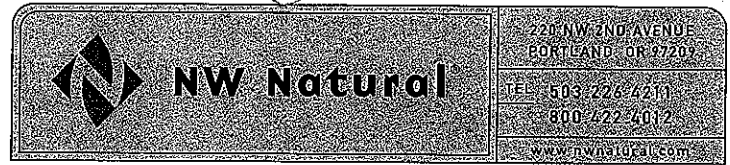


APPENDIX B

**COMPANY RESPONSE TO STAFF REPORT
(NOVEMBER 3, 2006)**

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 3, 2006

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

Subject: Natural Gas Pipeline Safety Inspection, Clark County
Ref. No. Docket PG-060208

Dear Mr. Rathbun:

The inspection of NW Natural's facilities in Clark County was conducted from May 1 to August 24, 2006 by Mr. Scott Rukke of the Washington Utilities and Transportation Commission. In response to the findings of the audit, dated September 22, 2006, NW Natural reports the following:

1. 49 CFR §192.739(a) 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.*

Finding(s):

NWN did not maintain the following Pressure Regulating Stations (PRS) on a schedule not to exceed 15 months, but at least once each calendar year, as required. NWN defined these PRS's as Primary Service Regulators (NWN definition dated 2/22/2005 and 4/28/2006) that do not require annual maintenance.

*RMS
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- (a) **Regulator 4-014-029-S-01 located at E/S of NW 11th Ave. – 860' S/O NW 297th Circle.** Records indicate that this regulator was maintained on 05/07/2003 and again on 03/31/2005. In addition to not performing maintenance within the 2004 calendar year as required, the maximum 15-month timeframe was also exceeded.
- (b) **Regulator 1-015-032-S-01 located at E. 13th & "V" St. N/S of Property.** Records indicate that this regulator was maintained on 09/09/2003 and again on 08/18/2005. In addition to not performing maintenance within the 2004 calendar year as required, the maximum 15-month timeframe was also exceeded.
- (c) **Regulator 1-016-046-S-01 located at EPL NE 162nd Ave. & 520' N/O NE 1st St.** Records indicate that this regulator was maintained on 04/10/2003 and again on 05/23/2005. In addition to not performing maintenance within the 2004 calendar year as required, the maximum 15-month timeframe was also exceeded.
- (d) **Regulator 1-022-059-S-01 located at N3 "C" St & 792' W of 6th St.** Records indicate that this regulator was maintained on 07/07/2003 and again on 06/14/2005. In addition to not performing maintenance within the 2004 calendar year as required, the maximum 15-month timeframe was also exceeded.
- (e) **Regulator 1-022-059-S-02 located at S2 "C" St & 500W of 6th St.** Records indicate that this regulator was maintained on 07/07/2003 and again on 06/14/2005. In addition to not performing maintenance within the 2004 calendar year as required, the maximum 15-month timeframe was also exceeded.

NW Natural response:

NW Natural is strongly committed to pipeline safety and to the appropriate inspection and testing of pressure limiting stations and pressure regulating stations (PRS) in accordance with 49 CFR 192.739(a). As discussed in NW Natural's September 8, 2006 response to Staff's data requests, NW Natural first learned of Staff's concerns relative to the company's interpretation of district regulators and primary service regulators during the Natural Gas Pipeline Safety Inspection of Clark County that commenced in May 2006.

The provisions of 49 CFR 192.197(c)(1) stipulate that if the maximum operating pressure of a distribution system exceeds 60 psig, natural gas operators may regulate and limit the pressure of gas delivered to the customer by locating a second regulator upstream from the service regulator. The federal pipeline safety code does not specify these upstream regulators as pressure limiting or pressure regulating stations, and NW Natural has historically designated this upstream regulator as a "primary service regulator" to distinguish it from the service regulator that controls final delivery pressure to the customer.

Similarly, the federal code does not clearly define the number of services that can be served from the upstream service regulator or the associated inspection requirements. As a result, different states across the country have adopted different interpretations of a PRS and primary service regulator (or "farm tap"). For example, the state of North Carolina allows up to 10 services on a farm tap. NW Natural's policy regarding primary service regulators has been defined in Standard Practice SPW 743, District and Service Regulators, for over

20 years. The company has historically specified that primary service regulators may serve up to 5 services. In addition, these primary service regulators have been maintained effectively at the frequency of once every 2 years not to exceed 27 months.

In early May, NW Natural learned that Staff's interpretation for PRS includes any regulator that serves more than two services. Although NW Natural has historically defined primary service regulators differently from Staff's interpretation, after learning of Staff's concerns, NW Natural reviewed and evaluated the company's primary service regulators in Clark County to determine if there were installations that did not conform to Staff's interpretation. In a small number of instances, the company voluntarily took action on installations that were incongruent with Staff's interpretation. The actions included the following:

Regulator 40-14-029-S-02 – Installation of one new primary service regulator in parallel with the existing primary service regulator, 4-014-029-S-01.

Regulator 1-015-032-S-01 – Removed.

Regulator 1-016-046-S-01 – Removed.

Regulator 1-022-059-S-02 – Removed.

In its September 8 data response, NW Natural provided Staff with a list of all primary service regulators removed in Clark County subsequent to May 1, 2006, including the associated number of services at the time. One of the primary service regulators cited by Staff, 1-022-059-S-01, located at N3 "C" Street and 792' W of 6th Street, Washougal, was removed for other business reasons, and at the time of removal had only two related services. Therefore, NW Natural believes that this regulator was not in conflict with Staff's interpretation of PRS.

