STATE OF WASHINGTON
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
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CERTIFIED MAIL

June 7, 2012

Grant M. Yoshihara
Vice President of Utility Operations
Northwest Natural Gas
220 NW Second Avenue
Portland, OR 97209

Dear Mr. Yoshihara:

RE: 2012 Northwest Natural Joint Headquarters Operations and Maintenance Inspection

The Washington Utilities and Transportation Staff (UTC Staff) conducted an inspection of Northwest Natural Gas (NWN) plans and procedure manuals from April 23 – 26, 2012.

For efficiency and other reasons, the UTC Staff conducted this inspection jointly with representatives from the Oregon Public Utility Commission. However, as you are aware, each of these commissions has separate gas pipeline safety jurisdiction over NWN and each commission will make its own decision regarding the exercise of that jurisdiction regarding this inspection. Therefore, this letter and the attached probable violations are from the Washington Utilities and Transportation Commission only.

Our inspection indicates 21 probable violations as noted in the enclosed report. We also noted 11 areas of concern, which unless corrected, could potentially lead to future violation of state and/or federal pipeline safety rules.

Your response needed
Please review the attached report and respond in writing by July 9, 2012. The response should include how and when you plan to bring the probable violations into full compliance.

What happens after you respond to this letter?
The attached report presents staff's decision on probable violations and does not constitute a finding of violation by the commission at this time.

After you respond in writing to this letter, there are several possible actions the commission, in its discretion, may take with respect to this matter. For example, the commission may:

- Issue an administrative penalty under RCW 81.88.040, or
- Institute a complaint, seeking monetary penalties, changes in the company's, practices, or other relief authorized by law, and justified by the circumstances, or
- Consider the matter resolved without further commission action.

If you have any questions, or if we may be of any assistance, please contact Joe Subsits at (360) 664-1322. Please refer to the subject matter described above in any future correspondence pertaining to this inspection.

Sincerely,

David D. Lykken
Pipeline Safety Director

cc. Kerry Shampine, Manager, Code Compliance

Enclosure

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
2012 Headquarters Operations and Maintenance Inspection
Northwest Natural Gas – Joint Inspection Washington and Oregon

The following probable violations and areas of concern of Title 49, CFR Part 192 and WAC 480-93 were noted as a result of the inspection of Northwest Natural Gas Headquarters Operations and Maintenance Inspection. The inspection included a review of Northwest Natural Gas Operations and Maintenance Procedures Manual(s).

PROBABLE VIOLATIONS

The following are probable violations under WAC 480-93-180 Plan and procedures and/or 49 CFR §192.605 Procedural manual for operations, maintenance, and emergencies.

1. **WAC 480-93-080 Welder and plastic joiner identification and qualification.**

(1) All welding procedures and welders, except welders listed in (a) of this subsection, must be qualified to API Standard 1104 or section IX of the ASME Boiler and Pressure Vessel Code.

(a) Oxyacetylene welders may qualify under 49 CFR § 192 Appendix C, but may only weld the following size pipe:

(i) Nominal two-inch or smaller branch connections to nominal six-inch or smaller main or service pipe.

(ii) Nominal two-inch or smaller below ground butt welds.

(iii) Nominal four-inch or smaller above ground manifold and meter piping operating at 10 psig or less.

(b) Appendix C welders must be requalified at least twice annually, but not to exceed seven and one-half months between qualification tests.

(c) When testing welders or qualifying procedures, each gas pipeline company must use the testing equipment necessary to measure the amperage, voltage, and speed of travel. All essential variables, as defined by the applicable procedure, must be recorded and documented as performed during the welder and procedure testing.

(d) For the purposes of (c) of this subsection, "essential variable" is defined as any variable in the welding procedure, which, according to the procedure being used, would require the requalification of the procedure if changed from or performed outside a specified range. "Speed of travel" is defined as the actual per pass welding time in minutes divided by the length of the weld in inches.

(e) Qualified written welding procedures must be located on-site where welding is being performed.

1. **Finding(s):**

NWN did not have a procedure for measuring amperage necessary and voltage when testing welders and qualifying procedures. NWN identified they have a large range so no need for verification testing However, staff pointed out this

"technique" would not ensure welding within the correct ranges, especially when operating on the low and high ends of the range.

