STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE

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March 17, 2015 GI-2015-01-SWG30-03

Jerry Schmitz
Vice President/Engineering
Southwest Gas Corporation
P. O. Box 98510, LVA-581
Las Vegas, NV 89193-8510

SUBJECT: General Order 112-E Inspection of Southwest Gas Corporation's Operation and Maintenance Plan

Dear Mr. Schmitz:

The Safety and Enforcement Division (SED) of the California Public Utilities Commission conducted a General Order 112-E inspection of Southwest Gas Corporation's (SWG) Operations and Maintenance Plan on January 12-15, 2015. SED's findings are noted in the Summary of Inspection Findings (Summary) which is enclosed with this letter. The attached Summary reflects only those particular written procedures that SED reviewed during the inspection.

Within 30 days of your receipt of this letter, please provide a written response indicating the measures taken by SWG to address the violations, and observations and concerns noted in the Summary. Pursuant to Commission Resolution ALJ-274, SED staff has the authority to issue citations for each violation found during the inspection. SED will notify SWG of the enforcement action it plans to take after it reviews SWG's inspection response.

If you have any questions, please contact Fred Hanes at (415) 703-5264 or by email at Fred.Hanes@cpuc.ca.gov

Sincerely,

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

Enclosure: Summary of Inspection Findings

cc: Erich Trombley, SWG, Manager/Engineering Staff
Jeanne Cardin, SWG Supervisor/Engineering Staff
Laurie Brown, SWG Administrator/Compliance Engineering
Bob Stoltz, SWG Administrator/Compliance Engineering
Dennis Lee, SED
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Fred Hanes, SED

SUMMARY OF INSPECTION FINDINGS

A. Inspection Findings and Violations

Title 49 Code of Federal Regulations (CFR) §192.605 Procedural manual for operations, maintenance, and emergencies, states in part:

"(b) 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.

(1) Operating, maintaining, and repairing the pipeline in accordance with each of the requirements of this subpart and Subpart M of this part..."

1. Title 49 CFR §192.745 Valve maintenance: Transmission lines, states in part:

   "Each transmission line valve that might be required during any emergency must be inspected and partially operated at intervals not exceeding 15 months, but at least once each calendar year."

   Title 49 CFR §192.747 Valve maintenance: Distribution systems, states in part:

   "Each valve, the use of which may be necessary for the safe operation of a distribution system, must be checked and serviced at intervals not exceeding 15 months, but at least once each calendar year."

   SWG's Operation and Maintenance (O&M) Manual effective date 12/31/14, Valves Procedure states in part:

   a) Page 1-1: "*Southwest Gas typically utilizes various valves for controlling flow:*" (and then shows pictures of Plug, Ball, Gate, and Needle steel valves).

      SED reviewed SWG's Valves Procedure, effective date 12/31/2011 and determined that it does not include procedures for operating, maintaining or repairing two of these valve types: gate and needle valves.

   b) Page 2-6, Table 2 mentions the "*CVT*" or Curb Valve Tee valve type.

      This table is the only mention of the CVT valve. The O&M manual does not give operating, maintenance, or repair procedures for the CVT valve type.

   SED determined the following:

   - SWG Valve Procedures must clearly state what types of valves are used in its system.
   - SWG must revise its procedures to include the valve operation, maintenance, and repair procedures and requirements for each type of valve used in its transmission and distribution systems.
   - SWG training material and instructions provided to its employees and contractor employees must contain detailed procedures on how to perform related covered tasks.

- SWG must communicate the changes to the procedure that affects the covered task to all its personnel performing the covered task, and re-qualify the affected personnel as necessary. If re-qualification is not needed, SWG must state the reason why conducting re-qualification is not necessary.

Please describe the corrective actions taken to address the deficiencies identified above and provide SED with a copy of the revised version of the Valve Procedures including the training material for the relevant covered tasks. If SWG determines that re-qualification is needed, please indicate the date when it plans to complete the re-qualification and the number of personnel to be qualified.

2. Title 49 CFR §192.751 Prevention of accidental ignition, states in part:

"Each operator shall take steps to minimize the danger of accidental ignition of gas in any structure or area where the presence of gas constitutes a hazard of fire or explosion, including the following:...

(b) Gas or electric welding or cutting may not be performed on pipe or on pipe components that contain a combustible mixture of gas and air in the area of work."

a) SWG's O&M Manual Pipeline Safety Procedures Section 2.1.2.4 states:

"Do not weld or flame-cut pipe or other facilities containing a combustible mixture of gas and air.
***NOTE:** This does not prohibit the "Fire Controlled" tie-in method. This method allows the welding operation to go on while gas is present at slightly higher than atmospheric pressure."*

b) SWG's O&M Manual Section Steel Welding Procedure Section 4.3.2 states:

"Step 4 Cut out the old section and install the new section of line. For pipe 6 in. and larger, the fire control tie-in method may be used."