All of the primary service regulators cited by Staff were inspected and tested in accordance with NW Natural's SPW 743 in effect at the time. In addition, the company believed that its definition of primary service regulators was compliant with all of the requirements of 49 CFR 192.

In summary, upon learning of Staff's interpretation of PRS (district regulator stations), NW Natural voluntarily reviewed the company's primary service regulators in Clark County to determine if there were installations that were inconsistent with Staff's interpretation. In a small number of instances, NW Natural took immediate and decisive action to make the primary service regulators in Clark County conform with Staff's interpretation.

2. **49 CFR §192.605(a) & (b)(1) Procedural Manual for Operations, Maintenance, and Emergencies**

(a) *General. Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least once each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.*

(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.

(1) Operating, maintaining, and repairing the pipeline in accordance with each of the requirements of this subpart and Subpart M of this part.

WAC 480-93-180(1) Plan of Operations and Maintenance Procedures; Emergency Policy; Reporting Requirements

(1) Each operator must have a plan and procedure manual for operation, maintenance, inspection, and emergency response activities. The manual must comply with the provisions of the "Pipeline Safety Improvement Act of 2002." The manual must include plans and procedures for all requirements of 49 CFR §192 and chapter 480-93 WAC, and any plans or procedures used by an operator's associated contractors.

Finding(s):

(a) NWN procedure titled Definitions, dated 2/22/2005 and 4/28/2006, defines "District Regulator" as a "pressure reducing station on the pipeline that controls gas pressure from an inlet system to an outlet system and serves a district of six or more customers."

NWN procedure titled Definitions, dated 2/22/2005 and 4/28/2006, defines "Primary Service Regulator" as a "pressure-regulating device that establishes delivery pressure to 5 or fewer customers from a higher-pressured distribution or transmission line."

These NWN definitions are inconsistent with the definition of Main and Service under 49 CFR §192.3.

(b) NWN procedure SPW 737, dated 1/25/2006, requires "monthly" calibration of gas detection instruments - Sensit Gold and Trak-IT III. Records indicate that the following instruments were not calibrated monthly as required:

- (1) TRAK-IT III no. 2356, no calibration record for 4/2006
- (2) TRAK-IT III no. 2375, no calibration record for 1/2006 or 2/2006
- (3) TRAK-IT III no. 2382, no calibration record for 4/2006
- (4) TRAK-IT III no. 4605, no calibration record for 2/2006
- (5) TRAK-IT III no. 4607, no calibration record for 2/2006
- (6) TRAK-IT III no. 2271, no calibration record for 1/2006
- (7) TRAK-IT III no. 2274, no calibration record for 1/2006
- (8) TRAK-IT III no. 2277, no calibration record for 1/2006
- (9) TRAK-IT III no. 2280, no calibration record for 4/2006
- (10) TRAK-IT III no. 2297, no calibration record for 1/2006 or 2/2006
- (11) TRAK-IT III no. 2299, no calibration record for 1/2006 or 2/2006 or 4/2006
- (12) TRAK-IT III no. 2307, no calibration record for 4/2006
- (13) TRAK-IT III no. 4613, no calibration record for 1/2006
- (14) TRAK-IT III no. 4619, no calibration record for 2/2006
- (15) TRAK-IT III no. 4623, no calibration record for 2/2006 or 3/2006
- (16) TRAK-IT III no. 4631, no calibration record for 4/2006
- (17) TRAK-IT III no. 4650, no calibration record for 4/2006
- (18) TRAK-IT III no. 5946, no calibration record for 2/2006, 3/2006 or 4/2006
- (19) TRAK-IT III no. 5947, no calibration record for 1/2006, 2/2006 or 4/2006

NW Natural response:

- (a) As previously discussed in the company's response to Probable Violation 1 above, NW Natural first became aware of Staff's concern with respect to the company's interpretation and definitions of district regulators (PRs) and primary service regulators (upstream regulators) during the Natural Gas Pipeline Safety Inspection of Clark County beginning in May 2006. The company's definitions of district regulators and primary service regulators have been defined in the Standard Practices for over 20 years and updates have been provided annually to Staff. Prior to May 2006, NW Natural had no reason to believe that Staff disagreed with the company's interpretation and definitions of district regulators and primary service regulators.

As a result of Staff's concerns expressed in May 2006, NW Natural has revised the company's Standard Practices SPW 001, Definitions (Enclosure 1) and SPW 743 (Enclosure 2) relative to district regulators and primary service regulators to conform with Staff's interpretation of 49 CFR 192.3 and 49 CFR 192.739(a), effective November 2, 2006. District regulators are now defined as:

A regulator station that reduces the pressure from a high-pressure pipeline to a lower pressure pipeline. District regulators may serve one or more services.

Primary service regulators are now defined as:

A pressure-regulating device that reduces the delivery pressure from a high-pressure pipeline to a lower pressure pipeline. Primary service regulators serve a maximum of two services.

District regulator stations will continue to be inspected and maintained once each calendar year not to exceed 15 months, in accordance with 49 CFR 192.739(a). Primary service regulators will continue to be inspected and maintained once every 2 years not to exceed 27 months.