2. **Finding(s):**
NWN did not have a procedure to record and document all essential variable data for welder and procedure qualification tests. NWN identified they have a large range so no need for verification of the actual measurement. However, staff pointed out this "practice" would not ensure welding within the correct ranges when operating on the low and high ends of the range or that the welding equipment read.

2. **WAC 480-93-110 Corrosion control.**

(3) Cathodic protection equipment and instrumentation must be maintained, tested for accuracy, calibrated, and operated in accordance with the manufacturer's recommendations. When there are no manufacturer's recommendations, then instruments must be tested for accuracy at an appropriate schedule determined by the gas pipeline company.

Finding(s):
NWN did not have a calibration procedure for multi-meters.

3. **WAC 480-93-124 Pipeline markers.**

(5) Each gas pipeline company must replace markers that are reported damaged or missing within forty-five days.

Finding(s):
NWN did not have a procedure describing how pipeline markers reported as missing and damaged will be replaced within 45 days.

4. **WAC 480-93-140 Service regulators.**

(1) To ensure proper operation of service regulators, each gas pipeline company must install, operate, and maintain service regulators in accordance with federal and state regulations, and in accordance with the manufacturer's recommended installation and maintenance practices.

(2) Each gas pipeline company must inspect and test service regulators and associated safety devices during the initial turn-on, and when a customer experiences a pressure problem. Testing must include determining the gas regulator's outlet set pressure at a specified flow rate. Each gas pipeline company must use pressure gauges downstream of the regulator during testing. Safety devices such as fracture discs are not required to be tested.

Finding(s):
NWN did not present clear instructions for regulator maintenance repair/replacement. SPW's 361, 383, and 384 do not reference construction requirements of FOM 515 or operator qualifications OP Q 80206.

5. **49 CFR §192.7 What documents are incorporated by reference partly or wholly in this part?**

(a) Any documents or portions thereof incorporated by reference in this part are included in this part as though set out in full. When only a portion of a document is referenced, the remainder is not incorporated in this part.

(c) The full titles of documents incorporated by reference, in whole or in part, are provided herein. The numbers in parentheses indicate applicable editions. For each incorporated document, citations of all affected sections are provided. Earlier editions of currently listed documents or editions of documents listed in previous editions of 49 CFR Part 192 may be used for materials and components designed, manufactured, or installed in accordance with these earlier documents at the time they were listed. The user must refer to the appropriate previous edition of 49 CFR Part 192 for a listing of the earlier listed editions or documents.

(2) Documents incorporated by reference.

B. American Petroleum Institute (API)

D. ASME International (ASME)

Finding(s):

NWN procedure SPW 221-8 did not identify the current edition of:

a. API Standard 1104, ''Welding of Pipelines and Related Facilities'' (20th edition, October 2005).

b. 2007 ASME Boiler & Pressure Vessel Code, Section IX, ''Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.''

6. **49 CFR §192.153 Components fabricated by welding.**

(a) Except for branch connections and assemblies of standard pipe and fittings joined by circumferential welds, the design pressure of each component fabricated by welding, whose strength cannot be determined, must be established in accordance with paragraph UG-101 of section VIII, Division 1, of the ASME Boiler and Pressure Vessel Code.

(b) Each prefabricated unit that uses plate and longitudinal seams must be designed, constructed, and tested in accordance with section VIII, Division 1, or section VIII, Division 2 of the ASME Boiler and Pressure Vessel Code, except for the following:

(1) Regularly manufactured butt-welding fittings.

(2) Pipe that has been produced and tested under a specification listed in Appendix B to this part.

(3) Partial assemblies such as split rings or collars.

(4) Prefabricated units that the manufacturer certifies have been tested to at least twice the maximum pressure to which they will be subjected under the anticipated operating conditions.

(c) Orange-peel bull plugs and orange-peel swages may not be used on pipelines that are to operate at a hoop stress of 20 percent or more of the SMYS of the pipe.

(d) Except for flat closures designed in accordance with section VIII of the ASME Boiler and Pressure Code, flat closures and fish tails may not be used on pipe that either operates 100 p.s.i. (689 kPa) gage, or more, or is more than 3 inches (76 millimeters) nominal diameter.

1. **Finding(s):**
NWN O&M manual SPW 221-4.1 states that NWN "utilizes materials whose strength cannot be determined" and their practice and other manual locations state they will not use materials whose strength cannot be determined.

