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ORIGINAL

Letter of Concern and Notice of Necessity for Improvement

June 17, 2008

Mr. James F. Wunderlin, P.E.
Vice President/Engineering
Southwest Gas Corporation
5421 Spring Mountain Road
Las Vegas, NV 89150-0002

Arizona Corporation Commission

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G-01551A-07-050

Dear Mr. Wunderlin:

This letter is being written to address certain issues that the Arizona Corporation Commission ("ACC") Office of Pipeline Safety ("OPS") Staff have been researching, discussing, and addressing with Southwest Gas Corporation ("Southwest") over the past months.

I. History and Background

Each year, ACC Pipeline Safety Staff ("Staff") performs a code compliance audit on Southwest's pipeline system in Arizona. The purpose of the audit is to ensure that Southwest is in compliance with state and federal pipeline safety regulations. The annual audit consists of a review of the Operations and Maintenance Plan, Emergency Plan, Anti-Drug and Alcohol Prevention Programs, a random review of records, and a field inspection of Southwest's pipeline facilities. The relevant events that occurred over the past several audits are outlined below:

- Between January 18 and March 18, 2005, Staff conducted the annual Southwest code compliance audit for 2005. During this audit, it was discovered that (1) in the Paloma Ranch area within the Yuma District, Southwest had failed to conduct cathodic protection ("CP") monitoring at all required test points on the pipeline system, as required by 49 CFR 192.465, and (2) in the Tucson District, Southwest had failed to take prompt remedial action to correct deficiencies identified by CP monitoring, as required by 49 CFR 192.465(d).
- Following the 2005 audit, an exit meeting was held on April 18, 2005 between Southwest and Staff. At this meeting, each probable non-compliance item, including supporting exhibits, was reviewed with Southwest personnel. Southwest personnel were provided copies of the 2005 audit report, including exhibits, and were given a full opportunity to question Staff in regard to each finding.

- On May 18, 2005, Southwest responded by letter to each audit finding. In its response, Southwest personnel acknowledged the deficiencies and stated that each finding had been corrected or that Southwest's procedures would be modified to correct the deficiencies.
- On May 23, 2005, Staff responded by letter, accepting Southwest's written response to the 2005 code compliance audit findings.
- Between January 18 and March 24, 2006, Staff conducted the annual Southwest code compliance audit for 2006. During this audit, it was discovered that Southwest had failed to conduct CP monitoring at all required test points on the pipeline system, as required by 49 CFR 192.465. Inadequate monitoring was identified in the greater Phoenix area, Wickenburg, and Parker. Additionally, it was noted on the Audit report that Southwest had failed to take prompt remedial action to correct deficiencies identified by CP monitoring in the Manors Subdivision within the Yuma District, as required by 49 CFR 192.465(d).
- Following the 2006 audit, an exit meeting was held on April 24, 2006 between Southwest personnel and Staff. At this meeting, each probable non-compliance item, including supporting exhibits, was reviewed with Southwest personnel. Southwest personnel were provided copies of the 2006 audit report, including exhibits, and given a full opportunity to question Staff in regard to each audit finding.
- On May 23, 2006, Southwest responded by letter to each audit finding. In its response, Southwest stated that it would revise its Operations and Maintenance Manual to require all CP test stations to be monitored once each calendar year with intervals not exceeding fifteen months. Additionally, Southwest stated that it would revise its Corrosion Control Policy to require all remedial action to be completed within one year.
- On May 24, 2006, Staff responded by letter, accepting Southwest's written response to the 2006 code compliance audit findings.
- In September of 2006, Southwest compliance personnel performed an internal audit of the Yuma District in preparation for Staff's 2007 audit. When Southwest compliance personnel were told by Southwest Yuma District employees that CP readings were not available, the compliance personnel did not follow-up in any way to this deficiency. They apparently assumed that the CP readings were to be conducted later.

- On January 26, 2007, Southwest notified Staff of an unusually large number of corrosion leaks in the Manors Subdivision in Yuma, Arizona. These leaks required evacuation of a number of residences. This area had been identified
- during the 2006 code compliance audit as one in which prompt remedial action had not been taken to correct a deficiency identified by CP monitoring.