- (b) In response to the findings of the Natural Gas Pipeline Safety Inspection of Clark County, NW Natural has reviewed its calibration records and located additional documentation regarding calibration for the majority of the Trak-It III and Sensit Gold gas detection (combustible gas indicator or CGI) instruments used in Clark County. Enclosed are additional calibration records associated with instruments referenced in Staff's report (Enclosure 3). Please note that instruments with serial numbers 4605, 4607, 4613, 4619, 4623, 4631, 4650, 5946, and 5947 are Sensit Gold CGIs and not Trak-It IIIs as noted in Staff's September 22, 2006 report.

NW Natural has previously calibrated the referenced gas detection instruments significantly more frequently than required by the manufacturer. WAC 480-93-188(2) requires "Gas detection instruments must be maintained, tested for accuracy, calibrated, and operated in accordance with the manufacturer's recommendations." In 2005, NW Natural requested that J And N Enterprises, Inc. provide the company with a letter clarifying the calibration requirements for the Trak-It III and Sensit Gold gas detection instruments used by the company.

On June 10, 2005, Mr. J. Scott Kleppe, President of J And N Enterprises, Inc., provided NW Natural with a letter confirming that "Your calibration on a 90 day basis is adequate for the products we are supplying to you (namely the Trak-It III and Sensit Gold instruments)" (Enclosure 4). Based on the expertise of the company president, the 90-day calibration schedule was deemed to be appropriate for NW Natural based on the company's use of the instruments.

During July 2006, NW Natural's Chief Engineer contacted Mr. Kleppe to confirm the company's understanding of the 90-day calibration requirement. Mr. Kleppe confirmed the appropriateness of the 90-day calibration schedule due to NW Natural's use of the instruments and disciplined calibration protocols. Mr. Kleppe also indicated that the 90-day calibration requirement would be confirmed with other natural gas operators if they were to request clarification.

NW Natural's monthly calibration requirement contained in SPW 737, Leak Detectors and Gas Analyzers, Revision 05, dated January 25, 2006, exceeded the manufacturer's requirements and, therefore, the requirements of WAC 480-93-188. Based on discussions with Staff in May 2006, NW Natural has revised SPW 737 (Revision 6, dated June 12, 2006) (Enclosure 5) to reflect a 90-day calibration schedule in accordance with the manufacturer's recommendations.

In summary, NW Natural believes the company exceeded the manufacturer's instrument calibration requirements for all gas detection instruments cited by Staff. Therefore, the referenced Trak-It III and Sensit Gold leakage detection instruments could be expected to provide accurate, reliable, and repeatable gas indications during the timeframes in question. In accordance with WAC 480-93-180(1), NW Natural has subsequently revised SPW 737 to reflect the manufacturer's 90-day recommendations.

3. 49 CFR §192.225 Welding Procedures

(a) Welding must be performed by a qualified welder in accordance with welding procedures qualified under section 5 of API 1104 (ibr, see §192.7) or section IX of the ASME Boiler and Pressure Vessel Code "Welding and Brazing Qualifications" (ibr, see §192.7) to produce welds meeting the requirements of this subpart. The quality of the test welds used to qualify welding procedures shall be determined by destructive testing in accordance with the applicable welding standard(s).

(b) Each welding procedure must be recorded in detail, including the results of the qualifying tests. This record must be retained and followed whenever the procedure is used.

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.

Finding(s):

NWN weld procedure No. WP-012, dated 11/23/1983 and adopted 5/30/1986, does not have speed of travel incorporated into the procedure. NWN staff originally stated that the procedure was qualified per API 1104 standards and subsequently stated that the procedure was qualified to 49 CFR Appendix C criteria. API 1104 lists speed of travel as an essential variable when qualifying procedures. The procedure does not meet API 1104 criteria and

Appendix C criteria is a welder qualification standard not a procedure qualification standard. When qualifying welders to Appendix C criteria, a welding procedure qualified to API or ASME standards must be used during testing.

NW Natural response:

Following discussions with Staff during the May 2006 inspection of Clark County, NW Natural proactively reviewed all of its welding procedures, including Weld Procedure Specification No. WP-012 and the associated Coupon Test Report, and made appropriate revisions. Weld Procedure Specification No. WP-012 is now Weld Procedure Specification No. WPO-310 (Enclosure 6). The revised procedure includes the required speed of travel as an essential variable. As noted on WPO-310, the procedure was developed in accordance with API 1104 standards. The revised welding procedures were effective June 19, 2006, and copies of all of NW Natural's revised welding procedures were provided to Staff in the company's June 19, 2006 response to data requests. NW Natural qualifies oxyacetylene welders in accordance with 49 CFR 192, Appendix C criteria.

4. WAC 480-93-185 Gas Leak Investigation

1) *Operators must promptly investigate any notification of a leak, explosion, or fire, which may involve gas pipelines or other gas facilities, received from any outside source such as a police or fire department, other utility, contractor, customer, or the general public. Where the investigation reveals a leak, the operator must grade the leak in accordance with WAC 480-93-186, and take appropriate action. The operator must retain the leak investigation record for the life of the pipeline.*

Finding(s):

The following leaks, caused by third party damage, were not graded as required.