2. **Finding(s):**
NWN O&M manual did not include ASME testing procedures.

7. **49 CFR §192.807 Recordkeeping.**

Each operator shall maintain records that demonstrate compliance with this subpart.

(a) Qualification records shall include:
- *(1) Identification of qualified individual(s);*
- *(2) Identification of the covered tasks the individual is qualified to perform;*
- *(3) Date(s) of current qualification; and*
- *(4) Qualification method(s).*

(b) Records supporting an individual's current qualification shall be maintained while the individual is performing the covered task. Records of prior qualification and records of individuals no longer performing covered tasks shall be retained for a period of five years.

Finding(s):
NWN did not present a procedure requiring records of individuals no longer performing covered tasks for a period of five years. NWN identified they throw-out these records annually. NWN identified they will go to the subcontracting company to obtain those records they have thrown-out. Staff identified that NWN is required to maintain these records and not to rely on contractor to maintain these records without a written agreement with the contractor regarding specific records retention/maintenance. Ultimately, NWN is responsible for the records.

8. **49 CFR §192.283 Plastic pipe. Qualifying joining procedures.**

(a) Heat fusion, solvent cement, and adhesive joints. Before any written procedure established under § 192.273(b) is used for making plastic pipe joints by a heat fusion, solvent cement, or adhesive method, the procedure must be qualified by subjecting specimen joints made according to the procedure to the following tests:
- *(1) The burst test requirements of--*
  - *(i) In the case of thermoplastic pipe, paragraph 6.6 (sustained pressure test) or paragraph 6.7 (Minimum Hydrostatic Burst Test) or paragraph 8.9 (Sustained Static pressure Test) of ASTM D2513-99 (incorporated by reference, see § 192.7);*

(ii) *In the case of thermosetting plastic pipe, paragraph 8.5 (Minimum Hydrostatic Burst Pressure) or paragraph 8.9 (Sustained Static Pressure Test) of ASTM D2517 (incorporated by reference, see § 192.7); or*

(iii) *In the case of electrofusion fittings for polyethylene (PE) pipe and tubing, paragraph 9.1 (Minimum Hydraulic Burst Pressure Test), paragraph 9.2 (Sustained Pressure Test), paragraph 9.3 (Tensile Strength Test), or paragraph 9.4 (Joint Integrity Tests) of ASTM Designation F1055 (incorporated by reference, see § 192.7).*

Finding(s):
NWN did not present a procedure identifying how electrofusion burst test requirements referenced in (a)(1)(iii) above will be met.

9. **49 CFR §192.307 Inspection of materials.**
Each length of pipe and each other component must be visually inspected at the site of installation to ensure that it has not sustained any visually determinable damage that could impair its serviceability.

Finding(s):
NWN did not present procedures describing how to document the visual inspection of pipe and components at the site of installation.

10. **49 CFR §192.319 Installation of pipe in a ditch**

(a) *When installed in a ditch, each transmission line that is to be operated at a pressure producing a hoop stress of 20 percent or more of SMYS must be installed so that the pipe fits the ditch so as to minimize stresses and protect the pipe coating from damage.*

(b) *When a ditch for a transmission line or main is backfilled, it must be backfilled in a manner that:*

(1) *Provides firm support under the pipe; and*

(2) *Prevents damage to the pipe and pipe coating from equipment or from the backfill material.*

Finding(s):
NWN failed to demonstrate their procedures SPW 150-3.4.4 and SPW 160-3.5.1 include step-by-step instructions regarding NWN's practice requiring engineering approval and design of protection measures prior to the installation/construction of a shallow pipeline.

11. **49 CFR §192.357 Customer meters and regulators: Installation.**

(a) *Each meter and each regulator must be installed so as to minimize anticipated stresses upon the connecting piping and the meter.*

(b) *When close all-thread nipples are used, the wall thickness remaining after the threads are cut must meet the minimum wall thickness requirements of this part.*

(c) *Connections made of lead or other easily damaged material may not be used in the installation of meters or regulators.*

(d) *Each regulator that might release gas in its operation must be vented to the outside atmosphere.*

Finding(s):
NWN failed to demonstrate their procedures include the requirements identified in (a), (b), and (c) above.

12. **49 CFR §192.361 Service lines: Installation.**

(c) Grading for drainage. Where condensate in the gas might cause interruption in the gas supply to the customer, the service line must be graded so as to drain into the main or into drips at the low points in the service line.

