



**Alex Hughes**  
Pipeline Safety & Risk Mitigation Manager  
1775 Sampson Ave, ML8064  
Corona, CA 92879  
949-697-2539  
AHughes@SoCalGas.com

April 14, 2023

Mr. Terence Eng, P.E.,  
Program Manager, 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. Eng:

The Safety and Enforcement Division (SED) of the California Public Utilities Commission conducted a General Order 112 inspection of Southern California Gas Company (SoCal Gas)'s North Desert Transmission Area (Inspection Unit) starting January 9 through January 20 of 2023 for calendar years 2019 through 2022. SED reviewed records and conducted field inspections of SoCalGas pipeline facilities in the Needles and Victorville districts within the Inspection Unit. SED's staff also reviewed the implementation of the Operator Qualification program, which included field observation of randomly selected individuals performing covered tasks.

SED's staff identified zero (0) violations of G.O.112-F, Reference Title 49 Code of Federal Regulations (CFR), Part 192, and identified six (6) areas of concern. Attached are SoCalGas and SDG&E's written responses for the four (4) areas of concern necessitating a response.

Please contact Alex Hughes at (949)697-2539 if you have any questions or need additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Alex Hughes", written over a light blue rectangular background.

Alex Hughes  
Pipeline Safety and Risk Mitigation Manager

CC:

Larry Andrews, SoCalGas  
Mahmoud Intably, GSRB  
Kan-Wai Tong, GSRB  
Randy Holter, GSRB  
Claudia Almengor, GSRB

# 2023 SoCalGas North Desert Transmission Audit Response

## Concern(s)

### Design and Construction: Design of Pipe Components (DC.DPC)

1. Question Title, ID	Cathodic Protection Design - Protection Levels, DC.DPC.CCCATHPROTLEVEL.O
Question	78. Do field observations confirm that the cathodic protection system was designed and installed so that the amount of cathodic protection would not damage the protective coating or the pipe?
References	192.143(b) (192.463(c))
Assets Covered	T: North Desert (87057 (49))
Issue Summary	On the January 12-13, 2023, Needles District Cathodic Protection Area (CPA) survey, SED observed SoCalGas personnel take Cathodic Protection (CP) monitoring readings per requirements of Part 192, Subpart I:

Line 235 Mile Post (MP) 10.87 (-3.681V)  
Line 235 MP11.41 (-2.599V)  
Line 235 MP10.15 (-2.125V)  
Line 235 MP10.87 (-3.67V)  
Line 235 MP11.41 (-2.66V)  
Line 3000 MP25.58 (-2.99V)  
Line 3000 MP25.58 (-2.99V)  
Line 3000 MP42.47 (-2.075V)

Title 49 Code of Federal Regulations (CFR) Part 192, §192.143(b) states:

*“(b) The design and installation of pipeline components and facilities must meet applicable requirements for corrosion control found in subpart I of this part.”*

SoCalGas Gas Standard 186.0035 Criteria for Cathodic Protection, Section 4.3. CRITERIA – LIMITATIONS, subsection 4.3.3 states:

*“To prevent possible coating damage to effectively coated piping, a polarization potential of -1.20 volts (Instant Off) should not be exceeded.  
4.3.3.1. When P/S potentials are found to exceed -2.00 volts, a test should be made to verify the polarization potential level.*

- Test for stray current interference.*
- Test for the polarization potential level (Instant Off).*

*4.3.3.2. If a polarization potential of 1.2 volts is exceeded, test with the copper-copper sulfate reference at the pipeline interference.*

*4.3.3.3. If the instant off exceeds 1.2 volts, after performing the test in Section 4.3.3.1 and 4.3.3.2, call Integrity Management - Cathodic Protection Remediation.”*

SED requests SoCalGas to review the cathodic protection system at the mile posts inspected on Line 235 and Line 3000 to confirm the cathodic protection system is designed and installed appropriately. After review, please provide SED documentation

from Integrity Management confirming that the amount of cathodic protection does not damage the protective coating or the pipe to ensure compliance with §192.143(b).

**Response:**

Per Gas Standard 186.0035 testing was conducted by interrupting all known current sources and the instant off potentials were measured. All instant off potentials were more electropositive than -1.2 V<sub>CSE</sub> and the respective values can be found in the table below. Per the results, Integrity Management – Corrosion has no expectation of coating damage related to excessive cathodic protection current.