(a) *W.O. Sub #03106770, located at 5302 NE 22nd Ave, Vancouver.*

(b) *W.O. Sub #03106932, located at 3204 NE 36th Ave, Vancouver*

NW Natural response:

NW Natural respectfully disagrees with Staff's interpretation that third-party excavation damages should be treated as leaks and graded in accordance with WAC 480-93-186. Company policy requires an immediate response to every known excavation damage as if it were a hazardous situation and provides for continuous actions until the site is safe. The company repairs all excavation damages immediately, even though an excavation damage could potentially be classified as a Grade B (Class 2) or Grade C (Class 3) leak. The company's response places an emphasis on the side of safety.

NW Natural believes that hazardous leak (Class A leak) statistics are a valid indicator of gas system integrity, and expects to use hazardous leaks as a performance metric in the upcoming Distribution Integrity Management Program (DIMP). NW Natural is very concerned that incorporating releases due to excavation damages into the company's leakage statistics will mask or contaminate the data, leading to potentially faulty conclusions related to the integrity of a given pipeline. As an example, if damages to new, medium

density polyethylene (PE) pipe are treated as leaks, an operator could inappropriately question the integrity of the pipe, when the more appropriate response would be to review the effectiveness of the damage prevention program.

However, in response to Staff's interpretation of the requirements of WAC 480-93-185, NW Natural has chartered a multi-departmental task group to revise business processes and procedures to incorporate releases caused by third-party excavation damage into the company's leak management program. NW Natural intends to implement the revised program on December 4, 2006.

5. **49 CFR §192.355(b)(1) Customer Meters and Regulators: Protection From Damage**
(b) Service regulator vents and relief vents. Service regulator vents and relief vents must terminate outdoors, and the outdoor terminal must-

(1) Be rain and insect resistant;

Finding(s):

At the time of this inspection, the following service regulators had relief vents which were installed in a manner that could have potentially allowed rain and moisture accumulation inside the regulator which may affect the proper operation of the device.

(a) Meter Number 743434, located at 1900 NE 162nd Avenue, Vancouver, WA 98643-3013.

(b) Meter Number 316080, located at 11500 NE 76th Street, Vancouver, WA.

NW Natural response:

NW Natural has corrected the service regulator relief vents on Meter Number 743434 (Figures 1, 2, and 3) and Meter Number 316080 (Figures 4 and 5).

6. **WAC 480-93-110(8) Corrosion Control**

(8) On all cathodically protected pipelines, the operator must take a cathodic protection test reading each time an employee or representative of the operator exposes the facility and the protective coating is removed.

Finding(s):

At the time of this inspection, NWN was unable to provide documentation indicating that a cathodic protection test reading was taken at 1201 NE 117 Ave in Vancouver. The facility was exposed and the protective coating removed under work order # 03109286, dated 11/07/2005.

NWN procedure No. SPW 459-2, dated 6/9/2005, also requires that a CP test read be taken on steel when exposed and the protective coating is removed.

NW Natural response:

NW Natural has been unable to retrieve documentation confirming the performance of a cathodic protection (CP) test reading at 1201 NE 117th Avenue in Vancouver. As noted by Staff and in accordance with WAC 480-93-110(8), the company Standard Practice SPW 459, Inspection of Exposed Pipe, requires company field personnel to perform a CP

test reading anytime a cathodically protected facility is exposed and the protective coating is removed. Following Staff's findings, NW Natural proactively performed an audit and confirmed that all subsequent instances of exposed steel pipe with protective coating removed included a documented CP test reading as required by WAC 480-93-110(8) and SPW 459.

In order to facilitate documentation of the CP tests required by WAC 480-93-110(8), NW Natural has revised the company's Work Order form to allow field personnel to efficiently document completion of the CP test (Enclosure 7).

In summary, NW Natural believes the missing CP test documentation for 1201 NE 117th Avenue in Vancouver was an isolated incident, and the company has confirmed subsequent instances included appropriate CP test documentation. In addition, NW Natural has implemented additional training and revised forms to facilitate the documentation of key CP test information as required by WAC 480-93-110(8).

7. WAC 480-93-187 Gas Leak Records

Each operator must prepare and maintain permanent gas leak records. The leak records must contain sufficient data and information to permit the commission to assess the adequacy of the operator's leakage program. Gas leak records must contain, at a minimum, the following information:

- (1) *Date and time the leak was detected, investigated, reported, and repaired, and the name of the employee(s) conducting the investigation;*
- (2) *Location of the leak (sufficiently described to allow ready location by other qualified personnel);*
- (3) *Leak grade;*
- (4) *Pipeline classification (e.g., distribution, transmission, service);*
- (5) *If reported by an outside party, the name and address of the reporting party;*
- (6) *Component that leaked (e.g., pipe, tee, flange, valve);*
- (7) *Size and material that leaked (e.g., steel, plastic, cast iron);*
- (8) *Pipe condition;*
- (9) *Type of repair;*
- (10) *Leak cause;*
- (11) *Date pipe installed (if known);*
- (12) *Magnitude and location of CGI readings left; and*
- (13) *Unique identification numbers (such as serial numbers) of leak detection equipment.*

Finding(s):

NWN has 4 grade B leaks that were reviewed by commission staff. The documents provided to staff for the 4 leaks did not contain all of the information required by WAC 480-93-187.

- (a) **Leak ID number 00-0254 located at NW Elm St, and 10th Ave, Camas WA.** *Missing data includes the location and magnitude of individual CGI reads left and instrument serial number.*
- (b) **Leak ID number 05-0425 located at 210 E 13 St, Vancouver WA.** *Missing data includes the location and magnitude of individual CGI reads left and instrument serial number.*

(c) **Leak ID number 98-0120 located at Front and 17th St, Washougal WA.** Missing data includes the location and magnitude of individual CGI reads left and instrument serial number.

