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September 29, 2017

Docket UM - _____

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Attention: Filing Center
201 High Street SE Suite 100
Post Office Box 1088
Salem, Oregon 97308-1088

**Re: NW Natural's Oregon Safety Project Plan in Compliance with
OPUC Order No. 17-084 (Docket UM 1722)**

Northwest Natural Gas Company, dba NW Natural ("NW Natural" or the "Company"), hereby submits its annual 'Safety Project Plan' in compliance with Commission Order 17-084 entered March 6, 2017.

If you have any questions, please contact me at (503) 226-4211, extension 5865 or Jose Gonzalez at (503) 226-4211, extension 4431.

Sincerely,

/s/ Gail A. Hammer

Gail A. Hammer
NW Natural

Enclosure



NW Natural®

2017 SAFETY PROJECT PLAN

OREGON

September 29, 2017

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I. Introduction

On March 06, 2017, the Oregon Public Utility Commission (“Commission”) issued Order No 17-084 (Order), adopting a stipulation addressing the cost recovery of local distribution companies’ (LDCs) safety investments. As part of that Order, the Commission required LDCs to file an annual safety project plan (SPP) for Commission Safety Staff and stakeholder review. The SPP is intended to increase transparency into LDCs’ safety investments by providing Safety Staff and stakeholders a yearly “snapshot” of the expected level of capital investment and operations and maintenance expense required to mitigate issues identified by risk analysis or to meet newly implemented federal code. The additional purposes of the SPP are to demonstrate to the public the LDC’s commitment to safety; explain technical safety reports provided to the Commission; and identify when major regulatory changes will drive new safety planning priorities or change existing safety plans. In the event that an LDC seeks approval for, or already has, a Safety Cost Recovery Mechanism (SCRM), the SPP is intended to expedite the review process of safety investments.

Safety is a core value at NW Natural and is critically important in all aspects of the Company’s pipeline and storage operations. This 2017 SPP is intended to provide additional insight into our Company’s most significant safety activities on an annual basis. We appreciate the opportunity to present this information to the Commission and look forward to continued engagement with our stakeholders on these important issues.

II. Background Information

NW Natural is a regulated utility in the States of Oregon and Washington with approximately 730,000 total customers, operating 654 miles of transmission pipelines, 13,604 miles of distribution pipelines, and three energy storage facilities – Portland and Newport LNG Plants and Mist Underground Storage.

NW Natural’s pipelines and storage facilities are governed by:

- 49 CFR Part 192 – Minimum Safety Standard – Transmission & Distribution Systems
- 49 CFR Part 193 – LNG Safety Standards
- 49 CFR Part 196 – Protection of Underground Pipelines from Excavations Activity
- Additional OARs and ORSs such as ORS 757.039, and ORS 757.542-993 – One call notification.

In addition to the federal and state regulation described above, another important topic of safety on NW Natural's system stems from the major effort that was undertaken in Oregon pursuant to House Resolution (HR) 3 in 2011, which directed the Oregon Seismic Safety Policy Advisory Commission to prepare the Oregon Resiliency Plan with the purpose of identifying recommendations for how Oregon's critical energy infrastructures could be made seismically resilient towards a Cascadia subduction zone earthquake. Upon completion of that work on February 28, 2013, the Oregon Senate passed Senate Bill (SB) 33, which recommends that LDCs conduct seismic assessments of their regulated facilities.

III. Categories of Safety Activities Performed by NW Natural

Safety Activities at NW Natural can generally be separated into three categories:

1. Prescriptive regulatory actions – those which must be performed to meet federal minimum safety standards;
2. Proactive, performance based actions – those which must be performed to meet federal minimum safety standards based on risk analysis; and
3. Additional prudent risk reduction actions – actions that go above minimum safety standards and that improve public safety based on risk analysis.

A. Prescriptive Regulatory Actions

CFR 192 includes multiple prescriptive activities that ensure public safety, and that fall into broad categories such as “operations” (Subpart L) and “maintenance” (Subpart M). Most of these activities require an inspection at regular time intervals to confirm that a facility or asset is meeting the operational requirements established in federal code. These activities provide the baseline data for other performance-based activities. These minimum safety requirements include, but are not limited to:

- Atmospheric corrosion surveys
- Leakage surveys
- Cathodic protection surveys
- Right of way patrols
- Valve maintenance
- Water crossing inspections
- Odorization
- Odorometer Reads
- Line Marking
- Pressure Regulation Inspection
- Large Meter Inspections
- Record Keeping

- Control Room Management
- Bridgeline Inspections
- Equipment Calibration
- Houseboat Inspections

The safety activities from this category are not driven by risk analysis, but are prescriptive in nature. Because these activities are specified requirements, they are not discussed further in this SPP, which instead focuses more on measures that relate to NW Natural's risk analysis and plans for safety projects.

