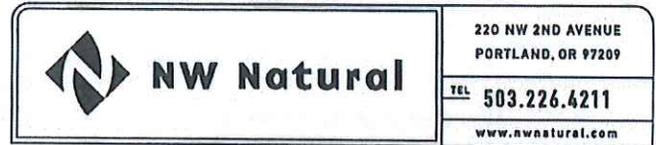


Kerry F. Shampine, P.E.
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September 30, 2014

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

RECEIVED
SEP 30 2014
State of Washington
UTC
Pipeline Safety Program

Re: NW Natural Response to Camas Transmission Line Inspection

Dear Mr. Lykken:

The Washington Utilities and Transportation Commission (WUTC) Staff conducted a pipeline safety inspection of NW Natural's (P04) Camas Transmission Line on June 17-19, 2014. This letter is in response to the findings of Inspection Report, dated August 27, 2014.

Probable Violation:

WAC: 480-93-018 Records

Each gas pipeline company must maintain records sufficient to demonstrate compliance with all requirements of 49 CFR 191, 192 and chapter 480-93 WAC.

Finding(s):

There are two concrete supports at either side of the Lacamas Lake Bridge that support the P04 – Camas Transmission Line. The annual bridge-line inspection form has items for both atmospheric corrosion and the pipe coating condition. The NWN procedure referenced in SPW 480 3.2.2 indicates that during the atmospheric inspection, particular attention shall be given to the pipe supports. The bridge-line inspection form did not indicate that the line pipe under the supports is being evaluated for corrosion. It is unclear how an inspection "giving particular attention to pipe supports" is conducted. The NWN procedure was vague. Visual observation of the supports leads staff to conclude that an inspection under the supports was not performed. Documentation (procedures and inspection records) do not appear to demonstrate compliance with 49 CFR 192.481.

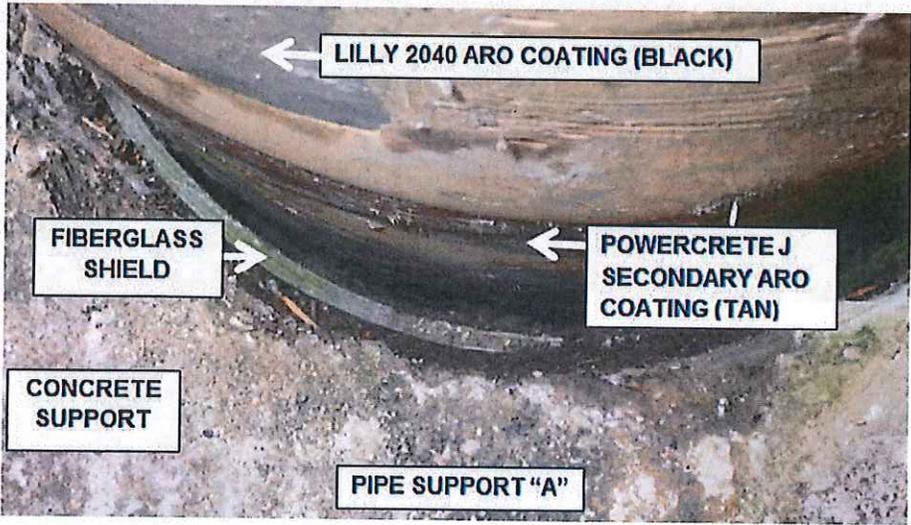
NW Natural Response:

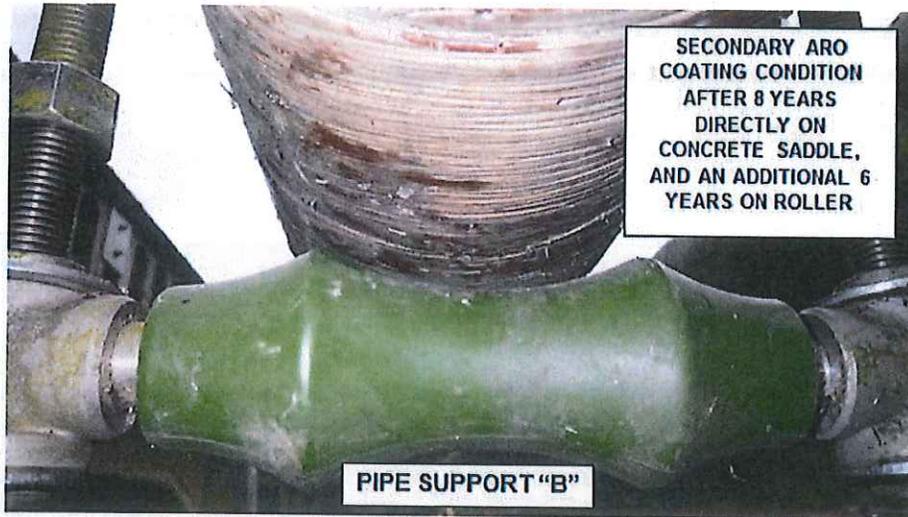
NW Natural agrees with Staff that this pipeline is not visually inspected for atmospheric corrosion directly under the pipe at the concrete supports. Instead, for this specific site, NW Natural designed a three layer coating system engineered to enhance the performance of the standard coating system by providing additional abrasion resistant layers, and therefore, eliminating any anticipated exposure to the atmosphere. This site is on an annual inspection schedule for all maintenance items including atmospheric corrosion. This ensures that any general coating deterioration would be identified.

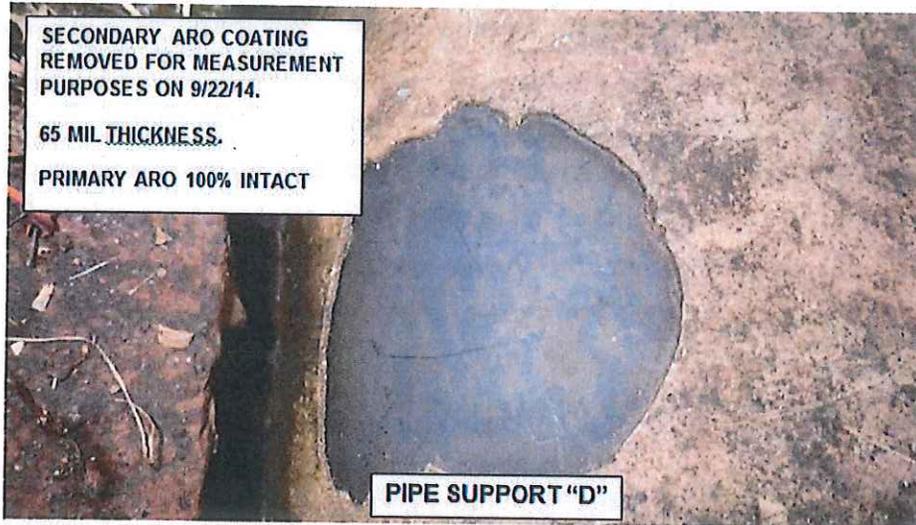
A brief history of this pipeline is as follows;

- 107 feet of the P04 Camas Transmission Line was replaced in 2000. This replaced pipe segment was located on the then existing concrete piers at Lacamas Lake. This segment was constructed of 8 5/8-inch, 0.219 w.t., grade X42 pipe. The resulting segment is rated below 20% SMYS and is classified as a high-pressure distribution pipe segment.
- To mitigate the threat of atmospheric corrosion at the concrete saddles, NWN utilized a three layer coating system that included:
 1. 12 mil, 3M 206 fusion bonded epoxy (FBE) – Green
 2. 40 mil, Lilly 2040 abrasion resistant overcoat (ARO) - Black
 3. 50 mil minimum, Powercrete J, applied in the field – Tan, second ARO layer
- In 2008, two of the five concrete piers were replaced by the City of Camas because those piers were failing. The new piers were fitted with adjustable roller supports for the NW Natural pipeline. The three remaining concrete piers were not as significantly damaged and are still in place today. (On-going conversations with the City of Camas indicate that they have plans to replace the remaining concrete piers in the not-too-distant future. NW Natural will work closely with the City to ensure a standard pipeline roller design is installed at the time the piers are reconstructed.)
- On September 22, 2014 NW Natural took readings of the existing pipe coating at all five piers at the Lacamas Lake crossing. These readings were taken with a DeFelsko PosiTector (serial # 45-4805-13), ultrasonic thickness tester. This included examination of the coating under the roller pipe supports on the piers that were replaced in 2008. A measurement was taken in each quadrant at all pipe support locations. These readings are summarized in attachment 1 and photos below. In addition, the resulting observations of the coating at each support showed no signs of coating disbondment, abrasion, UV degradation or atmospheric corrosion. In our opinion, the findings

demonstrate that the coating system designed and installed in 2000 is effective in meeting the atmospheric corrosion control requirements as stated in 192.479(b).







