



NW Natural[®]

Pipeline Replacement Plan

May 26, 2021

In accordance with

Policy Statement in Docket: UG-120715

250 SW Taylor St.
Portland, Oregon 97204

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Introduction

NW Natural Holdings (hereafter referred to as NW Natural or Company) submits the following in response to the Washington Utilities and Transportation Commission's request for the Company's pipe replacement plan as referenced in docket UG-120715.

NW Natural is committed to pipeline safety and to the implementation of enhanced pipeline safety programs that legitimately improve the company's already safe pipeline infrastructure.

NW Natural's distribution system in Washington consists of modern material including cathodically protected coated steel and PE2406 (Medium Density Polyethylene). Since the initial Pipeline Replacement Plan filing NW Natural has replaced all known bare steel mains and services as well as vintage plastic services.

Master Plan and Pipe Replacement History

NW Natural has a long history of Integrity Management programs focused on safety, risk reduction, and enhanced reliability to customers. Continual improvement is at the heart of providing safe, reliable service, and will remain a focus of Integrity Management at NW Natural. At this time all known at-risk material types in NW Natural's system have been identified and replaced. Below is a summary of replaced at-risk materials.

Cast Iron Replacement

In 1985 NW Natural voluntarily began a system-wide cast iron replacement program. The program was completed in 2000. The success of this program is demonstrated in Figure 1.

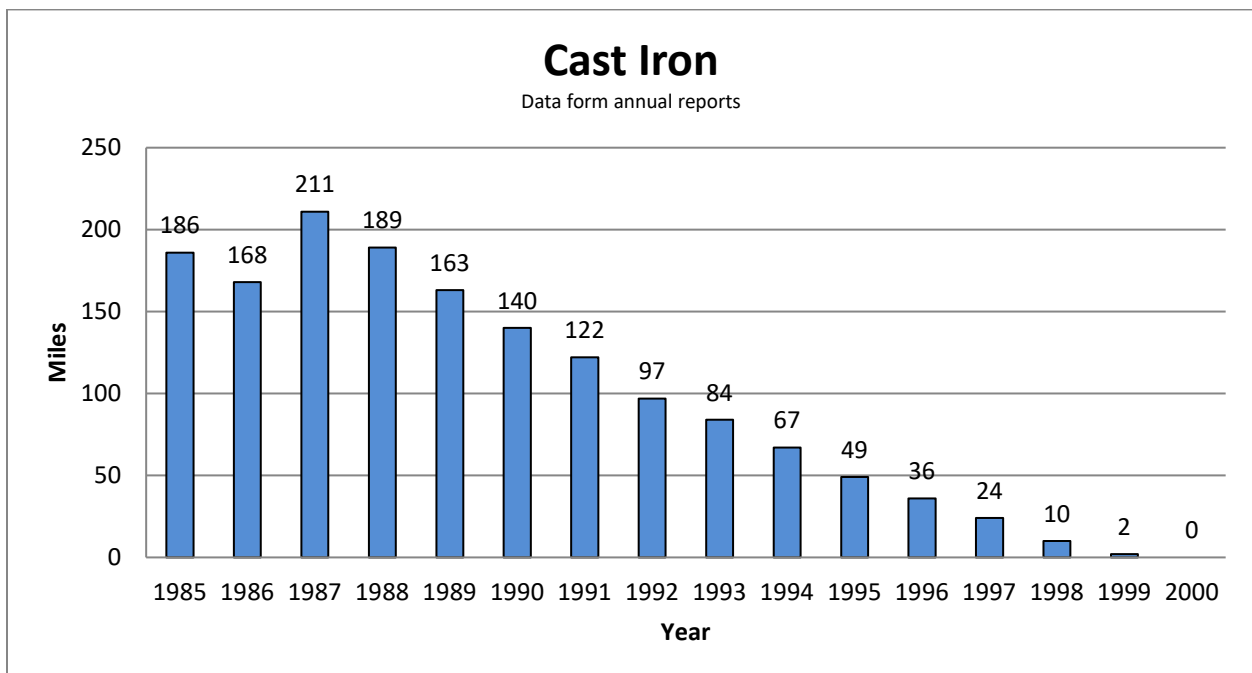


Figure 1

Bare Steel Replacement

After completion of Cast Iron replacement in 2000 NW Natural voluntarily initiated a system wide bare main replacement program. This proposed 20-year replacement program was completed in 2015 in the State of Washington with all known bare mains and services replaced in 2015. Figure 2 shows the reduction in bare main mileage throughout the program and the corresponding reduction in leaks attributed to corrosion.

