



memo

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attention David Taylor, Robert Lazor
location
cc

TransCanada PipeLines
Limited

from Evan Vokes
subject Non Destructive Examination
compliance
with Onshore Pipeline
Regulation, 1999

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Internal examination of current company NDE practices raised the questions of inspection compliance with TransCanada. Recently, concerns were raised by a compression project and an external Engineering company about the adherence of TransCanada's specification. The scope of the problem of adherence to the regulations occurs in Section 17 of the Onshore Pipeline Regulations, 1999 (OPR 99). This analysis has shown that TransCanada does not adhere to the intent of Onshore Pipeline Regulations for construction inspection for all activities covered under the scope of the regulation although we have complied with Code requirements. The internal TransCanada assessment of the violation follows:

OPR 99 Section

17. When a company conducts joining on a pipeline, the company shall examine the entire circumference of each joint by radiographic or ultrasonic methods.

Discussion

The onshore pipeline regulation requires inspection of all welds as per OPR 99 Section 17. The rule applies to all piping unless this piping has an exemption in place from the Board. The scope of section 17 is applicable to construction activities under the Section 16 required joining program. The joining program covers all activities that are not part of the materials program Section 14 and materials quality assurance under Section 15. The joining program covers any item that has been welded under CSA Z662 and by extension ASME B31.3 construction activities are subject to this rule.

Deviation from OPR 99 requirement

The specification TES-DV23-0517 used for fabrication of compressor station piping using ASME B31.3 contains engineering guidance to use examination criteria other than that specified by the board. The scope of the deviation is low pressure piping other than that used for high pressure gas. The version history of TES-DV23-0517, as evolved from TES-DV15-120 rev 0, 2004 and other earlier shows the document subject matter has been in circulation for some time.

The board has accepted these documents on past projects and never questioned the submitted documents applicability to the requirement. The board issued industry variance MO-08-2000 does not contain any exception that is applicable to supporting a variance on this subject and the writer's knowledge, the board has never sent any queries on this subject to TransCanada.

Recommendation

- 1) At this time, all welds performed by or for TransCanada under B31.3 shall be examined in accordance with the regulation.
- 2) A notice should be sent to the board noting the deviation from the rule on previously accepted documentation and corrective action on current construction projects would be to increase inspection to the regulation requirements.
- 3) TES DV23 0517 should be revised before another project submission to the board. An alternate approach is a blanket variance to Section 17 should be applied from the NEB to bring TES-DV23-0517 into compliance.

Internal examination of current company NDE practices raised the questions of independent inspection compliance within TransCanada projects. Recently, additional concerns were raised by fabrication contractors about the adherence of TransCanada's specification to Section 54. The problems with adherence to the regulation occur in Section 54 of the Onshore Pipeline Regulations, 1999 (OPR 99). The internal TransCanada assessment of the violation follows:

OPR 99 Section

54. (1) When a company constructs a pipeline, the company or an agent independent of any construction contractor retained by the company shall inspect the construction to ensure that it meets the requirements of these Regulations and complies with the terms and conditions of any certificate or order issued by the Board.

(2) An inspection shall be performed by a person who has sufficient expertise, knowledge and training to competently carry out the inspection.

Discussion

The Board does offer some direction in the OPR 99 Section 54 (1) guidance notes that help develop the scope and clarify that the expectation of owner companies with the intention that the guidance notes are to be used as a guide for a submission of technical documentation to the board and an insight into the direction of the board. The insight into the direction of the Board is that the owner company typically are to directly hire and control NDE as part of the inspect process. As an alternative the Board does not preclude the construction contractor direct hiring of NDE as being permissible with an audit.

The assumption the board is making is that the Company is performing the typical inspection requirement. If the non-typical inspection is chosen, it would be reasonable of the Company to inform the board that the non typical inspection arrangement was chosen and comprises part of the joining program submission.

The stated goal in OPR 99 is to ensure: safety, environment and public interest are served. Fitness for service through technical inspections is a realistic expectation of public interest and with a descriptive regulation; the burden of proof is upon the owner company to ensure compliance. The nature of a technical inspection must include all construction inspection activities that can affect the performance of the pipeline. As such a request to prove independence from commercial/technical influence for all construction activities would include examinations of a technical nature such as laboratory testing and non destructive examination.