(d) **Leak ID number 06-0021 located at NW 289 St and 34th WA.** Missing data includes the location and magnitude of individual CGI reads left and instrument serial number.

We would also like to note that it is not acceptable to record gas in air magnitude ranges such as NWN does on their Individual Leak Inspection Report. WAC 480-93-187(12) requires that individual readings be recorded along with the location of each reading.

NW Natural response:

NW Natural believes that the company has an effective leakage management program to maintain the safety and integrity of the transmission and distributions systems in accordance with 49 CFR 192.706, 192.723, and WAC 480-93-188. The company's leakage program includes provisions to locate leaks, evaluate or classify leaks, mitigate hazards caused by leaks, reevaluate known leaks on a periodic basis, and keep appropriate records.

NW Natural's SPW 709, Leak Classification and Repair (Enclosure 8), requires company personnel to document the leak information required in WAC 480-93-187, including the magnitude and location of CGI readings left and the unique identification number of leak detection equipment. NW Natural personnel document the serial numbers of CGI instruments used each day in a separate data base (Daily Log for Leakage Detection Equipment). Sample documentation confirming the serial numbers of leakage detection instruments used are enclosed as follows:

Leak ID 00-0254 and 98-0120, 4/6/06, GMI, Serial Number 4442 (Enclosure 9); and Leak ID 05-0425, 11/21/05, GMI, Serial Number 4442 (Enclosure 10).

In response to Staff's findings, NW Natural has implemented an enhanced process to map and record the magnitude and location of CGI readings as left on the Individual Leak Inspection Report form, effective October 16, 2006. NW Natural believes this action will satisfy Staff's concerns relative to the requirements of WAC 480-93-187(12).

In summary, NW Natural believes the information contained on the company's Daily Log for Leakage Detection Equipment complies with the requirements of WAC 480-93-187(12). However, in response to Staff concerns, NW Natural has implemented an enhanced process to record the exact CGI readings and their respective locations on the company's Individual Leak Inspection Report form. This information will supplement the company's current practice of recording the highest CGI reading expressed by range.

8. WAC 480-93-124(2)(b) (iv), Pipeline Markers

(2)(b) *The following pipelines must have pipeline markers installed, notwithstanding any exceptions in 49 CFR § 192.707(b):*

(iv) *On both sides of railroad crossings.*

Finding(s):

At the time of this inspection pipeline markers were not installed on both sides of railroad crossings at the following locations as required:

- (a) 32nd and approximately D St in Washougal, Washington.
- (b) 24th and approximately D St in Washougal, Washington.
- (c) 20th and approximately D St in Washougal, Washington.
- (d) 6th and approximately B St in Washougal, Washington.
- (e) 3rd (Whitney) and approximately James St in Washougal, Washington.

NWN procedure No. SPW 705.3.1, dated 12/06/2005, also requires that pipeline markers be installed on both sides of railroad crossings.

NW Natural response:

As Staff noted, NW Natural's SPW 705, Pipeline Markers (Enclosure 11), requires pipeline markers for distribution mains and transmission lines on both sides of railroad crossings in accordance with 49 CFR 192.707 and WAC 480-93-124. On September 29, 2006, NW Natural completed the replacement of damaged or missing pipeline markers at the above-referenced railroad crossings. Furthermore, during October 2006, NW Natural voluntarily initiated a self audit of all other railroad crossings in Clark County to ensure the adequacy of pipeline markers at railroad crossings.

In summary, NW Natural took immediate and decisive action to replace pipeline markers at the 5 locations referenced by Staff. In addition, the company voluntarily performed a self-audit of all other pertinent railroad crossings in Clark County to ensure the company's compliance with 49 CFR 192.707 and WAC 480-93-124.

9. WAC 480-93-170(7) Tests and Reports for Pipelines

- (7) Operators must keep records of all pressure tests performed for the life of the pipeline and must document the following information:
 - (a) Operator's name;
 - (b) Employee's name;
 - (c) Test medium used;
 - (d) Test pressure;
 - (e) Test duration;
 - (f) Pipe size and length;
 - (g) Dates and times; and
 - (h) Test results.

Finding(s):

NWN records indicate that the following pipelines did not have properly documented pressure tests.

- (a) **W.O. #03106770 located at 5302 NE 22nd Ave., Vancouver WA, dated 10/14/2005.**
Missing test medium used, test pressure, test duration, pipe length, time of test and test results.
- (b) **W.O. #03106932 located at 3204 NE 36th Ave., Vancouver WA, dated 10/17/2005.**
Missing test duration, pipe length, time of test and test results.

- (c) **W.O. #03106481 located at 2302 S 17th Way, Apt. L26, Ridgefield WA, dated 10/22/2005.** Used pre-tested pipe with no supporting test records including employee's name, test medium used, test pressure, test duration, pipe size and length, dates and times and test results.
- (d) **W.O. #03118370 located at 313 S 34th Pl., Ridgefield WA, dated 02/17/2006.** Missing test medium used, test pressure, test duration, time of test and test results.
- (e) **W.O. #03109859 located at 3523 S 2nd Way, Ridgefield WA, dated 11/15/2005.** Missing test medium used, test pressure, test duration, time of test and test results.
- (f) **W.O. #03111672 located at 3211 S 2nd Way, Ridgefield WA, dated 12/09/2005.** Missing test medium used, test pressure, test duration, time of test and test results.
- (g) **W.O. #03123799 located at 665 NW Norwood St., Camas WA, dated 04/26/2006.** Missing test medium used, test pressure, test duration, time of test and test results.
- (h) **W.O. #03064757 located at NE Pioneer St & 32nd Place, Ridgefield WA, dated 10/20/2005.** Missing test medium used, test duration, pipe size and length, dates and times and test results.