B. Proactive, Performance-Based Actions

Other sections of CFR 192 include more proactive performance-based risk reduction activities, such as Subpart O – Transmission Integrity Management Program (TIMP), Subpart P – Distribution Integrity Management Program (DIMP), Damage Prevention, and Public Awareness. These programs focus on activities to mitigate pipeline safety risk. Specifically, these programs include:

i. Transmission Integrity (TIMP)

Transmission Integrity refers to 49 CFR 192 Subpart O-Gas Transmission Pipeline Integrity Management. This federally mandated program covers natural gas transmission pipelines located in High Consequence Areas (HCAs).

Activities in this category include baseline assessments of transmission lines using in-line and direct assessment methods, pipeline replacements, relocations to comply with integrity management regulations, MAOP validation agreements with the OPUC, and the relocation of pipelines and transmission facilities to mitigate threats posed by natural forces such as flooding, land movement, and erosion.

ii. Distribution Integrity (DIMP)

Distribution Integrity is outlined in 49 CFR 192 Subpart P- Gas Distribution Pipeline Integrity Management. This federally mandated program requires operators to create a written Integrity Management Program that takes into consideration: system knowledge, threat identification, evaluation and risk ranking, identification and implementation of measures to address risk, measurement of results, and reporting.

Activities in this category include risk-based projects warranting Accelerated Action (AA) to address a system integrity risk. These AA's are made up of projects that have been identified through risk modeling, industry identified

threats, and by subject matter experts within the Company. These projects include replacement of vintage plastic services, relocation of facilities under structures, replacement of valves and fittings susceptible to leakage, protection of above grade gas facilities, and relocation of distribution gas lines to mitigate threats posed by natural forces such as flooding, land movement, and erosion.

C. Additional Prudent Risk Reduction Actions

Additional active risk reduction activities are not explicitly required by federal code but include other programs and projects that improve public safety based on risk analysis. These include:

- Seismic improvements recommended by SB 33;
- Accelerated additional replacement of vintage materials (e.g. bare steel); and
- Proactive improvements to pipelines to allow for increased use of inline inspection (ILI).

IV. Projected and Preliminary Costs Presented in this Plan

The 2017 Capital and O&M costs presented in this plan are projected costs based on current expenditures for each of the identified projects through the end of the year. Costs for the significant safety initiatives planned for 2018 are preliminary or expected costs, for planning purposes. Costs for other safety projects under consideration will be presented in the 2018 SPP.

V. 2017 Capital Safety Investment

In 2017, NW Natural estimates it will invest \$6.2MM in capital to comply with DIMP and TIMP. Significant projects in this category include:

North Coast ILI (\$3,200,000)

This project is part of NW Natural's continuing commitment to inspect transmission lines using inline inspection. The North Coast Feeder is part of this effort. The line consists of 16-inch and 10-inch transmission pipeline installed in 1965. The pipeline begins at Deer Island in Rainer, Oregon and traverses the Columbia River and North Coast, where it terminates and feeds smaller diameter pipelines to the north, serving Astoria/Warrenton, and the south, serving Seaside/Cannon Beach. The

work involves installation of launchers and receivers as well as retrofitting the pipeline to permit the passage of inline inspection tools.

Salem Feeder MAOP Validation (\$270,000)

This project relates to the agreement between the OPUC and NW Natural to address missing pressure test documentation. The work includes the replacement of pipe at Salem Parkway and pressure test of 269 feet of 8-inch pipe under the paved portion of the roadway.

Eugene Industrial Feeder MAOP Validation (\$510,000)

This project relates to the agreement between the OPUC and NWN to address missing pressure test documentation. The work includes the replacement and relocation of a blowdown/bridle and associated 10-inch and 6-inch pipe at the intersection of Coburg Road and Crescent Avenue in Eugene Oregon.

CZ (Crown Zellerbach) West Linn MAOP Validation (\$550,000)

This project relates to the agreement between the OPUC and NWN to address missing pressure test documentation. The work included the replacement and relocation of 10-inch, 8-inch, and 6-inch pipe as well as the reconstruction of a district regulator station on the west side of the Oregon City – West Linn Bridge.