- Due to the extensive number of leaks and the amount of corrosion on the pipeline, Southwest decided to immediately replace the entire steel pipeline system in the Manors Subdivision.

- In early 2007, Staff communicated with Southwest personnel in order to schedule Staff's annual code compliance audit. In order to ensure that Staff could efficiently perform its audit, Staff asked Southwest to have certain documents, including CP documentation, available at each inspection site. Staff communicated this request to Southwest on February 1, 2007, approximately two weeks before Staff's planned arrival in Yuma, thereby providing the Company with notice as to the Yuma District documents that Staff intended to review.

- On February 14, 2007, while Staff was conducting the Southwest annual code compliance audit, it was discovered that Southwest personnel were unable to provide the previously requested documentation to demonstrate that CP monitoring had been conducted in the Yuma District.

- Southwest personnel subsequently informed Staff that the records were missing. Southwest acknowledged the absence of these records as a deficiency in the Yuma CP program and immediately began an investigation into the cause and extent of the problem. Of the seventy-eight monitored CP systems in the Yuma area, records for twenty-four systems could not be located. Southwest management identified a single employee as the root cause of the failure to conduct the required monitoring.

- On April 30, 2007, Staff provided Southwest with a copy of the 2007 audit report. The report noted that each pipeline under cathodic protection must be tested at least once each calendar year, with intervals not exceeding fifteen months. The report further noted that, for twenty-four control areas in the Yuma District, no documentation was available during the audit to demonstrate that a cathodic protection survey had been conducted during the 2006 calendar year.

- On May 29, 2007, Southwest reported to Staff that the incorrect installation of a CP rectifier (reverse polarity electrical connection) was the major contributing factor in the corrosion failure of the Manors System. Southwest claims that this rectifier was maintained and initialized by the same Southwest employee who was responsible for the Company's failure to conduct the CP monitoring in 2006.

II. Summary of Compliance Issues

The 2005, 2006, and 2007 Staff audits all noted deficiencies with the Company's performance regarding required CP readings.

In part, Southwest claims to have relied solely on one employee to assure that certain critical monitoring functions (CP readings) and proper installation of cathodic protection equipment (CP rectifier) were completed in the Yuma District. Southwest did not have in place critical safety internal controls to ensure that equipment was properly installed and that readings were taken as required. The Southwest compliance/internal audit function failed to indicate a problem prior to Staff's annual audit.

III. Southwest's Remediation Efforts

On May 30, 2007, Southwest provided a letter to Staff with responses to all 2006 audit findings. In that letter, Southwest acknowledged that documentation regarding cathodic protection reads was missing in twenty-four of the seventy eight control areas in the Yuma District in 2006. Southwest's letter also stated that it had completed the following remedial actions:

- In February 2007, in addition to completing readings of the twenty four control areas of the Yuma District unaccounted for in 2006, Southwest personnel also re-read the fifty four control areas that had been read in 2006 in order to perform a comprehensive evaluation of the system as a whole. This remediation effort in the Yuma District was completed by mobilizing additional resources from the Tucson and Valley Districts.
- The Yuma District corrosion control work group was reorganized. Changes to the department personnel included a new Technical Services Supervisor as well as a new Corrosion Field Technician.
- Appropriate management personnel for the Southern Arizona Division received training in the use of reports for tracking and monitoring operations and maintenance activities, including those related specifically to cathodic protection.
- An intense focus in the WMS was placed on the supervisory review of all operations and maintenance work activities to ensure that these activities are completed within the required timeframe.

- Southwest engineering staff also conducted a cathodic protection evaluation survey of the entire Yuma District system. Recommendations were made, and Southwest's engineering staff will continue to work with the Yuma District to help ensure a high level of integrity in the cathodic protection system.

