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April 17, 2018

Mr. Sean Mayo
Pipeline Safety Director
Washington Utilities and Transportation Commission
1300 South Evergreen Park Drive SW
P. O. Box 47250
Olympia, Washington 98504-7250

Subject: Response to NW Natural TIMP Inspection 7568

Dear Mr. Mayo:

On February 12-14, 2018, the Washington Utilities and Transportation Commission (WUTC) staff conducted a standard inspection of NW Natural's (NWN) Transmission Integrity Management Program (TIMP). The inspection included a procedures and records review, and indicates one probable violation as noted in the enclosed report, and two areas of concern, which unless corrected could potentially lead to future violations of state and/or federal pipeline safety rules. This letter is in response to the findings of Inspection No. 7568, dated March 15, 2018.

Inspection Finding:

Probable Violation: IA Question:

Do records demonstrate that the operator has determined, based on risk, whether automatic shut-off valves or remote control valves should be added to protect high consequence areas? IM.PM.PMMASORCV.R

Code Reference:

49 CFR §192.947 What records must an operator keep?

An operator must maintain, for the useful life of the pipeline, records that demonstrate compliance with the requirements of this subpart. At minimum, an operator must maintain the following records for review during an inspection.

(d) Documents to support any decision, analysis and process developed and used to implement and evaluate each element of the baseline assessment plan and integrity management program. Documents include those developed and used in support of any identification, calculation, amendment, modification, justification, deviation and determination made, and any action taken to implement and evaluate any of the program elements;

49 CFR §192.935 What additional preventive and mitigative measures must an operator take?

General requirements. An operator must take additional measures beyond those already required by Part 192 to prevent a pipeline failure and to mitigate the consequences of a pipeline failure in a high consequence area. An operator must base the additional measures on the threats the operator has identified to each pipeline segment. (See §192.917) An operator must conduct, in accordance with one of the risk assessment approaches in ASME/ANSI B31.8S (incorporated by reference, see §192.7), section 5, a risk analysis of its pipeline to identify additional measures to protect the high consequence area and enhance public safety. Such additional measures include, but are not limited to, installing Automatic Shut-off Valves or Remote Control Valves, installing computerized monitoring and leak detection systems, replacing pipe segments with pipe of heavier wall thickness, providing additional training to personnel on response procedures, conducting drills with local emergency responders and implementing additional inspection and maintenance programs.

Automatic shut-off valves (ASV) or Remote control valves (RCV). If an operator determines, based on a risk analysis, that an ASV or RCV would be an efficient means of adding protection to a high consequence area in the event of a gas release, an operator must install the ASV or RCV. In making that determination, an operator must, at least, consider the following factors—swiftness of leak detection and pipe shutdown capabilities, the type of gas being transported, operating pressure, the rate of potential release, pipeline profile, the potential for ignition, and location of nearest response personnel.

Finding(s):

Records showing that NWN took additional preventative and mitigative measures were reviewed during the inspection. NWN could not produce a record showing they had completed a risk based analysis to determine if and ASV or RCV would be an efficient means of adding protection to a high consequence area.

NW Natural Response:

NWN completed the evaluation during the base line assessment and agrees that the record was unable to be located at the time of the inspection. A recent evaluation has been performed and the record (Attachment A - TIMP Appendix J Camas Gate ASV-RCV Eval Form 4-4-2018) is attached with this response.

Area of Concern:

1. IA Question:

Does the process to evaluate IM program effectiveness include an adequate set of performance metrics to provide meaningful insight into IM program performance? IM.QA.IMPERFMETRIC.P

Code Reference:

§192.945 What methods must an operator use to measure program effectiveness?

(a) General. An operator must include in its integrity management program methods to measure whether the program is effective in assessing and evaluating the integrity of each covered pipeline segment and in protecting the high consequence areas. These measures must include the four overall performance measures specified in ASME/ANSI B31.8S (incorporated by reference, see §192.7 of this part), section 9.4, and the specific measures for each identified threat specified in ASME/ANSI B31.8S, Appendix A. An operator must submit the four overall performance measures as part of the annual report required by §191.17 of this subchapter.

(b) External Corrosion Direct assessment. In addition to the general requirements for performance measures in paragraph (a) of this section, an operator using direct assessment to assess the external corrosion threat must define and monitor measures to determine the effectiveness of the ECDA process. These measures must meet the requirements of §192.925.

Finding(s):

Section 9.0 Performance Measures, refers to Table 9-1 Performance Measures for performance measures used for prescriptive programs. NWN also uses ECDA to assess line P04 and subsequently uses additional measures as noted in NACE SP0502 Section 6.7. In reviewing the records showing the results of tracking these measures from 2004 to 2016, it became apparent that most of the measures aren't applicable or don't provide for a determinative measure of effectiveness. For example under ECDA Threat Identification the following measures are identified:

Number of defects for which root cause analysis indicated the ECDA was not suitable SME - No instances of this

Number of indication reclassifications (to increase excavations) required SME - Never reclassified up or down

*Number of Immediate ECDA excavations per HCA mile Trans Assessment Overview Sheet**

*Number of One Year ECDA excavations per HCA mile Trans Assessment Overview Sheet**

*Number of Monitor ECDA excavations per HCA mile Trans Assessment Overview Sheet**

*Number of Other ECDA excavations per HCA mile Trans Assessment Overview Sheet**

*Number of coating damages revealed by ECDA excavations Trans Assessment Overview Sheet**

*Number of anomalies where external corrosion is present, regardless of root cause Trans Assessment Overview Sheet**

*Number of non-manufacturing related metal loss damages revealed by ECDA excavations Trans Assessment Overview Sheet**

Number of manufacturing defects revealed by ECDA excavations Trans Assessment Overview Sheet*

Number of dents revealed by ECDA excavations Trans Assessment Overview Sheet*

Number of leaks or ruptures caused by external corrosion

Most of the above measures are prescriptively required and do not apply to P04. NWN should determine other elements which would give a measure of effectiveness of their ECDA program.