Note: According to NWN personnel this plat installation may have involved multiple pressure tests during the course of construction. If multiple pressure tests are conducted, NWN must document each individual pressure test as required by WAC 480-93-170(9).

NW Natural response:

Although the referenced Work Orders were not entirely complete, they contained additional information required by WAC 480-93-170. The following is an explanation of the information that appears on the referenced Work Orders which was reported as missing:

Work Order #03106770 located at 5302 NE 22nd Ave., Vancouver WA, dated 10/14/05 (work completed on 10/14/05). The pipe length was documented. The REPORTS/REMARKS portion of the Work Order states NW Natural replaced 2 feet of pretested ½-inch PE pipe (Enclosure 12).

Work Order #03106932 located at 3204 NE 36th Ave., Vancouver WA, dated 10/17/05 (work completed on 10/17/05). The pipe length was documented. The REPORTS/REMARKS portion of the Work Order and the attached Report of Damage to Gasco Structures form under EXPLANATION REPAIRS MADE AND MATERIAL USED indicate NW Natural replaced 5 feet of pretested 1-inch PE pipe (Enclosure 13).

Work Order #03106481 located at 2302 S 17th Way, Apt. L26, Ridgefield WA, dated 10/12/05 (work completed on 10/13/05). The pipe length was documented. The REPORTS/REMARKS portion of the Work Order states NW Natural replaced 2 feet of pretested pipe (Enclosure 14).

Work Order #03109859 located at 3523 S 2nd Way, Ridgefield WA, dated 11/11/05 (work completed on 11/15/05). Test pressure was documented. The SERVICE TESTED AT portion of the Work Order indicates NW Natural installed and tested 28 feet of ½-inch PE pipe at 100 pounds (Enclosure 15).

Work Order #03111672 located at 3211 S 2nd Way, Ridgefield WA, dated 12/1/05 (work completed on 12/9/05). Test pressure was documented. The SERVICE TESTED AT portion of the Work Order documents NW Natural installed and tested 33 feet of PE pipe in 29 feet of casing at 100 pounds (Enclosure 16).

Work Order #03123799 located at 665 NW Norwood St., Camas WA, dated 04/17/06 (work completed on 4/26/06). Test pressure was documented. The SERVICE TESTED AT portion of the Work Order states NW Natural installed and tested 128 feet of PE pipe at 100 pounds (Enclosure 17).

Work Order #03064757 located at NE Pioneer St & 32nd Place, Ridgefield WA, dated 5/16/05 (work completed by NW Natural on 7/19/05 and Contractor Loy Clark on 10/20/05). The pipe length and test pressure were documented. The REPORTS/REMARKS and SERVICE TESTED AT portions of the Work Order indicate on July 19, 2006, NW Natural installed 6,675 feet of 4-inch PE pipe (in 538 feet of casing) and tested pipe segment at 100 pounds (Phase 1) (Enclosure 18). The REPORTS/REMARKS and SERVICE TESTED AT portions of the Work Order document on October 20, 2005, contractor Loy Clark installed 4,168 feet of 2-inch PE pipe and tested the pipe segment at 100 pounds (Enclosure 19).

During the inspection NW Natural became aware that enhancements were needed to facilitate the documentation of required pressure tests performed by field personnel. As a result, NW Natural has created a Damage Check List to provide direction for field personnel to consistently document the test medium, test duration, time of test, and test results information on the Work Order (Enclosure 20). This Check List is currently in use throughout the company. Relative to the performance of multiple pressure tests conducted during the course of construction, NW Natural has modified its construction drawings to facilitate the documentation of multiple pressure tests that may occur on a complex construction project (Enclosure 21). This change and associated processes were implemented on September 1, 2006.

In summary, NW Natural has taken appropriate action to modify existing forms and develop documentation check lists to ensure the consistent reporting of pressure test information in compliance with the requirements of WAC 480-93-170.

10. WAC 480-93-188(4)(e) Gas Leak Surveys

(4) Special leak surveys must be conducted under the following circumstances:

(e) After third-party excavation damage to services, operators must perform a gas leak survey from the point of damage to the service tie-in.

Finding(s):

NWN was unable to provide the required leak survey documentation for the following 2 pipelines which were damaged and leaking due to third party damage:

(a) W.O. #03106770 located at 5302 NE 22nd Ave., Vancouver WA, dated 10/14/2005.

(b) W.O. #03106932 located at 3204 NE 36th Ave., Vancouver WA, dated 10/17/2005.

NW Natural response:

As previously discussed in NW Natural's response to Probable Violation 9 above, the company has created a Damage Check List (Enclosure 20) for third-party excavation damages which directs field personnel to consistently perform and document a leak survey from the point of damage to the main. NW Natural believes these procedural changes satisfy Staff's concerns and ensure compliance with the special leak survey requirements of WAC 480-93-188(4)(e).