IV. Summary

The facts set forth herein demonstrate that Southwest failed to comply with CFR §192.465(a), which mandates that "[e]ach pipeline that is under cathodic protection must be tested at least once every calendar year, but with intervals not exceeding 15 months, to determine whether the cathodic protection meets the requirements of 192.463," and CFR

§192.491, which provides that records must be maintained to demonstrate the adequacy of corrosion control measures or that a corrosive condition does not exist. It appears that, during 2006, Southwest failed to conduct any cathodic protection monitoring on twenty-four control areas in the Yuma District. Additionally, by relying on a single employee for the maintenance and monitoring of the Yuma District CP system, and by not providing proper oversight, Southwest created a situation which led to the premature failure of the Manors Subdivision distribution system. As stated earlier in this letter, "[t]his area had been identified during the 2006 code compliance audit as one in which prompt remedial action had not been taken to correct a deficiency identified by CP monitoring," in violation of CFR 192.465(d).

Nonetheless, through subsequent meetings and conversations with Southwest management, Southwest has demonstrated a willingness to address each of the issues noted in this letter. Staff has reviewed documents, records, and revised policies and procedures provided by Southwest to verify that Southwest is adequately addressing these issues. Additional follow-up to these issues was conducted during the 2008 annual audit of Southwest, and Staff notes that significant progress has been made by Southwest in this area.

This letter is intended to memorialize both Southwest's past compliance issues in the area of cathodic protection and Southwest's subsequent actions to correct these issues. It is also the purpose of this letter to inform Southwest of the actions that Staff believes must be taken to comply with current federal and state regulations and to prevent a recurrence of the compliance issues identified in this letter.

As pipeline corrosion is one of the leading causes of pipeline failures, Staff cannot stress strongly enough the importance of properly monitoring and maintaining CP on each and every section of buried steel pipeline. Understanding that Southwest shares this opinion with Staff does not lessen the need for regulatory oversight, nor does it excuse Southwest for any failure to comply with federal and state regulations.

Staff recommends that Southwest take the following actions:

- Develop and implement a quality assurance program to ensure that all maintenance and operations duties are completed as required and when required. This program must include, at a minimum, the following features: (a) an enhanced internal inspection process to ensure that the Company's internal inspections identify problems and (b) a periodic random review by subject matter experts from outside the district being reviewed. In addition, the program must be established in a way that does not rely on a single point of contact for completion of tasks that are critical to the safe operation of the pipeline. This program should be included within the Company's safety manual and will be reviewed by Staff during the next annual audit.
- Develop and implement a consistent state-wide record-keeping system for all required maintenance and operations records. The Company's record-keeping system must positively identify each task that has not met its mandatory compliance date. This information must then be forwarded to Southwest compliance personnel for investigation, evaluation, and resolution. These reports shall be maintained and made available to Staff upon request.
- Develop and implement written procedures to ensure that personnel responsible for conducting internal reviews and inspections are provided full unencumbered access to all files, records, and documents necessary to complete their duties.
- Conduct a complete and comprehensive review of all cathodic protection policies, procedures, and operator qualification programs. As part of this review, special consideration must be given to the monitoring of CP readings on short sections, the determination as to whether the CP remains adequate, and the remedial action to be taken to correct any low readings. This remedial action shall include an investigation as to why the CP readings were low and why the CP was not adequate to provide protection until the next scheduled monitoring cycle. Southwest shall use the results of the review to revise its procedures related to cathodic protection. These revised procedures shall be included within the Company's safety manual.
- Submit a detailed report of all actions taken to date to correct audit findings relating to cathodic protection from the 2007 audit.

Based on discussions with Southwest personnel, it is Staff's understanding that Southwest will adopt all of the foregoing Staff recommendations. In light of Southwest's remediation efforts, its acceptance of Staff's recommendations, and the results of its recent audit, the only action that Staff proposes to take at this time relates to the Manors Subdivision. Specifically, OPS Staff will recommend the disallowance of costs related to the replacement of the Yuma Manors Subdivision steel pipeline system in the Southwest

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Rate Case (Docket # G-01551A-07-0504). Staff is working with the ACC Utilities Division to pursue these disallowances. Under the current circumstances, Staff has no plans at this time to pursue any other penalties, including civil penalties, against Southwest for any of the cathodic protection issues referenced in the 2005, 2006, and 2007 audits.

Staff appreciates the cooperative nature of the conversations and meetings that have taken place to date concerning these issues as well as other safety issues and looks forward to a continued association based on this cooperation.

Sincerely,



David Raber
Director
Safety Division



Robert E. Miller
Pipeline Safety Supervisor
Pipeline Safety Section