Bare Steel Mileage and Corrosion Leaks

*Leaks on mains attributed to corrosion . (Data taken from annual reports)

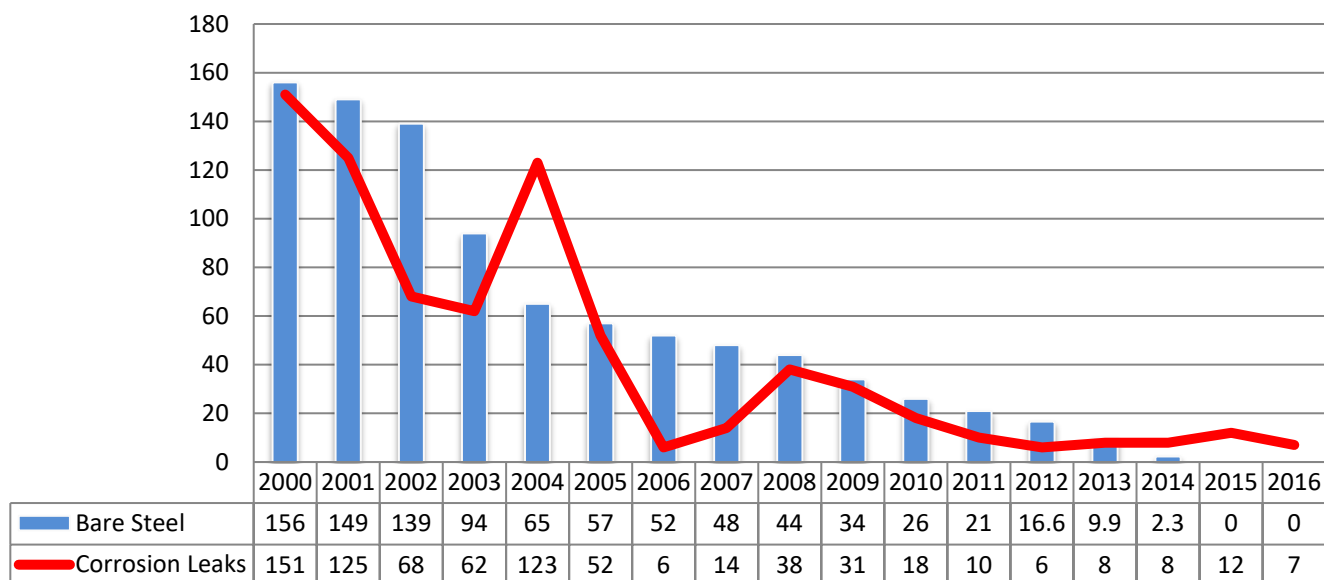


Figure 2

Vintage Plastic Replacement

ABS was installed from 1961 through the early 70's to renew $\frac{3}{4}$ " steel services per Figure 3.

ABS was identified as an industry wide threat with failures typically resulting in leaks due to brittleness in the form of stress cracking parallel to the longitudinal axis of the pipe. ABS was designated in NW Natural's DIMP Plan as an accelerated action because of its susceptibility to failure. Beginning July 1, 2012 NW Natural utilized the GIS to identify potential vintage plastic services in the State of Washington. Based on the results of the query, 412 possible ABS services were identified and subsequently field-verified, resulting in positive identification and replacement of 51 ABS services.

The ABS DIMP plan was expanded to replace all plastic services installed prior to 1975 and verify if NW Natural had installed Polyethylene pipe with the designation of PE 3306. Industry studies on PE 3306 have shown that this vintage of polyethylene pipe is more susceptible to brittle-like cracking. Thus far NW Natural has not discovered any PE 3306 in the system and is estimated to have all plastic services installed prior to 1975 removed by 2021.

