines for atmospheric corrosion, from 2019 to 2024, following prescribed GS 184.12, three-year interval. GS 184.12, Section 1. POLICY AND SCOPE, 1.1. Transmission and Storage Piping states, in part: *"1.1.1. Transmission and Storage pipeline spans, pipe supported on bridges, above* *ground (or jacketed) pipelines all other exposed pipeline (as installed) are* *inspected for atmospheric corrosion:* *1.1.1.1. Onshore: At least once every 3 calendar years, but with intervals not exceeding 39 months…"* GS 184.12, Section 2.3 states, in part: *"Company employees performing the inspection will complete the following:* *"Transmission and Storage: MAXIMO inspection order and the "Bridge and Span Inspection Checklist. See Appendix C."* SoCalGas stated that it completed the inspections of all above ground pipelines in Aliso Canyon Storage facility and recorded the results in the Company computerized maintenance management system, MAXIMO. And, GS 184.12, Section 7.2.2 states in part:

	"…Hard copy records of Gas Transmission Bridge & Span Inspection Checklist form (Appendix C), along with any electronic copies are retained for the life of the facility plus 5 years or 75 years, whichever is longer." Title 49 CFR §192.491(c) states in part: *"Each operator shall maintain a record of each test, survey, or inspection required by this subpart in sufficient detail to demonstrate the adequacy of corrosion control measures…"* Records show that Maintenance personnel reported the results in the Company computerized maintenance management system, MAXIMO. However, SoCalGas personnel were unable to locate hard copies of the associated inspection checklists for those same above ground pipeline inspections (bridge and span orders). To ensure that SoCalGas follows its procedures of retaining bridge and span hard copy checklists, SED requests that SoCalGas take appropriate corrective action to demonstrate the hard copies are retained. SED requests that SoCalGas provide: the root cause for personnel not retaining the bridge and span hard copy check lists; corrective improvements to its GS 184.12 procedures; and provide updated training records to ensure Company personnel are clear that retaining bridge and span hard copy check lists are part of Aliso Canyon Storage Field required procedures.

Response & Actions:

SoCalGas respectfully refers Safety and Enforcement Division (SED) to the preliminary response submitted by SoCalGas on May 15, 2025:

> *As noted, SoCalGas reported this issue to the Safety and Enforcement Division (SED) in the March 2025 exception self-report. Employees involved in this work have reviewed the gas standard and undergone retraining, emphasizing the importance of documenting results on the checklist. Training records are available upon request.*

Additionally, the root cause was attributed to differing interpretations concerning the applicability of above-ground piping inspection requirements versus bridge and span maintenance recordkeeping. It was subsequently determined that the checklist in question applies to all above-ground piping inspections located at SoCalGas storage fields. SoCalGas will provide the relevant training records for Aliso Canyon personnel performing the particular inspection directly to SED's lead auditor.

SED Response – Erosional Velocity:

SED has reviewed SoCalGas' response that SoCalGas took appropriate corrective action to demonstrate the procedures ensured that hard copies are retained and the root cause found that personnel were unsure the checklist applies to all above-ground piping inspections located at SoCalGas storage fields. Additionally, SoCalGas provided records showing Aliso Canyon personnel receive gas standard 182.12 "Inspection of Aboveground Pipelines on Bridges and Spans" records training for all above-ground piping at Aliso Canyon. SED accepts the corrective actions that have been performed as adequate. SED considers these issues to be closed.