SWG O&M manual does not contain a "Fire Controlled" tie-in procedure. SWG stated that "Fire Controlled" tie-in procedure remains to be a valid optional method to prevent accidental ignition during welding operation.

SED determined the following:

- SWG must add work procedures for the Fire Controlled tie-in method to the O&M manual.

- SWG training material and instructions provided to its employees and contractor employees must contain detailed procedures on how to perform related covered tasks.

- SWG must communicate the changes to the procedure that affects the covered task to all its personnel performing the covered task, and re-qualify the affected personnel as

necessary. If re-qualification is not needed, SWG must state the reason why conducting re-qualification is not necessary.

Please describe the corrective actions taken to address the deficiencies identified above and provide SED with a copy of the Fire Controlled tie-in procedures including the training material for the relevant covered tasks. If SWG determines that re-qualification is needed, please indicate the date when it plans to complete the re-qualification and the number of personnel to be qualified.

B. Observations and Concerns

1. Title 49 CFR §192.475 Internal corrosion control: General, states in part:

"(b) Whenever any pipe is removed from a pipeline for any reason, the internal surface must be inspected for evidence of corrosion. If internal corrosion is found– (1) The adjacent pipe must be investigated to determine the extent of internal corrosion"

SWG's O&M Manual Section 5.2.3.4 Corrosion Control Procedure states in part:

"If internal corrosion is discovered during pipe replacement, abandonment or repair, the extent of the internal corrosion shall be documented and the Division/District Corrosion Control personnel informed. Engineering will conduct an assessment/ evaluation of the pipe condition; and the pipe may be replaced to remove the affected pipe to restore the integrity of the pipeline."

SWG's procedure states that "Engineering will conduct an assessment/evaluation of the pipe condition". While it may be implied that such assessment would include adjacent pipe, SED recommends that SWG explicitly state in its procedure that "adjacent" pipe will be included in the assessment/evaluation.

2. Title 49 CFR §192.487 Remedial measures: Distribution lines other than cast iron or ductile iron lines, states in part:

"(a) General corrosion. Except for cast iron or ductile iron pipe, each segment of generally corroded distribution line pipe with a remaining wall thickness less than that required for the MAOP of the pipeline, or a remaining wall thickness less than 30 percent of the nominal wall thickness, must be replaced. "

SWG's O&M Manual covers this code requirement within the Steel Welding Procedures, Repair section 4.6.2. The requirement for remediation of pipe with less than 30 percent of the nominal wall thickness has been interpreted by SWG as a defined wall thickness of 0.10 inch in the Table of section 4.6.2. SWG explained that the table was prepared with the knowledge that any pipe used, under the circumstances, would have a wall thickness such that 0.10 inch would always be greater than 30 percent of wall thickness; thus, the criteria was more conservative than code.

SED recommends that the Table should clearly state the assumptions made about pipe wall thickness or reference the standard that contains material properties of pipelines used in SWG's distribution system, to clearly demonstrate how it determined that the 0.10 inch wall

thickness criterion sufficiently addresses the requirement of Title 49 CFR §192.487(a). Further, SED suggests that these remedial procedures be moved to the "Remedial" chapter of the O&M manual.

3. Title 49 CFR §192.605 Procedural manual for operations, maintenance, and emergencies, states in part:

"(a) 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...This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least once each calendar year..."

a) During the inspection, SWG presented their flow chart that details actions for O&M Manual reviews and updates.

SED recommends that the flow chart should be included within the O&M Manual Section 1 that contains SWG annual O&M review.

b) SWG's O&M review and procedures do not specify how they make updates to the Manual in response to a Title 49 CFR or General Order 112-E requirement change, Pipeline and Hazardous Materials Safety Administration (PHMSA) Advisory Bulletin, or safety-related conditions that may require a more timely revision than the annual update.

SWG related that they respond promptly to such requirements on an ad hoc basis. SED recommends that SWG should add specific procedures to the O&M Manual for updating the O&M Manual in case of immediate safety concerns. SWG should consider the list in its Distribution Integrity Management Program Plan Section 6.2.3, as possible sources that could trigger such updates:

i. Membership or participation in local, regional or national trade associations, including workshops, meetings and other forums;
ii. Networking with peer companies;
iii. Manufacturers of gas carrying materials;
iv. Relevant regulatory agencies;
v. Gas distribution pipeline journals and magazines;
vi. PHMSA Advisory Bulletins; and
vii. The National Transportation and Safety Board (NTSB) Reports and Recommendations applicable to natural gas pipelines.

4. Title 49 CFR §192.243 Nondestructive testing, states in part:

"(b) Nondestructive testing of welds must be performed:... (2) By persons who have been trained and qualified in the established procedures and with the equipment employed in testing"

SWG's Steel Welding Procedure 6.1.6 states in part:

"The radiographic contractor may be allowed to do production radiography for the Company only if:

- *All of the required licenses and permits are in order"*

SED recommends the Procedure should describe how SWG verifies that radiographic contractor personnel possess the necessary licensing to perform the expected level of work.