Finding(s):
NWN failed to demonstrate they have a procedure for completing/meeting the above grading for drainage requirements.

13. **49 CFR §192.453 General.**

The corrosion control procedures required by §192.605(b)(2), including those for the design, installation, operation, and maintenance of cathodic protection systems, must be carried out by, or under the direction of, a person qualified in pipeline corrosion control methods.

Finding(s):
NWN failed to identify what qualifies a corrosion engineer under procedure SPW 455.

14. **49 CFR §192.455 External corrosion control: Buried or submerged pipelines installed after July 31, 1971.**

(a) Except as provided in paragraphs (b), (c), and (f) of this section, each buried or submerged pipeline installed after July 31, 1971, must be protected against external corrosion, including the following:

(1) It must have an external protective coating meeting the requirements of §192.461.

(2) It must have a cathodic protection system designed to protect the pipeline in accordance with this subpart, installed and placed in operation within 1 year after completion of construction.

Finding(s):
NWN failed to demonstrate their O&M manual identifies that a cathodic protection system designed to protect the pipeline shall be installed and placed in operation within 1 year after completion of construction. Under NWN procedure SPW 455, present language states, "cathodic protection is not required to function on a pipeline until prior to the introduction of gas in the pipeline."

15. **49 CFR §192.479 Atmospheric corrosion control: General.**

(a) Each operator must clean and coat each pipeline or portion of pipeline that is exposed to the atmosphere, except pipelines under paragraph (c) of this section.

(b) Coating material must be suitable for the prevention of atmospheric corrosion.

(c) *Except portions of pipelines in offshore splash zones or soil-to-air interfaces, the operator need not protect from atmospheric corrosion any pipeline for which the operator demonstrates by test, investigation, or experience appropriate to the environment of the pipeline that corrosion will—*

(1) Only be a light surface oxide; or

(2) Not affect the safe operation of the pipeline before the next scheduled inspection.

Finding(s):
NWN failed to demonstrate procedure SPW 480-3.3.3 and OP C 132-01 includes/references a procedure for the application of paint and primer to exposed areas of pipe.

16. **49 CFR §192.605 Procedural manual for operations, maintenance, and emergencies.**

(b) *Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations.*

(8) Periodically reviewing the work done by operator personnel to determine the effectiveness and adequacy of the procedures used in normal operation and maintenance and modifying the procedure when deficiencies are found.

(c) *Abnormal operation. For transmission lines, the manual required by paragraph (a) of this section must include procedures for the following to provide safety when operating design limits have been exceeded:*

(4) Periodically reviewing the response of operator personnel to determine the effectiveness of the procedures controlling abnormal operation and taking corrective action where deficiencies are found.

1. **Finding(s):**
NWN failed to demonstrate they have a procedure(s) in their O&M manual regarding the periodic review of work done by operator personnel.

2. **Finding(s):**
NWN failed to demonstrate they have a procedure(s) in their O&M manual regarding periodically reviewing the response of operator personnel to determine the effectiveness of the procedures controlling AOC and corrective action.

17. **49 CFR §192.614 Damage prevention program.**

(c) *The damage prevention program required by paragraph (a) of this section must, at a minimum:*

(4) If the operator has buried pipelines in the area of excavation activity, provide for actual notification of persons who give notice of their intent to excavate of the type of temporary marking to be provided and how to identify the markings.

Finding(s):
NWN failed to demonstrate their procedures include information regarding how they provide information to excavators on how to identify the markings.

18. **49 CFR §192.615 Emergency plans.**

(c) Each operator shall establish and maintain liaison with appropriate fire, police, and other public officials to:

(1) Learn the responsibility and resources of each government organization that may respond to a gas pipeline emergency;

(2) Acquaint the officials with the operator's ability in responding to a gas pipeline emergency;

(3) Identify the types of gas pipeline emergencies of which the operator notifies the officials; and,

(4) Plan how the operator and officials can engage in mutual assistance to minimize hazards to life or property.

Finding(s):
NWN failed to demonstrate they have a procedure for determining/compiling:

a. A listing of public officials contacts.
b. How they will maintain liaison with public officials.
c. They learned the responsibility and resources of each government organization that may respond to a gas pipeline emergency.