Dethman Ridge (\$331,000)

Replacement of 187 feet of 4-inch pipe exposed in Odell Creek in Hood River. A temporary bypass was needed because the 4-inch was a one-way feed into the distribution system. The work includes extensive coordination and environmental permitting with Hood River and the Army Corp of Engineers because of the in-water work required.

Other non-significant safety projects and programs include natural forces pipe replacement, ABS (vintage plastic) replacement program, bare steel identification and replacement, meter protection installation, ROW encroachment identification and remediation, and Automatic Shut-off Valves/Remote Controlled Valves installation.

VI. 2017 O&M Expenditures

In 2017 NW Natural expects to spend \$4.7MM in O&M to address and comply with DIMP, TIMP, and Damage Prevention, and an additional \$510K for public awareness.

Activities that reflect expenditures in this category include costs for supplies (office/field), reference materials, education (conferences/meetings/workshops), vendor and contract costs associated with transmission assessments, sewer crossbore investigations and remediation, and natural forces investigation and remediation. It also includes the development, initiation, and execution of studies and consulting fees related to integrity requirements, such as class location studies and third party geotechnical site evaluations to address and mitigate risk.

In addition, O&M includes some non-capital internal labor in support of NW Natural's system integrity program (SIP). These costs include the Integrity Management staff (7 FTEs) and Damage Prevention specialists (3.5 FTEs) involved in damage prevention/investigation. The Integrity Management group may also utilize other internal resources in support of SIP activities which includes GIS analysts, Customer Service, Construction, and other subject matter experts. Significant O&M projects include:

Sewer Crossbore Inspections (\$2,309,000)

The sewer crossbore program involves the visual inspection of sanitary sewers for incidences of gas line crossbores. In installations where trenchless technology was used to install polyethylene pipe there exist the possibility the gas line was bored through a sewer main or lateral. NW Natural's policy is to expose all foreign line crossings when performing trenchless work. Sewer crossbores typically occur when facility owners fail to locate their pipe, creating a situation where NW Natural is unable to expose their facilities during construction. This is an industry-wide threat. Although sewer crossbores are not isolated to gas operators, the consequence when gas lines are involved can be high. This program identifies trenchless polyethylene installations and inspects the sewers in the vicinity to identify crossbores.

Transmission inline reassessment and remediation (\$998,600)

This work includes the prescribed seven year reassessment of transmission pipelines in HCA's and is comprised of both inline inspection and direct assessment of transmission assets. When an anomaly is

discovered this work can include the *in situ* remediation of the pipe without removal from service.

Natural Forces (\$272,000)

Where the threat of natural forces can be mitigated without pipe replacement or rerouting, NW Natural may choose to address the threat through site work. This option can be critical in situations where a reroute is not feasible due to environmental restrictions or where a pipeline serves a critical customer or provides a single feed to a distribution system. Work may include armoring of slopes, re-grading of sites, culvert improvements, and retaining structures to address land movement and drainage issues.

Damage Prevention (\$525,000)

In compliance with DIMP regulations, and to address the single largest threat to gas facilities, NW Natural maintains a Damage Prevention department. The department consists of a supervisor and 2.5 Damage Prevention Specialists whose responsibilities include damage prevention through training, attendance at pre-construction meetings, participation in Utility Coordinating Councils, and support of the 811 One-call system. Damage Prevention Specialists are also responsible for the investigation and enforcement actions related to excavation and third party damage.

NW Natural plans to enhance its damage prevention program with additional staff in 2018. The expected incremental budget for the additional staff is currently under review.

Public Awareness (\$510,000)

This Safety Project is to meet requirements mandated in API RP 1162, adopted by reference by PHMSA into Part 192.616(a),(b), and (c). The purpose of this project is to promote safety information, and educate our customers and the public about natural gas safety. The program includes customer correspondence, mailers, advertisements, and brochures to the affected public such as excavators, contractors, public officials, dwellings along pipeline right of way and in high consequence areas, and schools. Training is offered to the contractor network in an effort to reduce damages, and materials are provided to first responders and contractors within NWN's service territory.

In 2018, \$300,000 in incremental budget for safety-related activities and additional staff will be allocated to support public safety awareness, outreach, education, emergency response and damage prevention.

MAOP validation (\$250,000)

This work includes the O&M components of the agreement between the OPUC and NWN to address missing pressure test documentation. The O&M portion of this work involves the process, procedures, labor, and equipment that do not involve the installation of new assets.

Right of Way Encroachments (\$175,000)

Part of routine pipeline patrols is to identify changes in site conditions. One such change is the installation of structures over pipelines and inside dedicated pipeline rights-of-way and easements. In some instances the remediation involves relocation of structures and non-gas facilities.