NW Natural Response:

NWN's Transmission Integrity Management Program is meeting the requirements of 49 CFR 192 and ASME/ANSI B31.8S. In addition, the metrics prescribed by Code are accurately reported on and are being met. NWN is continually evaluating additional measures and program enhancements to address risk. Additional measures include studying the feasibility of inline inspection for the P04 Camas line. NWN's ability to perform an inline inspection is dependent on pressure, flow, availability and ability to modify the pipeline to accept inline inspection tools. This evaluation and any modifications would need to occur prior to re-assessment in 2023. NWN believes that evaluating the feasibility of changing the assessment methodology from ECDA to ILI, along with enhancements to ECDA practices, will yield additional data which will assist in determining other elements that could be used to measure the effectiveness of the ECDA program and overall integrity of the P04 Camas pipeline.

To improve current ECDA practices NWN has updated the written Transmission Integrity Management Program; specifically ECDA Region Identification Section 4.2.4, which now states that ECDA regions cannot cross state lines. This change will create an individual region exclusive to the P04 Camas line requiring two indirect examinations be performed on the pipeline.

Area of Concern:

2. IA Question:

Do records adequately document cathodic protection monitoring tests have occurred as required? TD.CPMONITOR.TEST.R

Code Reference:

§192.491 Corrosion control records.

(a) Each operator shall maintain records or maps to show the location of cathodically protected piping, cathodic protection facilities, galvanic anodes, and neighboring structures bonded to the cathodic protection system. Records or maps showing a stated number of anodes, installed in a stated manner or spacing, need not show specific distances to each buried anode.

(b) Each record or map required by paragraph (a) of this section must be retained for as long as the pipeline remains in service.

(c) Each operator shall maintain a record of each test, survey, or inspection required by this subpart in sufficient detail to demonstrate the adequacy of corrosion control measures or that a corrosive condition does not exist. These records must be retained for at least 5 years, except that records related to §§192.465 (a) and (e) and 192.475(b) must be retained for as long as the pipeline remains in service.

Finding(s):

In reviewing records of required rectifier readings, it was apparent (and confirmed by NWN) that they do not take an instant off reading when they take the pipe to soil reads (PSP). NWN employs ECDA as the periodic evaluation methodology for line P-04. ECDA relies heavily on accurate pipe to soil reads in assessing the external corrosion threats on the line. As NWN does not employ an instant off when they take a pipe to soil read, they are assuming the IR drop is not significant enough to lower the reading below the -850 mV criteria (per NACE 0169 6.2.2.) Past history might suggest the readings are meeting criteria as they have found limited corrosion. However, NWN really does not know (as compared to an ILI run using magnetic flux leakage tool). Past digs on the line based on CIS, DCVG or current mapper criteria, have not consistently found a corrosion issue. Most of these digs have been "repaired" with a recoat. As such, there is uncertainty and associated risk. NWN should assign additional risk to the line based on this uncertainty.

NW Natural Response:

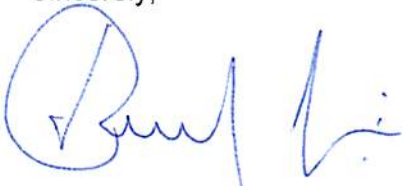
In NWN's previous response 2017 Natural Gas Standard Inspection – NW Natural Columbia Gorge Unit No. 7241 Staff referenced CFR 49 192 Appendix D Section II, and one common method of considering IR drop which is the use of instant-off pipe to soil measurements. NWN indicated during both inspections that instant-off readings are not currently utilized for consideration of IR drop issues. However, NWN does consider IR drop as demonstrated by methods and verbiage in NWN's Standard Practice Washington 463 (SPW) – Cathodic Protection Systems, section 3.1.2 (Attachment B - SPW 463 - Cathodic Protection Systems).

In accordance with the National Association of Corrosion Engineers (NACE) SP0169 - Control of External Corrosion on Underground or Submerged Metallic Piping Systems, consideration is understood to mean the application of sound engineering practice to determine the significance of IR drops by methods which may include:

- Evaluating the physical and electrical characteristics of the pipe and its environment
- Determining whether or not there is physical evidence of corrosion.

These methods mentioned above are demonstrated by use of Pipe Inspection Reports. Whenever steel pipe is exposed, NWN gathers specific information regarding the characteristics of the pipeline and its environment. The various types of information that are gathered include items such as "ON" Pipe to Soil readings, pipe depth, soil type/conditions, and indications of corrosion, pitting, or other unusual corrosion conditions. Additionally, NWN has criteria for investigation and/or remedial action via an automated report if the "ON" pipe to soil reading is found to be more positive than -0.90V. In the event that such criteria is discovered, it is verified by corrosion technicians, problem reports are generated and submitted for corrective action, if necessary.

Sincerely,

A handwritten signature in blue ink, appearing to read 'J.R. Gonzalez', written over a circular stamp or mark.

J.R. Gonzalez, P.E.
Manager, Code Compliance

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