SED Inspection				SoCalGas Follow Up			
Line	Milepost	On Read	Date Read	On Read	Instant Off	Date Read	Work Order
235	10.87	-3.681V	12/13/2022	Duplicate*	Duplicate*	Duplicate*	Duplicate*
235	11.41	-2.599V	12/13/2022	Duplicate*	Duplicate*	Duplicate*	Duplicate*
235	10.15	-2.125V	12/13/2022	-2.040	-1.119	1/17/23	8179297
235	10.87	-3.67V	12/13/2022	-3.640	-1.085	1/17/23	8179325
235	11.41	-2.66V	12/13/2022	-2.550	-1.190	1/17/23	8180423
3000	25.58	-2.99V	12/13/2022	Duplicate*	Duplicate*	Duplicate*	Duplicate*
3000	25.58	-2.99V	12/13/2022	-2.933	-0.845	1/17/23	8179322
3000	42.47	-2.075V	12/13/2022	-2.109	-0.836	1/17/23	8179320

\*3 locations cited by SED were duplicate locations

All reads were taken utilizing a Copper Sulfate Electrode (Cu<sub>2</sub>SO<sub>4</sub>) half cell

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

3. Question Title, ID    Continuing Surveillance, MO.GO.CONTSURVEILLANCE.O  
 Question    3. Are unsatisfactory conditions being captured and addressed by continuing surveillance of facilities and the pipeline as required by 192.613?  
 References    192.613(a) (192.613(b), 192.703(a), 192.703(b), 192.703(c))  
 Issue Summary    On the January 12-13, 2023, Needles District Cathodic Protection Area (CPA) survey, SED observed SoCalGas personnel take Cathodic Protection (CP) monitoring readings per requirements of Part 192, Subpart I:

- Line 235 Mile Post (MP) 10.87: -3.681 volts
- Line 235 MP11.41: - 2.599 volts
- Line 235 MP10.15: - 2.125volts
- Line 235 MP10.87: - 3.67 volts
- Line 235 MP11.41: - 2.66volts
- Line 3000 MP25.58: - 2.99 volts
- Line 3000 MP25.58: - 2.99 volts
- Line 3000 MP42.47: - 2.075 volts

Title 49 Code of Federal Regulations (CFR) Part 192, §192.613 states, in part:

*“(a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning..., corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions.”*

SED requests SoCalGas provide its Gas Standard(s) for continuing surveillance of its pipeline system, to continually assess its pipeline system, and explain how applying the standard(s) address this concern. Additionally, SED requests SoCalGas provide what actions will be taken to address these unusual operating conditions to prevent failures, releases, or other events that may endanger public safety per §192.613. SED requests that SoCalGas follow up with these locations and ensure that unusual operating and maintenance conditions are being documented and addressed.

## Response:

Surveillance is completed under Gas Standard 186.0135 Operation and Maintenance of Cathodic Protection Facilities Section 4.3. The surveillance activities were completed by technicians trained and Operator Qualified as outlined in Section 6 of Gas Standard 186.0135.

## Time-Dependent Threats: Atmospheric Corrosion (TD.ATM)

5. Question Title, ID	Atmospheric Corrosion Monitoring, TD.ATM.ATMCORRODEINSP.O
Question	5. Is pipe that is exposed to atmospheric corrosion protected?
References	192.481(b) (192.481(c), 192.479(a), 192.479(b), 192.479(c), 192.481(d))
Assets Covered	T: North Desert (87057 (49))
Issue Summary	On January 12-13, 2023, during Needles Transmission District pipeline span survey at L3000 MP .20, SED observed exterior pipe protective coating disbondment, atmospheric paint chipping and protective paint coating cracking at pipe-to-soil locations. The nearby span support footing is buried by a mound of roadway dirt and therefore, would be unable to be inspected for corrosion and structural review. The opposite span support leg is exposed and has corrosion at the base and the coating is flaking off.