19. **49 CFR §192.739 Pressure limiting and regulating stations: Inspection and testing.**

(a) Each pressure limiting station, relief device (except rupture discs), and Pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year, to inspections and tests to determine that it is-

(1) In good mechanical condition;

(2) Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed;

(3) Except as provided in paragraph (b) of this section, set to control or relieve at the correct pressure consistent with the pressure limits of §192.201(a); and

(4) Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.

(b) For steel pipelines whose MAOP is determined under §192.619(c), if the MAOP is 60 psi (414 kPa) gage or more, the control or relief pressure limit is as follows:

If the MAOP produces a hoopstress that is:	*Then the pressure limit is:*
Greater than 72 percent of SMYS	*MAOP plus 4 percent.*
Unknown as a percentage of SMYS	*A pressure that will prevent unsafe operation of the pipeline considering its operating and maintenance history and MAOP.*

Finding(s):
NWN failed to include procedure SPW 743-3.6 references to the engineering capacity calculation procedure including Engineering Procedure D-10 Regulator and Relief Set Point Requirements.

20. **49 CFR §192.745 Valve maintenance: Transmission lines.**
   (a) Each transmission line valve that might be required during any emergency must be inspected and partially operated at intervals not exceeding 15 months, but at least once each calendar year.
   (b) Each operator must take prompt remedial action to correct any valve found inoperable, unless the operator designates an alternative valve.

Finding(s):
NWN failed to demonstrate they have a procedure for remedial action activities.

21. **49 CFR §192.747 Valve maintenance: Distribution systems.**
   (a) Each valve, the use of which may be necessary for the safe operation of a distribution system, must be checked and serviced at intervals not exceeding 15 months, but at least once each calendar year.
   (b) Each operator must take prompt remedial action to correct any valve found inoperable, unless the operator designates an alternative valve.

Finding(s):
NWN failed to demonstrate they have a procedure for remedial action activities.

AREAS OF CONCERN

1. **49 U.S.C. 60132 Subsection (b) ADB-08-07.**
NWN should include language in their procedures manual stating they are required to report no modifications, if none have occurring since the last complete submission.

2. **RCW 81.88.080 Pipeline Mapping System**
Although NWN submitted maps required by this rule, they failed to include language in their procedures manual requiring they provide accurate maps (or updates) of the pipelines, operating over two hundred fifty pounds per square inch gauge, to specifications developed by the commission sufficient to meet the needs of first responders.

3. **WAC 480-93-180 Plans and procedures.**
Typo noted in procedure SPW 221-4.4.1 and 4.2. Section 8 should read Section 8 Division 2.

4. **WAC 480-93-180 Plans and procedures.**
Typo noted in procedure SPW 361-3.1 pate 2 of 7. Indent "Any source of ignition that could arc or spark during normal operation" so that it is under the 3'-0" separation requirement.

5. **49 CFR §192.111 Design factor (F) for steel pipe.**
NWN O&M manual failed to identify/include a reference or link to their engineering procedures regarding the design factor requirements for steel in Class 1 locations.

6. **49 CFR §192.485 Remedial measures: Transmission lines.**
NWN O&M manual failed to identify/include a reference or link to their engineering procedures regarding the strength of the pipeline based on actual remaining wall thickness. It may be determined by ASME/ANSI B31G, PR 3-805 (RSTRENG disk), or other approved methods.

7. **49 CFR §192.111 Design factor (F) for steel pipe.**
NWN O&M manual failed to identify/include a reference or link to their engineering procedures regarding the design factor requirements for steel in Class 2 locations under §192.111 (c).

8. **49 CFR §192.111 Design factor (F) for steel pipe.**
NWN O&M manual failed to identify/include a reference or link to their engineering procedures regarding the design factor requirements for steel in Class 1 and Class 2 locations under §192.111 (d) (1) and (2).

9. **49 CFR §192.713 Transmission lines: Permanent field repair of imperfections and damages.**
NWN O&M procedure SPW 227 should reference Transmission IMP 5.1.3 which is the procedure to reduce operating pressure to a safe level during repair.

10. **49 CFR §192.721 Distribution systems: Patrolling.**
Language in NWN's patrol inspection procedures should include provisions to identify new small business districts.

11. **49 CFR §192.721 Distribution systems: Patrolling.**
NWN O&M manual failed to identify/include a reference or link from their procedure SPW 751 Preventing Accidental Ignition to the OQ training/procedures associated with this activity.