VII. 2018 Significant Safety Initiatives

Central Coast In Line Inspection (ILI) (Estimate \$2.5 MM)

This project involves transition of the Central Coast Feeder from direct assessment to ILI. The Central Coast Feeder will be NW Natural's longest and most complicated inline inspection to date. The pipeline originates in Salem and terminates in Toledo along the Oregon coast, traversing 93 miles along Hwy 18 and the coast range.

Santiam River Pipe Replacement (Estimate \$950,000)

During an underwater patrol, an 8-inch line was identified as having shallow to no cover in the Santiam River. Planning, scoping, and permitting are being completed to prepare for replacement of the pipe in 2018.

Underground Storage Integrity (Estimate \$300,000)

In compliance with PHMSA's adoption of RP 1171, NW Natural is developing a risk assessment methodology and may, as appropriate, implement prudent actions as needed to align with the recommended practices of RP 1171.

Public Awareness & Damage Prevention (Estimate \$300,000)

In 2018, incremental budget for safety related activities and additional staff is being allocated to support public safety awareness, outreach, education, emergency response and damage prevention.

VIII. Other Safety Projects/Programs Being Evaluated at this Time include:

Seismic Studies

NW Natural is planning for seismic studies on the transmission and distribution system. The studies will be used to identify, plan, and prioritize projects to address seismic resiliency.

PSMS

In 2018 NW Natural will begin implementation of a Pipeline Safety Management System in compliance with API RP 1173.

Tracking and Traceability

In compliance with PHMSA's Plastic Pipe Rule, NW Natural will begin to assess and implement actions to meet the proposed requirements of the rule.

Proactive Excess Flow Valve (EFV) Installation

NW Natural is evaluating expanding the installation of Excess Flow Valves (EFVs). On October 14, 2016, under Docket No. PHMSA-2011-009, PHMSA adopted code requiring the installation of EFVs or shut-off valves on all new or replaced branched service lines. While the code requires EFVs be installed in all new or replaced branched services, it does not require installation of EFVs at existing services where those EFVs may reduce the consequence of a gas release. This evaluation is a high priority item to NW Natural, given the recent incident at NW 23rd & Glisan in October 2016, which would have had an increased likelihood of prevention if an EFV had been installed. For this principal reason, NW Natural will evaluate establishing a risk-based, proactive EFV installation program on existing service lines. In 2018, NWN will pilot a program to identify best installation practices, addressing cost efficiency and effectiveness to help guide the best and most prudent implementation plan for presentation to the OPUC in the next SPP.

IX. Cost Benefit Analysis & Alternative Analysis

The performance of a cost benefit analysis and alternatives analysis is sometimes difficult in the context of safety programs. Such an analysis has not been of major consideration in this report because all safety projects are prescribed by code requirements, or performance related, and are based on in-depth study of NW Natural's transmission and distribution network systems and facilities. Therefore, safety projects do not inherently always provide for alternatives. In the event a safety project requires a vulnerability assessment study an RFI/RFQ will be prepared and issued. As necessary NW Natural will interview and select the most qualified SMEs to participate and provide input for the studies. Once the required studies are completed, the recommendations will be fully vetted against system threats and presented in future SSPs, with alternative analysis presented for their implementation.

X. Pending Legislation Update

PHMSA currently has several pending rules, which will have a direct impact on gas operators' programs. They are presented below for the Commission's review. Their impact on safety programs, once finalized, will be presented the Commission in future SPPs. The following is a list of significant impending new rules:

- Docket No. PHMSA-2011-0023 – Safety of Gas Transmission and Gathering Pipelines
 - o The Notice of Proposed Rulemaking is a comprehensive update to the Transmission Integrity requirements and is the largest revision of the code since its inception in 1970. Major changes includes increased requirements for HCAs and inline inspection, material verification, documentation retention requirements.

- Docket No. PHMSA-2014-0098 – Plastic Pipe Rule
 - o The Notice of Proposed Rulemaking includes requiring Tracking and Traceability for all new plastic pipe installation.

- Docket No. PHMSA-2016-0016 – Underground Storage Facilities for Natural Gas
 - o PHMSA incorporated API 1171 by reference in January 2017 with an interim final rule. The final rule is expected in January 2018, and may add additional requirements or modify existing requirements from the interim rule. This Notice of Proposed Rulemaking adds significant prescriptive requirements for underground storage operators including creating a risk model, assessing the integrity of existing wells, and remediating any anomalies discovered to ensure well integrity.