11. WAC 480-93-178(4) Protection of Plastic Pipe

(4) *When installing plastic pipelines parallel to other underground utilities, operators must ensure there is a minimum of twelve inches of separation from the other utilities. Where a minimum twelve inches of separation is not possible, operators must take adequate precautions, such as inserting the plastic pipeline in conduit, to minimize any potential hazards resulting from the close proximity to the other utilities.*

Finding(s):

On August 24, 2006, we observed the following ½-inch plastic new construction residential services in open ditches which did not have 12-inches of separation from other underground utilities. The services were direct buried without protection from hazards which could result from the close proximity of other utilities.

(a) **5911 NE 62nd St., Vancouver.**

(b) **9117 NE 77 St., Vancouver.**

NWN procedure No. SPW 253, dated 04/21/2006, also requires a minimum of 12-inches of horizontal separation or the use of conduits or other protection.

NW Natural response:

When NW Natural became aware of Staff's concerns, company personnel took corrective action as follows:

5911 NE 62nd Street, Vancouver. NW Natural re-excavated the ditch to evaluate the separation issues and relocated the service to achieve appropriate depth and separation from other utilities (Figure 6).

9117 NE 77 Street, Vancouver. In order to ensure adequate separation, NW Natural replaced the entire length of the service to another alignment (Figure 7).

The referenced ½-inch PE new construction residential services were installed as part of joint utility trench installations. NW Natural is committed to installing new service lines with appropriate depth and separation from other utilities. NW Natural's SPW 253, Polyethylene Pipe Installations (Enclosure 22), states the company's policy for the separation of PE pipe from other utilities as 12 inches of separation for parallel installations, and 6 inches of separation for perpendicular crossings. If these separations are not possible, adequate precautions will be taken such as encasing the pipe in conduit.

At the time of Staff's inspection and findings, the joint trench installations at 5911 NE 62nd Street and 9117 NE 77th Street, Vancouver were under construction. When NW Natural crews left these sites, there was no conflict with other utilities in the joint trench. Subsequent installations by other utilities resulted in the conflict with the company's separation standards. Since NW Natural is unable to control installations after the company's service lines are installed, and after consulting with Staff, NW Natural proposes to revise the company's PE installation standards to require that all joint trench service installations in Washington include the use of conduit and a minimum of 2 inches of shading in order to provide protection against potential encroachments.

12. 49 CFR §192.361(a), Service Lines: Installation

(a) Depth. Each buried service line must be installed with at least 12 inches (305 millimeters) of cover in private property and at least 18 inches (457 millimeters) of cover in streets and roads. However, where an underground structure prevents installation at those depths, the service line must be able to withstand any anticipated external load.

Finding(s):

On August 24, 2006, we observed the following ½-inch plastic new construction residential services in open ditches which did not have the minimum of 12-inches of cover. The services had minimal dirt shading and were exposed in several locations.

- a. 5911 NE 62nd St., Vancouver.*
- b. 5923 NE 62nd St., Vancouver.*
- c. 9117 NE 77 St., Vancouver.*

NW Natural response:

Upon becoming aware of Staff's concerns, NW Natural took prompt corrective action as described in the company's response to Probable Violation 11 which addresses the same locations as items a. and c. above. In addition, at 5923 NE 62nd Street, Vancouver, the company took the following corrective action:

5923 NE 62nd Street, Vancouver. NW Natural relocated the PE service pipe to ensure adequate separation from other utilities as required by 49 CFR 192.361(a) (Figures 8 and 9).

NW Natural is committed to installing new service lines with appropriate depth and separation from other utilities. NW Natural agrees with Staff that the PE lines at the 3 above-referenced new construction sites require a minimum of 12 inches of cover at the completion of construction and backfill, and should have adequate dirt shading in the interim. However, it is important to note that these services were part of a joint trench installation with other utilities and that these locations were under construction. Based on the installation depths, the services would have been 22 to 24 inches deep when construction was complete and the ditch was backfilled to grade.

In order to protect service lines involved in joint trench installations in the future, the company proposes to install new residential services in conduit with a minimum of 2 inches

of shading prior to leaving the site. When the installation is completed and backfilled to final grade, the services will meet or exceed minimum requirements for cover and the conduit will provide protection from encroachment by other utilities.

Areas of Concern

1. *NWN Construction Field Manual, section CFM 606-2, dated March 2006, includes an Oxy-Acetylene process for welding using the rolled weld position. NWN qualifies all Oxy-Acetylene welders according to 49 CFR §192 Appendix C requirements. Appendix C is a fixed position test only and is not applicable to a rolled weld process. NWN can not conduct rolled welding with welders who have been qualified according to Appendix C requirements.*

NW Natural response:

NW Natural concurs with Staff that the test weld referenced in 49 CFR 192, Appendix C, specifies a horizontal fixed position. However, NW Natural believes that a rolled weld position is inherently easier than the fixed position. Therefore, if a welder successfully passes a weld test in the fixed position, the welder is also qualified to perform a weld in the easier rolled welding position. In response to Staff's concerns, NW Natural will review its oxyacetylene weld procedure, CFM 606-2, for compliance with 49 CFR 192, Appendix C.