Visual observation at each pipe support revealed the following:

- A fiberglass reinforced plastic shield is still intact between the three layer coating and the concrete support at locations A and D
- The black primary ARO was not visible in any area containing the secondary ARO (i.e. the primary ARO was fully encapsulated in the secondary ARO layer).
- The green FBE corrosion protection later was not visibly exposed to the atmosphere at any location.
- The coating system is functioning as designed.

In summary, NW Natural feels strongly that the existing coating system at the Lacamas lake crossing meets all elements of an enhanced atmospheric corrosion mitigation strategy. A site specific coating system was engineered for this crossing given the specific conditions at this site. During the required atmospheric corrosion inspections at this site, field personnel are instructed to observe the general coating condition of the pipeline at the crossing and each of the support piers. NW Natural feels that the appropriate attention has been given to each pipe support during these inspections. The attached photos and coating measurements indicate the coating system is operating as designed. There are no signs of localized atmospheric corrosion or degradation of the coating for this pipe segment.

Additionally, NW Natural will continue its on-going discussions with the City of Camas regarding their pier replacement project. As the opportunity is presented, NW Natural will install new generation pipe support rollers at this site.

This report summarizes NW Natural's activities in response to the pipeline safety inspection for the P-04 Camas Transmission Line. If you would like to discuss this response in greater detail, please contact us at your convenience.

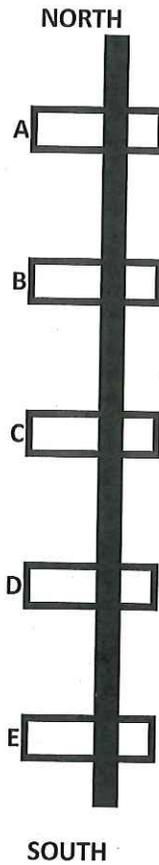
Sincerely,

A handwritten signature in blue ink that reads "Kerry F. Champine". The signature is written in a cursive, flowing style.

Kerry F. Champine, P.E.
Manager, Code Compliance

s7b849

Lacamas Lake Crossing Coating Thickness Profile at Pipe Supports



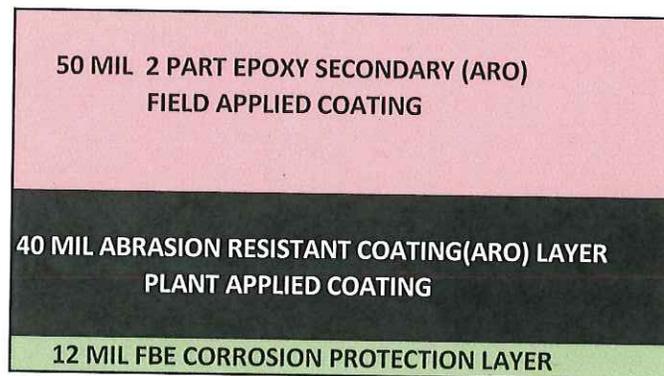
AS MEASURED COATING THICKNESS (MILS)			
TOP	WEST	BOTTOM	EAST
78+	78+	78+	78+
78+	78+	78+	78+
50	52	52	50

49	50	52	50
78+	78+	78+	78+
50	50	52	52

53	53	52	52
78+	78+	78+	78+
53	54	53	54

49	53	53	51
78+	78+	78+	78+
50	52	52	50

51	52	52	52
78+	78+	78+	78+
52	52	51	52



NOTE: POSITECTOR CAN NOT MEASURE OVER 78 MILS. VERIFIED SECONDARY THICKNESS BY CHIPPING OFF PATCH THAT WAS MEASURED AND WILL BE REPAIRED WITH 2 PART EPOXY.