

## Appendix B: Conclusions of Law & Violations

1. Under the Integrity Management rules, PG&E must have documented proof that an operator meets all the requirements of TIMP, including data collection, review and analysis. 49 CFR § 192.917
2. Record keeping is essential to this process because operators must both consider all available information about the pipeline, and document each of step of its decision making process. 49 CFR 192.917(b).
3. The TIMP regulations require operators to collect and integrate all relevant data. Specifically, operators must “consider both on the covered segment and similar non-covered segments, past incident history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, internal inspection records and all other conditions specific to each pipeline.” 49 CFR 192.917(b).
4. Under ASME B.31.8S section 2.3.2, PG&E should have reviewed all information necessary to understand the condition of the pipe, identify the location-specific threats to its integrity, and understand the public, environmental, and operational consequences of an incident. Relevant information to consider include the operation, maintenance, patrolling, design, operating history, and specific failures and concerns unique to each system and segment.
5. Under ASME B.31.8S § 4.4, earlier data is relevant to stable and time independent threats (such as manufacturing and construction defects), and should be included as part of an operator’s data collection, review and analysis.
6. PG&E failed to collect and analyze relevant data, failed to use conservative assumptions when it lacked pertinent data, underestimated the potential threat posed by manufacturing and construction defects and failed to appreciate the effect of cyclic fatigue and interactive threats on those pipeline threats. 49 CFR 192.917(b).
7. Based on available inspection and weld memoranda, PG&E should have known that certain segments of Line 132 originally installed in 1948 probably contain seam weld defects and that one such segment had even experienced seam failure. 49 CFR 192.917(b).
8. Under the TIMP regulations, an operator must identify of all potential threats to covered pipeline segments; select a proper assessment method to ensure the integrity of the line pipe, including explain why the assessment method was selected; and provide a schedule for completing the assessments. 49 CFR § 192.919.
9. PG&E failed to select proper assessment technologies to assess all potential threats in its system. 49 CFR 192.919(a).
10. PG&E should have reviewed its records for other similar pipe segments installed at approximately the same time to determine the extent of the quality control issue. 49 CFR 192.917(b).
11. PG&E’s failure to consider these reports demonstrates that PG&E did not perform the proper data gathering and integration required. 49 CFR 192.917(b).
12. PG&E should have documented how it evaluated and took conservative steps to address the fact that these reports suggest that defects may also be present on similar of pipe vintages. ASME B.31.8S section 12.1.
13. PG&E rendered segments with manufacturing defects on Lines 101 and 109 in San Francisco unstable by exceeding the five-year MOP of Line 101 and the MAOP of Line

109. As a result, these segments should have been prioritized for a hydrostatic pressure test and in-line inspection assessment. 49 CFR 192.917(e)(3) and (e)(4).
14. These pressure increases also exacerbated the threat of cyclic fatigue on these lines, and PG&E should have prioritized these segments for assessment. 49 CFR 192.917(e)(2).
  15. Prior to September 9, 2010, PG&E failed to consider the threat of cyclic fatigue in its TIMP. 49 CFR 192.917(e)(2)
  16. Prior to September 9, 2010, PG&E failed to consider the interactive nature of threats in its TIMP. 49 CFR 192.919(a).
  17. PG&E's emergency response was ineffective on the night of September 9, 2010. 49 CFR 192.615(a).

### **Violations**

- A. PG&E failed to consider and document its analysis of the March 1, 1989 weld memorandum showing pre-service cracks in the longitudinal seam of Line 132 in its TIMP. (on-going violation of 49 CFR 192.917(b), 1 violation per day since 1/1/2004).
- B. PG&E failed to consider and document its analysis of the 1948 radiography records in its TIMP. (on-going violation of 49 CFR 192.917(b), 1 violation per day since 1/1/2004)
- C. PG&E failed to consider and document its analysis of the 1975 reports discussing brittle failure on four unidentified segments of Line 101 constructed with oxyacetylene welds, and two unidentified segments of Line 109 constructed with arc welds. (on-going violation of 49 CFR 192.917(b), 1 violation per day since 1/1/2004)
- D. PG&E failed to consider and document its analysis of the 1965 evaluation of an oxyacetylene welds on Line 109 in San Francisco. (on-going violation of 49 CFR 192.917(b), 1 violation per day since 1/1/2004)
- E. PG&E failed to consider and document its analysis of the 1996 metallurgical report evidencing cracking in the girth welds of 2 spools removed from Line 109. (on-going violation of 49 CFR 192.917(b), 1 violation per day since 1/1/2004)
- F. PG&E failed to consider and document its analysis of a 1996 in-pipe remote video inspection of 22-inch line 109 gas pipe along Miranda Avenue, Palo Alto. (on-going violation of 49 CFR 192.917(b), 1 violation per day since 1/1/2004).
- G. PG&E's threat assessment was biased against pressure testing. (on-going violation of 49 CFR 192.917(a), 1 violation per day since 1/1/2004).
- H. PG&E did not perform any analysis of cyclic fatigue on its pipelines. (on-going violation of 49 CFR 192.917(e)(2), 1 violation per day since 1/1/2004).

- I. PG&E did not evaluate or analyze the interactive nature of threats on its pipelines. (on-going violation of 49 CFR 192.917(e), 1 violation per day since 1/12004).