

DOCKET

09-AFC-3

DATE

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State of California
State Energy Resources Conservation and Development Commission

In the Matter of:)	Docket # 09-AFC-03
)	
Mariposa Energy Project)	
)	Robert Sarvey's Rebuttal
)	Hazardous Materials
_____)	Exhibit 413

CPUC Proceeding C. 07-03-006 PG&E Data Response Page 0296, 297, 300

scrubber at a fossil plant.
Thanks.
Shan

From: Eastman, Alan
Sent: Thursday, February 22, 2001 7:40 AM
To: Davis, Doug; Katz, Michael; Anderson, Don (Gas Distribution); Bhattacharya, Shan
Cc: CGT GsmTs Leadership Team; CGT GsmTs System Integrity; Blevins, Wayne; Johnson, Kirk; Hogenson, Todd; Thomas, Dan (CGT Dir); O'Donnell, Michael; Chrisco, Gary; Dauby, Frank; Bowers, Bob; Teare, Mike; Aguiar, David; Ladendorff, Ernie
Subject: Results of excavations and pipe inspections on Line 002

Doug and others,

Yesterday inspections were completed in the area that was previously reported by the smart pig contractor, PII, to contain potentially unacceptable corrosion. PII sized the worst area of corrosion to be approximately 25 inches in length, containing numerous aligned pits as deep as 78% through wall. Even though they insisted the reported sizes of this and other corroded areas were conservative, until some validation inspections were performed to better quantify the level of conservatism in the interpreted sizes we assumed the worst case scenario, and as previously reported reduced the operating pressure of the line commensurately.

Inspections performed in the area described above found a 26 inch long corroded area, with numerous aligned pits. The deepest two pits in the area measured approximately .195 inches deep (which includes adding .010 inches to the actual pit measurement of .185 inches to account for minor general corrosion around the area). Pitting .195 inches deep represents a 61% maximum wall loss (.322 wall pipe), therefore confirming a level of conservatism in the reported sizes from the pig. Other pitting in this area ranged in depth from .060 inches to .170 inches deep. The area was extensively mapped and subsequently analyzed using R-Streng, which is the remaining strength analytical methodology referenced by part 192. This analysis indicated the pipeline could safely operate up to 946 psig, which includes the necessary design factor of safety for this area. **Since the pipeline currently has a design maximum allowable operating pressure of 890 psig, the area was found acceptable in the as-is condition without repair.** Please note, that the corroded area was very conservatively mapped and analyzed, not fully utilizing allowable proximity rules. If used, more accurate modeling of the corroded area would yield even higher safe allowable operating pressures.

Another area near the area described above was also excavated and inspected. As reported by the pig data, an area of corrosion containing roughly 30% pitting was found. The pig data for this area reported this area to contain pitting less than 50% through wall. This finding also confirms conservatism in the reported flaw sizes from the pig.

Plans at this point include a thorough sandblasting of both areas, and the application of a superior coating. Since GSO has reported that continuing to keep the pressure of the line at 530 psig does not cause any operational issues, the pressure will not be raised until the work to recoat these areas is complete.

Frank Dauby will transmit the as-found data back to PII, and they will adjust their data interpretation algorithm accordingly. They will then re-evaluate the remaining 22 miles of pig data, and will provide us a modified report of the deepest areas of corrosion on the pipe. Since we went after the worst case corroded area, it is not expected that additional excavations will be immediately required. However, Frank will work with the team to identify areas that will need to be excavated, inspected, and recoated in the future. Even though all of the reported corroded areas should meet the R-Streng criterion, to ensure longer term pipeline reliability, we will want to inspect and arrest selected corroded areas.

and repair the coating. Additionally, another smart pig run to complete the original planned inspection of line 002 will occur later this year.

Sunil Shori and Dennis Lee of the CPUC Safety Branch were on-site for the majority of this exercise. All of their questions and/or concerns were fully addressed, and I believe they learned a significant amount about our work on this pipeline, including past, present and future planned work. Upon leaving Sunil stated that this work helped him gain more confidence in smart pigging, and the above ground electrical surveys that partially prompted our decision to run the pig.

I also share this same perspective. As per the analysis described above, the corroded area that was found did not represent an immediate threat to pipeline safety. However, if left unchecked, at some point in the future this area would have compromised the safety of the pipeline.

Every team member involved in this job significantly contributed to bringing clarity to the suspected safety related condition, in a very timely manner. All are to be commended for their efforts.

Any questions or comments are welcomed.

Alan

Summary

In 2000, California Gas Transmission's (CGT) Gas System Maintenance and Technical Services Department (GSM&TS) transitioned from Pacific Gas and Electric's Pipeline Replacement Program to its Pipeline Facility Risk Management Program. This transition was presented to the CPUC at a March 24, 2000, meeting in which GSM&TS detailed its program. The transition enabled GSM&TS to use its Pipeline Facility Risk Management Program to prioritize all 6,000 miles of numbered transmission pipelines and a larger portion of its capital and expense budget to reduce the likelihood of pipeline facility incidents. For a more detailed presentation of the transition and its benefits, see Appendix D.

During the previous three years, GSM&TS spent \$7,300,000, on average, to annually abandon and replace 15 miles of pipeline. In 2000, the risk management program was used to allocate \$14,312,697 on 80 voluntary risk reduction projects. The integrity of over 500 miles of pipeline were either verified or improved, 20 miles of pipeline were deactivated or replaced, and 18 regulating stations were upgraded. As a result of these efforts, the average systemwide risk level dropped 1.5%.

The current systemwide risk statistics and summaries of the risk reduction projects and pipeline incidents are given in Appendix A. However, the following discussion will highlight several significant projects and provide more information concerning Appendix A's statistics.

Significant Projects

L-302E Smart Pigging – L-302E was the first pipeline CGT smart-pigged to verify pipeline integrity. Twelve miles were cleaned and smart-pigged because of the high frequency of internal corrosion leaks and Calpine's need for highly reliable gas service to two key power plants. As a result of the pigging, 11 sections were repaired and approximately 4000 feet of pipeline were replaced that contained unacceptable flaws.

L-002 Smart Pigging – Seventy-five miles of L-002 were selected because of the cathodic protection interference and the potentially large failure consequences from oil pipelines in the vicinity to the pipeline. GSM&TS was concerned that the cathodic protection interference might be initiating rapid external corrosion of the pipeline. Unfortunately, the smart pig malfunctioned after the first 22 miles, so another run is scheduled for 2001. However, the pig data for the first 22 miles were reviewed, and two of the worst locations were exposed to verify the results. The data revealed that the pipeline was experiencing accelerated external corrosion but not to the point requiring a pressure reduction. The smart-pig run for 2001 will provide integrity verification for the rest of the 75 miles and allow GSM&TS to excavate and repair any locations of concern.

Direct Assessment – GSM&TS initiated a major effort to use direct assessment methods to analyze the integrity of its pipelines. Depending upon the situation and the expected damage, GSM&TS utilized close interval surveys (CIS), direct current voltage gradient readings (DCVG), and depth surveys to analyze the effectiveness of their cathodic protection systems and to identify coating damage. In 2000, over 397 miles of pipeline (5%) were evaluated. These evaluations resulted in initiating coating repair, cathodic protection upgrades and future smart-pigging projects.