Areas of Concern

2. *WAC 480-93-170(8) requires that "where feasible, operators must install and backfill plastic pipe prior to pressure testing to expose any potential damage that could have occurred during the installation and backfill process." On August 24, 2006, we observed the following ½-inch plastic new construction residential services in open ditches that did not have the minimum of 12-inches of cover. The services had minimal dirt shading and were exposed in several locations. The services had been pressure tested prior to being backfilled.*

(a) **5911 NE 62nd St., Vancouver.**

(b) **5923 NE 62nd St., Vancouver.**

(c) **9117 NE 77 St., Vancouver.**

NW Natural response:

NW Natural is committed to compliance with the provisions of WAC 480-93-170(8) regarding the installation and backfill of PE pipe prior to pressure testing where feasible. SPW 253 specifies NW Natural's policy for PE pipe installations and includes the company's procedures for complying with the provisions of WAC 480-93-170(8). Since NW Natural is also committed to installing services with adequate depth and separation, the company was concerned to learn that the referenced PE installations may not have had sufficient shading. NW Natural believes these installations were isolated incidents. As discussed in the company's response to Probable Violation 12, NW Natural took decisive action to bring those installations into conformance with the company's depth and separation requirements.

As noted in the company's response to Probable Violations 11 and 12, with Staff's concurrence, NW Natural proposes to install all new ½-inch PE residential services in conduit to provide protection during construction regarding depth, separation, and potential damage that could occur during the installation and backfill processes.

This report summarizes our activities in response to the pipeline safety audit of Clark County.

Sincerely,



Bruce L. Paskett, P.E.
Manager Code Compliance

Enclosures (22)

dtm437



Figure 1. Meter #743434: Corrected regulator vent.

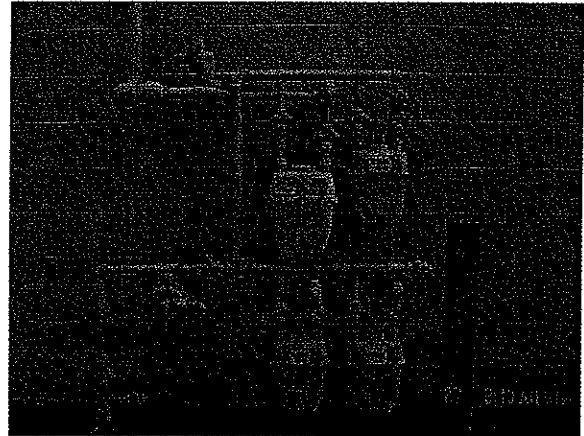


Figure 4. Meter #316080: Corrected regulator vent.



Figure 2. Meter #743434: Corrected regulator vent.

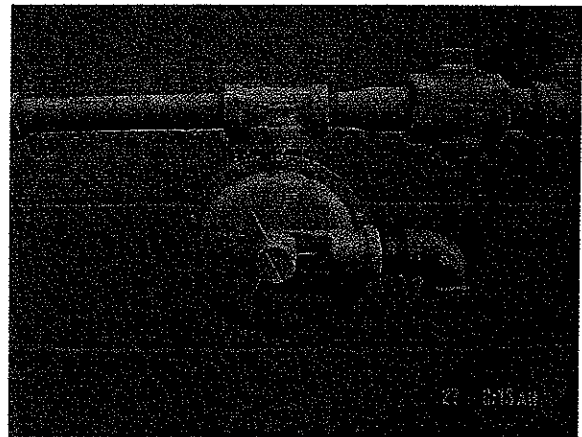


Figure 5. Meter #316080: Corrected regulator vent.



Figure 3. Meter #743434: Corrected regulator vent.



Figure 6. 5911 NE 62nd Street, Vancouver: Depicts approximately 20-inch separation between gas line and other utilities.



Figure 7. 9117 NE 77th Street, Vancouver: Depicts approximately 15-inch separation between gas line and other utilities.

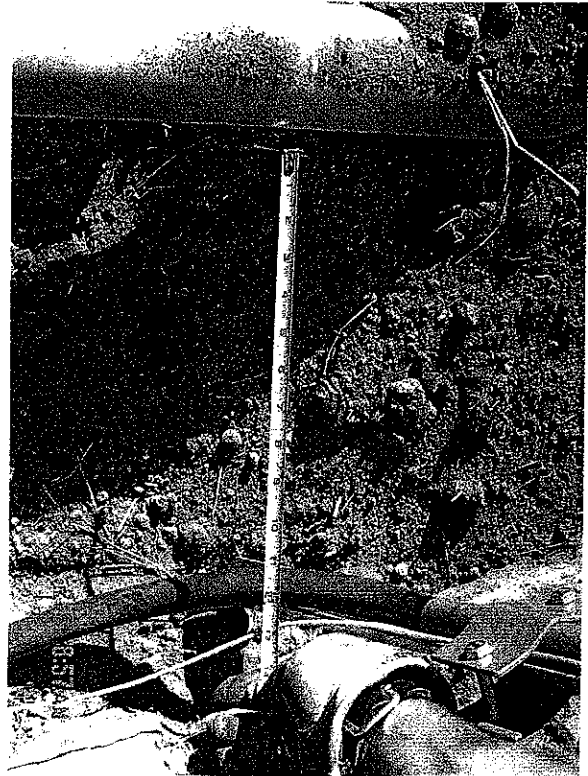


Figure 8. 5923 NE 62nd Street, Vancouver: Depicts approximately 12-inch separation between gas line and other utilities.



Figure 9. 5923 NE 62nd Street, Vancouver: Depicts approximately 19-inch separation between gas line and other utilities.