Title 49 CFR, Part 192, §192.481(c) states:

*(b) During inspections, the operator must give particular attention to pipe at soil-to-air interfaces, under thermal insulation, under dis-bonded coatings, at pipe supports, in splash zones, at deck penetrations, and in spans over water*  
*(c) If atmospheric corrosion is found during an inspection, the operator must provide protection against the corrosion as required by § 192.479.*

Title 49 CFR, Part 192, §192.479(a) states in part:

*Each operator must clean and coat each pipeline or portion of pipeline that is exposed to the atmosphere, ....*

Per SoCalGas Gas Standard (GS) 184.12 – Inspection of Aboveground Pipelines and Pipelines on Bridges and Spans, Section 1.1.1.1, Onshore: At least once every three calendar years, but with intervals not exceeding 39 months. Transmission Field Supervisors will review all inspection information when any condition is found by a “yes” answer on the “Bridge and Span Inspection Checklist” (Section 2.4.2.), generate and follow up any maintenance or repair work noted during the inspection, and ensure remedial action (Section 2.7) work orders and follow up orders as required. All orders for any remedial action must be issued within 30 days and completed within 90 days (Section 2.9).

SED requests SoCalGas provide a remediation plan to address work order anomalies identified in inspection at L3000 MP.20. Further, SED requests SoCalGas provide

inspection checklists, repair orders for remedial action and completion documentation for L3000 MP.20.

## Response & Actions:

After making initial repairs, SoCalGas created a new follow up work order (8234945) for all the repairs that could not be completed. SoCalGas was unable to repair the pipe wrap that was disbonded and the leg support in contact with the soil. A project request was submitted to make the final repairs on the span. A span inspection check list was created to document the repairs and the additional repairs to be completed.

## Time-Dependent Threats: External Corrosion - CP Monitoring (TD.CPMONITOR)

6. Question Title, ID	Cathodic Protection Criteria, TD.CPMONITOR.MONITORCRITERIA.O
Question	3. Are methods used for taking CP monitoring readings that allow for the application of appropriate CP monitoring criteria?
References	192.465(a) (192.463(a), 192.463(b), 192.463(c), Part 192, Appendix D)
Assets Covered	T: North Desert (87057 (49))
Issue Summary	On the January 12-13, 2023, Needles District Cathodic Protection Area (CPA) survey, SED observed SoCalGas personnel take Cathodic Protection (CP) monitoring readings per requirements of Part 192, Subpart I:

The following CP pipe-to-soil potentials (CP reads) exceed  $-2.00$  volts (V):

Line 235 Mile Post (MP) 10.87 ( $-3.681V$ )

Line 235 MP11.41 ( $-2.599V$ )

Line 235 MP10.15 ( $-2.125V$ )

Line 235 MP10.87 ( $-3.67V$ )

Line 235 MP11.41 ( $-2.66V$ )

Line 3000 MP25.58 ( $-2.99V$ )

Line 3000 MP25.58 ( $-2.99V$ )

Line 3000 MP42.47 ( $-2.075V$ )

Title 49 CFR Part 192, §192.463 (c) states,

*“The amount of cathodic protection must be controlled so as not to damage the protective coating or the pipe.”*

Per SoCalGas Gas Standard 186.0035, Section 4.3. CRITERIA - LIMITATIONS subsections:

*4.3.3. To prevent possible coating damage to effectively coated piping, a polarization potential of  $-1.20$  volts (Instant Off) should not be exceeded.*

*4.3.3.1. When P/S potentials are found to exceed  $-2.00$  volts, a test should be made to verify the polarization potential level.*

*·Test for stray current interference.*

*·Test for the polarization potential level (Instant Off).*

SED requests that SoCalGas verify the polarization potential levels for stray current interference and for the polarization potential level (Instant Off) per SoCalGas Gas Standard 186.0035, Section 4.3 and take the appropriate corrective actions to ensure that methods used for taking CP monitoring readings allow for the application of appropriate CP monitoring criteria for compliance with §192.463(c).

## Response & Actions:

Per Gas Standard 186.0035 testing was conducted by interrupting all known current sources and the instant off potentials were measured. All instant off potentials were more electropositive than -1.2 VCSE and the respective values can be found in the table below. Per the results, Integrity Management – Corrosion has no expectation of coating damage related to excessive cathodic protection current.

SED Inspection				SoCalGas Follow Up			
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