

NON DESTRUCTIVE EXAMINATION CONTRACTOR NON-COMPLIANCE EXTENT OF CONDITION EXECUTIVE SUMMARY

The following summary details PG&E's efforts in conducting a system wide review of radiographic images produced by TC Inspections, Inc. (TCI).

Background and Identification of Issue

In 2012, PG&E Gas Operations requested an independent Non Destructive Examination (NDE) expert to perform a Gap Analysis Study of PG&E's NDE services program. The Study recommended that PG&E perform periodic job observations of NDE activities to ensure the quality and reliability of NDE testing. As part of the resultant process improvement initiative, the Non Destructive Examination (NDE) Services Group of PG&E's Applied Technology Services (ATS) Division commenced unannounced job observations of NDE vendors across PG&E's Pipeline Safety Enhancement Program (PSEP). During one of these unannounced job observations, project site L-114, the ATS NDE inspector observed a TC Inspection (TCI) team performing Radiographic Testing (RT) in a manner inconsistent with the API 1104 (20th edition) standards.

The ATS inspector found that this TCI two-man RT crew was producing radiographic images with a total of only two exposures (shots) as opposed to the minimum three shots required by the API standard. As a result of this non-compliance, PG&E promptly ordered a detailed assessment of radiographic work performed by TCI from January 2012 through March 2013.

Results

Gas Operations Quality Engineering and Improvement (QE&I) located and retrieved radiographic films for 3,755 inspections of welds and additional NDE reports for each of an identified population of 181 projects on which TCI had provided services.

An analysis of these films identified 431 inspections of welds (representing 22 project locations) where TCI had tested using a non-compliant two-shot method, i.e. with radiographic exposure angles exceeding 120°. This total includes 153¹ non-complaint inspections of welds that were previously identified at the L-114 project site. During the course of completing the review of these TCI films, ATS identified an additional 210 inspections of welds (representing 14 additional project locations) with areas of incomplete radiographic coverage.

Recommended Corrective Actions

All 153 non-compliant inspections of welds on the L-114 project have been reexamined utilizing code compliant NDE methods (RT or UT (Ultrasonic Testing)) and are fit for service.

For the remaining 488 inspections of welds (two-shot method and or with incomplete radiographic coverage) and as part of an interim step toward a comprehensive assessment of the potential impact of TCI's non-compliant inspection of welds, and to support the determination of a wider corrective action/quality review plan, QE&I has recommended that PG&E complete a 100% reexamination of a randomly selected statistical sample (95% confidence level) among a distribution that includes all project locations.

¹ Includes two welds that were removed from the pipeline for issues not connected with TCI's inspection and 9 welds that were cut out as insertion points for the UT in-line inspection tool.