Current NDE practices at TransCanada have a wide variance in scope and practice. They range from directly hiring NDE on Pipeline and Integrity projects, to construction contractors hiring NDE with oversight from TransCanada direct hired welding inspection contractors. Many of these arguments for different areas of TransCanada projects are based in semantics as the regulations uses the word "examination" in section 17 and "inspection" in Section 54. The only correct answer is to contact the board and have an official ruling as we can support the semantics of whether or not the NDE is an inspection task either way.

There is an argument that since no pipeline contractor in Canada can inspect pipeline welds through the American Society of Non-Destructive Testing SNT-TC1A self certification program that all NDE is independent of the Contractor and that all fabricators hire subcontracted third party inspection companies for the NDE component of their work. The fact remains that many ASME fabrication shops in Alberta use a partial SNT-TC1A program for basic NDE methods with the blessing of the provincial pressure vessel regulator. This self certified SNT-TC1A program would never be acceptable to the Board under any circumstances. The most important shortcoming of the subcontracted NDE method is the construction contractor signs off acceptance of the welds which is contrary to the wording of the regulation. The Risk is the Board does not agree that independence of inspection is served as there are fewer checks and balances to ensure the outcome of the inspection is independent.

Projects deal with the question of independence for construction contractor hired NDE in different ways. For historical reasons, some projects have oversight with welding inspection contractors on a full time basis and others have oversight on a part time surveillance basis. There is no particular requirement for these contractors to have training in the quality control of NDE although some are technically competent in this field. There is no specific requirement for our inspectors to have a rigorous approach to the audit requirements of Section 53 although there has been an improvement in activities covered under the fabrication program in recent weeks specifically in areas of welding inspection and NDE audit.

To prove adherence with Section 54 there are two methods that can be pursued. To prove adherence beyond question under Section 54, the inspection of a weld to declare fitness for service would have to be performed by a trained independent non-destructive examination technician hired independent of the construction contractor that was paid for by TransCanada and signed off by a TransCanada representative. To prove adherence with the guidance notes audit component, a variance should have had to be in place before construction starts and it would require that we have a comprehensive audit program with an auditor competent in that type of inspection in place.

The first method is direct hiring of NDE where a project operation problem is the scheduling of NDE; as it is a problem to oversee the Company scheduled NDE on a site on a daily basis. Several competitors have successfully worked around this problem as it is not forbidden to have the construction contractor schedule work for our inspectors if there is proof of control of the process. To prove control, the inspector should be responsible to the company and should be paid independent of any process related to the construction contractor. Based on interviews with several of our competitors, the NDE Company in fabrication typically reports to the responsible welding inspector

whom signs off acceptance of the welds. While the NDE contractor gives the construction contractor the disposition of welds, the construction contractor, does not have the authority to sign off acceptance of their own work.

The second method is to Audit after informing the Board of our intent. It is true that in the case of radiography, it is impractical to perform a real time audit. It is true in the case of methods such as magnetic particle inspection that you can only audit in real time. To audit, TransCanada would have to have an audit process that accounted for the method, schedule and skill/training of the auditor. In particular, for NDE audit, an engineering specification TEP-NDT-ADT exists that satisfies the Section 53 requirement of the board and gives direction for who may audit NDE.

Deviation from OPR 99 Section 54

Compliance with Section 54 designation of independence of inspection is required to include Non Destructive Examination. NDE on TransCanada projects some cases is performed by construction contractors in some internal groups within TransCanada without:

- a) A variance from the Board to permit final acceptance of an inspection process
- b) Adequate training for those currently charged with the duty of ensuring the inspection is carried out in accordance with the regulation.

Recommendation

- a) To comply with the regulation verbatim, TransCanada must hire and control NDE activities as a recognized construction inspection activity covered under the joining program. There is no particular requirement for schedule but reporting and commercial and reporting structures must remain with TransCanada control.
- b) There is a risk to the company if construction contractor hired NDE continues without defining if NDE is considered and inspection as defined by Section 54.
- c) An n auditor that is qualified under our TEP-NDT-ADT should be contracted to audit film of current projects.
- d) The NDE requirements should be officially written into the joining program directive as a distinct subsection and an appropriate NDE program should be developed from the direction indicated by the joining program.