



SOUTHWEST GAS CORPORATION

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August 11, 2014

Delivered Via Electronic Mail

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RE: *Hazard Analysis and Mitigation Report on Aldyl A Polyethylene Gas Pipelines in California*

Southwest Gas Corporation (Southwest Gas or Company) appreciates the effort of the Safety and Enforcement Division (SED) in preparing the detailed *Hazard Analysis and Mitigation Report on Aldyl A Polyethylene Gas Pipelines in California* (Report), and respectfully submits the attached responses to the recommendations and questions contained therein. The only Aldyl A pipe contained in Southwest Gas' California service territory is in its South Lake Tahoe distribution system, which was acquired from Avista Utilities in 2005. Due to the limited amount of known Aldyl A pipe (approximately 32 miles of main) in its California system, the Company believes that the attached responses will adequately serve as the Company's proposal for addressing the recommendations and questions contained within the Report. Moreover, Southwest Gas acknowledges that there are certain differences in each operator's system and that a "one-size-fits-all" approach such as Southwest Gas' response to the Report's recommendations and questions may not be practical in all instances.

In addition, Southwest Gas wishes to correct a misstatement in the Report. On page 14, it is stated, "SWG does not use a segmentation process as do PG&E and SEMPRA. Instead, SWG manages each potential threat affecting a pipeline separately by using a program called SHRIMP, which stands for Simple, Handy, Risk-based Integrity Management Plan..." Southwest Gas utilizes a pipe segmentation and relative risk ranking process not unlike the other utilities as described in the Report.



Southwest Gas appreciates the opportunity to respond to SED's Report.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Haine', with a large, stylized flourish at the end.

cc: Steven Haine, P.E.
Senior Utilities Engineer
Safety and Enforcement Division

Services Lists in A.12-12-024 and R.11-02-019

Southwest Gas Corporation
(U 905 G)
Responses to
Recommendations and Questions in
*Hazard Analysis and Mitigation Report on
Aldyl A Polyethylene
Gas Pipelines in California*

REPORT RECOMMENDATIONS

1. **Operators should develop a more robust asset knowledge and material traceability program on their gas distribution assets.** This is consistent with the requirements and intent of PHMSA's DIMP regulations. Not knowing the system directly contradicts the spirit, if not the letter, of the DIMP regulations. Following the San Bruno tragedy, PG&E has made great strides in this area on the gas transmission side, but all operators are still deficient on material traceability and asset knowledge on the gas distribution side.

Southwest Gas Response:

Southwest Gas agrees that more robust asset knowledge and material traceability is warranted for distribution assets. In keeping with both the spirit and letter of the DIMP regulations, Southwest Gas has processes in place to routinely increase its system knowledge. Southwest Gas currently documents material size, type and grade within its pipeline mapping system. Southwest Gas also participates in various industry organizations and is actively involved in the development of standards to promote tracking and traceability activities. For example, Southwest Gas was involved with the development of ASTM F2897 (Standard Specification for Tracking and Traceability Encoding System of Natural Gas Distribution Components) and actively participates in ASTM's F17 Committee on Plastic Piping Systems. ASTM F2897 will allow for the tracking of components through the use of barcoding technology. The barcoding will record the following information related to the manufacturing of the pipe or component:

- Manufacturer Information
- Lot Number
- Production Date
- Material
- Component Type
- Size

One of the challenges to implementing the F2897 standard is that not all manufacturers have developed the means to comply with the new barcoding standard. Nevertheless, Southwest Gas is developing a process to incorporate the new standard and gather the information for new projects. This is currently a voluntary standard and has not been incorporated by reference as part of 49 CFR, Part 192.

Further, although the DIMP regulations do not contain operator requirements for traceability, Southwest Gas has been working with its material suppliers (specifically,

R.W. Lyall and Performance Pipe) to implement material markings that will allow for improved tracking and traceability.

With regard to the Aldyl A (AA) pipe in Southwest Gas' South Lake Tahoe service territory, Southwest Gas is enhancing its knowledge of that pipe by: 1) conducting dig and inspect activities (D&I) of all Avista acquired services; 2) recording pipe material at every excavation; 3) using internal cameras prior to AA main replacement to verify material; 4) reviewing records to determine if mapping updates are required based on field discoveries. Finally, Southwest Gas understands that PHMSA is moving forward with and Southwest Gas supports rule changes to advance material traceability as seen in Docket PHMSA-2014-0006 titled, "Pipeline Safety: Issues Related to the Use of Plastic Pipe in Gas Pipeline Industry."

2. **Operators should develop a strategy for better integrating supply chain information (e.g. resin type, manufacturing date, lot number, and other manufacturing data that are typically available during the purchase of materials).**

Southwest Gas Response:

Southwest Gas agrees that operators should develop a strategy to integrate supply chain information. In addition to the information provided in the response to Recommendation 1, Southwest Gas is currently developing a strategy for deployment of a comprehensive tracking and traceability program that will further integrate supply chain information. Southwest Gas receives information for its polyethylene pipe that contains the resin type, manufacturing date, lot numbers, and manufacturing location.

3. **Where feasible, operators should make use of opportunistic identification to determine whether an exposed pipe segment is of Aldyl A or some other materials and, if it is Aldyl A, whether the pipe has LDIW characteristics whenever sections are cut out.**

Southwest Gas Response:

Southwest Gas agrees and takes every opportunity to confirm the accuracy of its materials data in the course of performing operation, maintenance, and capital work. Materials data resident in the mapping system is updated according to the Abnormal/Unusual Operating Conditions Procedure in Southwest Gas' Operations Manual.