3/8" ABS KRALASTIC PLASTIC
LINER PIPE - MAIN CONNECTION

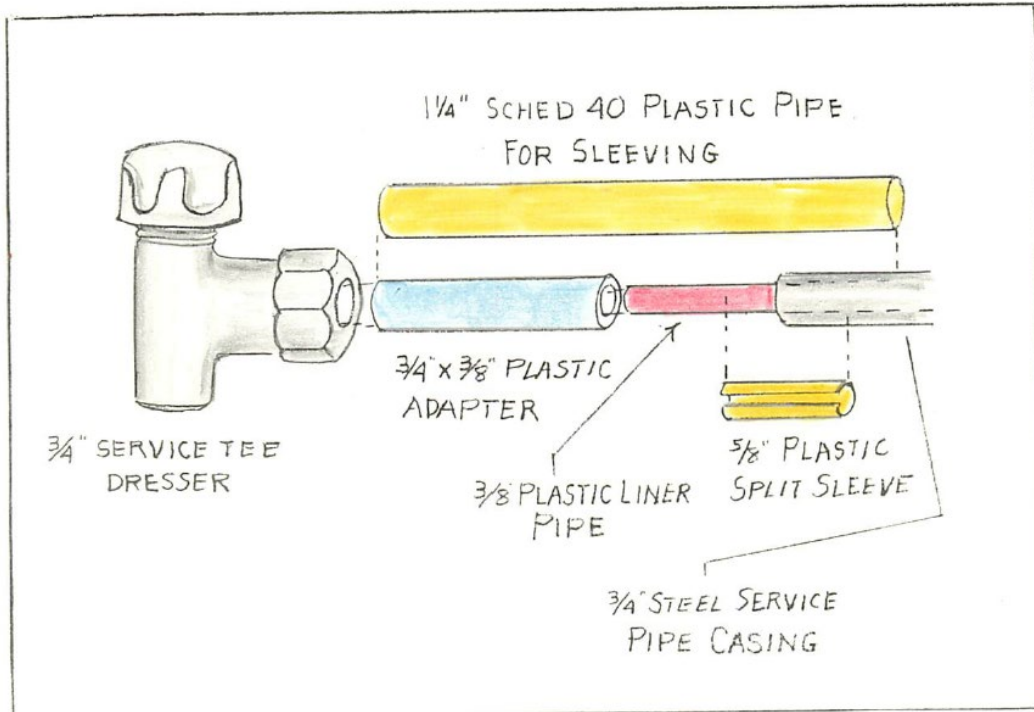


Figure 3

Clecon Service Tee Caps

Polyoxymethylene (aka Celcon) caps pose a slightly elevated risk of failure. The Company replaces polyoxymethylene caps upon discovery.

Two Year Plan

The pipelines operated and maintained by NW Natural in the State of Washington are comprised of modern material: cathodically protected coated steel and polyethylene. At this time NW Natural does not have a two-year plan to replace existing facilities based on material type. Polyoxymethylene caps are replaced as they are discovered.

Continual Improvement

Enhanced Excess Flow Valve (EFV) Program

NW Natural has been installing Excess Flow Valves (EFVs) on residential services since the late 1990s well before the initial PHMSA regulations requiring EFVs to be installed on residential services. NW Natural has identified that services installed prior to EFV regulations are at risk specifically in the case of third-party damages. Therefore, NW Natural has initiated a program to install EFVs on services that were installed prior to PHMSA EFV regulations.

This program will be a risk-based program where services installed without EFVs in identified areas will be retrofitted or replaced with a properly sized EFV. NW Natural is in the initial phase of this program where services installed without EFVs will be identified and the installation of the EFV will be tracked.

GIS (Geographic Information System)

In addition to pipe replacement projects, NW Natural has taken measures to ensure the integrity of pipe and other assets by investing in GIS and mapping. Currently we are in the process of a landbase replacement project that is focusing on replacing much of our home-grown landbase with that of a standardized parcel dataset. This project involves realigning our pipeline to this more spatially accurate dataset which increases the spatial integrity of our GIS data. We are also in the planning stages of replacing our current field mapping solution with a much more robust, user friendly, and functionality-rich platform that will increase both usability and efficiency. These investments and continual improvement to the GIS are providing tools to better integrate GIS with the evolving needs of Integrity Management.

Damage Prevention

The single largest threat to NW Natural's facilities is third party damage. NW Natural maintains a robust damage prevention program in the State of Washington to communicate, cooperate, and coordinate with government agencies, municipalities, utilities, contractors, customers, the general public, and other stakeholders to reduce the number to third party damages.

NW Natural has instituted a risk model based on locate ticket information, facility type, excavator and other factors in order to prioritize and assign a risk to locate requests. This model ranks the risk of the locate ticket so that NW Natural damage prevention personnel can respond appropriately to a locate request to ensure that a high risk locate gets an enhanced response.

Impact on Rates

There is no immediate incremental impact on rates from this plan as the Company is not asking for a cost recovery mechanism. While there is no immediate impact on rates, future impacts could occur as a result of prospective costs due to the identification and replacement of pipelines with an elevated risk of failure.

Public Interest

The Company's actions surrounding pipeline replacement considered factors including:

- Further improving the safety of the distribution system by replacing pipe based on the relative level of risk for each material and location.
- Minimizing the replacement costs and associated rate impacts by maximizing efficiencies and productivity.
- Minimizing the impacts to municipalities and the general public.

Conclusion

NW Natural will remain vigilant in the investigation and evaluation of high-risk facilities. Under NW Natural's TIMP and DIMP Programs, there are policies, procedures and practices in place to continually gather and analyze information regarding the performance of the infrastructure.

In addition, NW Natural will continue to participate with peers, industry associations, and regulators in tracking trends and applying learnings to further enhance public safety and system reliability.

NW Natural is firmly committed to continuous improvement and will actively refine and improve current programs associated with system knowledge, threat identification, evaluation of risk, implementation of measures to address risk, and measuring past performance to ensure the safe, reliable delivery of natural gas to customers in the State of Washington and throughout our service territory.