Additionally, Southwest Gas' efforts specific to identifying AA pipe in its South Lake Tahoe system since the Company acquired it from Avista in 2005 include: 1) conducting D&I activities of all Avista acquired services; 2) recording pipe material at every excavation; 3) using internal cameras prior to AA pipe main replacement to verify material; 4) reviewing records to determine if materials data updates are required based on field discoveries.

Finally, South Lake Tahoe is the only location within Southwest Gas' California distribution system that contains AA pipe. Moreover, its South Lake Tahoe distribution

system does not contain any known AA pipe installed prior to 1973. As such, Southwest Gas does not have any known LDIW AA pipe in its California distribution system.

4. **Operators should react expeditiously to manufacturer warnings and PHMSA safety advisories.**

Southwest Gas Response:

Southwest Gas agrees and responds to manufacturer warnings and PHMSA safety advisories as expeditiously as possible.

5. **Operators should re-examine their risk assessment and mitigation strategies to ensure they will be replacing the at-risk pipes at a sufficient rate to mitigate the risk associated with LDIW Aldyl A pipes due to squeeze-offs and to pre-1983 non-LDIW pipes due to rock impingement.**

Southwest Gas Response:

Southwest Gas has a robust risk assessment and mitigation strategy for the replacement of at-risk pipes. Southwest Gas is committed to replacing at-risk pipe and ensuring pipeline safety, which is evident in the leak rates associated with its distribution systems. Southwest Gas' leak rates are some of the lowest in the nation. At a minimum, Southwest Gas evaluates its pipeline risk assessment and mitigation strategies annually. The evaluation includes a review of the leaks per mile observed for the various material types in Southwest Gas' distribution systems. Replacement activities then target at-risk pipeline segments as part of Southwest Gas' assessment process. In addition to replacement and monitoring of leak rates, Southwest Gas conducts more frequent (accelerated) leak survey of its pre-1983 non-LDIW AA and Polyvinyl Chloride (PVC) facilities. Southwest Gas has not encountered evidence of rock impingement or rocky backfill that could act as stress intensifiers on its pre-1983 non-LDIW AA pipe.

Moreover as noted in the response to Recommendation 3, Southwest Gas' South Lake Tahoe distribution system does not contain any known AA pipe installed prior to 1973. As such, Southwest Gas does not have any known AA pipe with LDIW characteristics in its California distribution system.

6. **Operators should, if not already doing so, explicitly consider the impacts of at-risk Aldyl A pipes in their next risk assessment and mitigation strategies provided to the Commission.**

Southwest Gas Response:

As indicated in the response to Recommendation 5, Southwest Gas' risk assessment and mitigation strategies address the risks associated with AA pipe.

7. **When acquiring systems, operators should ensure relevant pipeline records are transferred as a condition for final acquisition of a system.**

Southwest Gas Response:

Southwest Gas agrees that operators should make every effort to ensure all relevant pipeline records are transferred as a condition of the final acquisition. When the Commission approved the acquisition of South Lake Tahoe facilities from Avista, it was based on the records available. As described in the response to Recommendation 3, Southwest Gas has undertaken additional actions to verify the accuracy of those records.

QUESTIONS

1. **What actions will the operator take to remedy the historical deficiencies in asset knowledge with respect to Aldyl A pipes highlighted in this paper?**

Southwest Gas Response:

As stated in the response to Recommendations 1 and 3, Southwest Gas is actively pursuing an AA pipe identification process in its South Lake Tahoe service area acquired from Avista. This identification process is scheduled to be completed in 2016.

2. **What actions will the operator take to address the different waves of expected failures on Aldyl A pipes due to the different stress intensifiers acting on the different vintages of pipes given the historical deficiencies in asset knowledge? The operators should not limit themselves to only the intensifiers we highlighted in this report.**

Southwest Gas Response:

Southwest Gas does not anticipate a “wave of failures” as discussed in the Report. In the course of performing D&Is and camera inspections, Southwest Gas has not encountered evidence of rock impingement or rocky backfill that could act as stress intensifiers on its AA pipe. Also, Lake Tahoe is not considered a high heat area. This is significant in that elevated pipe wall temperature adversely impacts the predicted Mean-Time-To-Failure determined by the Rate Process Method mentioned in the Report. Further, LDIW AA pipe has been identified as having the highest failure rate due to stress intensifiers and lowest resistance to slow crack growth and as previously noted, Southwest Gas does not have any known LDIW AA pipe in its California distribution system.

Additionally, Southwest Gas has a Company-wide early vintage plastic pipe (EVPP) replacement program, which includes the replacement of AA pipe, and aims to have all EVPP replaced by 2026. In addition to replacing pipe and monitoring leak rates, Southwest Gas conducts accelerated leak survey of its AA systems.

In its most recent general rate case application (A.12-12-024), Southwest Gas made a proposal to accelerate the replacement of its AA in South Lake Tahoe. Under this proposal, all of its known AA pipe in South Lake Tahoe would have been replaced by 2018. However, in its final decision, the Commission did not accept Southwest Gas' proposal. Accordingly, the Company plans to continue replacement of AA pipe in South Lake Tahoe in a manner consistent with its EVPP replacement plan.

3. **In what forum (e.g. a general rate case or a separate application) will each operator intend to address the mitigation of the potential hazards posed by early vintage Aldyl A pipes?**

Southwest Gas Response:

As discussed in the response to Question 2 above, Southwest Gas does not anticipate a significant increase of AA pipe failure and therefore is not anticipating a significant increase in activity related to mitigation efforts. The Company's current rates support the anticipated pipeline integrity management activity. However, if circumstances change and Southwest Gas finds that it must increase its activities to address AA pipe issues, the Company could seek authority to utilize its Infrastructure Reliability and Replacement Adjustment Mechanism to address unforeseen incremental costs or petition the Commission to establish a regulatory asset through a memorandum account to record and recover the incremental costs.