# **APPENDIX** A

Cascade serves the regions shaded in red.



# **APPENDIX B**



# STATE OF WASHINGTON

## WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250 (360) 664-1160 • TTY (360) 586-8203

### CERTIFIED MAIL

April 11, 2013

Mr. Eric Martuscelli Vice President-Operations Cascade Natural Gas Corporation 8113 W. Grandridge Blvd. Kennewick, WA 99336

Dear Mr. Martuscelli:

# RE: <u>2013 Natural Gas Standard Inspection – Cascade Natural Gas (CNG) - Longview</u> <u>District</u>

Staff from the Washington Utilities and Transportation Commission (staff) conducted a standard inspection from March 25-28, 2013, of Cascade Natural Gas Corporation's (CNG) Longview District gas system. The inspection included a review of district records and inspection of selected pipeline facilities.

Our inspection indicates two probable violations as noted in the enclosed report. We also noted four 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 May 13, 2013. The response should include how and when you plan to bring the probable violations into full compliance. We also request your response to our areas of concern.

# 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.

Cascade Natural Gas 2013 Natural Gas Standard Inspection – Longview District April 11, 2013 Page 2

If you have any questions, or if we may be of any assistance, please contact Dennis Ritter at (360) 664-1159. Please refer to the subject matter described above in any future correspondence pertaining to this inspection.

Sincerely,

David D. Lykken Pipeline Safety Director

Enclosure

cc: Steve Kessie, Manager-Operations Services, CNG Tina Beach, Manager of Standards & Compliance, CNG Patti Chartrey, Pipeline Safety Specialist, CNG

Enclosure

# WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION 2013 Natural Gas Pipeline Safety Inspection **Cascade Natural Gas Corporation-Longview District**

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 2013 inspection of the Cascade Natural Gas Corporation Longview District. The inspection included a random selection of records (operation and maintenance, emergency response, damage prevention) and field inspection of the pipeline facilities.

# PROBABLE VIOLATIONS

#### 1. 49 CFR §192.619 Maximum allowable operating pressure (MAOP) - Steel or plastic pipelines

(a)No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following:

- The design pressure of the weakest element in the segment, determined in (1)accordance with subparts C and D of this part.

# Finding(s):

During the records review to confirm MAOP of HP lines, the 6" Kalama HP replacement project constructed in 1995 was evaluated. As part of the record review, as-builts, invoices, bills of lading and other information from the job file were reviewed. The pipe used in this project was FBE coated, 6-inch steel. What strength pipe was actually put in the ground is unclear. CNG procures their own materials for construction. They order materials based on CNG part numbers identified in their CNG Parts Catalogue. For the Kalama project, one record, "Cost Analysis Sheet for Expenditure Requisition", identified the pipe as part No. PXW-650X42. According to the CNG Part Numbering system, this would be X42 (42000 psi yield strength) pipe. However on all "Material Transfer Records" and as-built records it's listed as PXW-650, without the X42 designation. This is significant as CNG has several pipe specifications listed in their part numbering system, each with different designations for pipe strength. For example, if listed as PXW-650, its class B pipe, with 35,000 for yield strength. If listed as PXW-650X42, then pipe strength is 42,000. The actual construction related documents-Material Transfer Records and as-builts do not have the X42 designation shown. CNG is searching their records for any additional information on this project, however, the records available during this inspection are inconsistent and do not allow confirmation of MAOP according to this subpart.

Whether the pipe is X42 or Class B, CNG's current MAOP would be satisfactory. However, CNG is not sure what pipe specification is in the ground in Kalama, and therefore, not sure of what the MAOP should be. Records (and their management), especially of MAOP confirming documents, must be complete, accurate and readily available. CNG must confirm the MAOP of the 6" Kalama HP line. If pipe material cannot be ascertained, then 49 CFR 192.105 requires using 24,000 as the pipe strength in the design pressure formula to calculate MAOP.

# 2. WAC 480-93-188 Gas Leak Surveys

- *(3) Each gas pipeline company must conduct gas leak surveys according to the following minimum frequencies:* 
  - (a) Business districts at least once annually, but not to exceed fifteen months between surveys. All mains in the right of way adjoining a business district must be included in the survey;
  - (b) High occupancy structures or areas at least once annually, but not to exceed fifteen months between surveys;

## Finding(s):

CNG CP 716 has the following definition: *High Occupancy Structure or Area (HOS/A)- A building or an outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by twenty or more persons on at least five days a week for ten weeks in any twelve-month period. (The days and weeks need not be consecutive.).* Additionally, CNG CP 715 defines the following: *Public Building or Area (PB/A)– Washington – A building or an outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by twenty or more persons on at least five days a week for ten weeks in any twelve-month period. (The days and weeks need not be consecutive.).* Additionally, CNG CP 715 defines the following: *Public Building or Area (PB/A)– Washington – A building or an outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by twenty or more persons on at least five days a week for ten weeks in any twelve-month period. (The days and weeks need not be consecutive.).* WAC, 480-93-005(14) also uses this same language to define "*High occupancy structures or areas*".

CNG CP 716.04 gives the survey type and schedule for these areas as:

Public Building Inspection (PBI)	At least once each calendar year, but at
	intervals not exceeding 15 months

During the records review, CNG attempted to locate annual leak survey records for several Public Buildings/Areas identified by WUTC prior to the inspection. These were the Woodland Intermediate School, Castle Rock Community Church and St. Mark's Episcopal Church (both in Castle Rock). CNG could not locate annual survey records for these areas. According to the leak survey, these areas were in fact surveyed on a 3 year basis, typical of non-business district surveys done' in this district. This might be indicative of a larger CNG issue.

According to Tina Beach, when CNG changed from a paper based work order system to a new computer based system in 2010, some of the public building inspections (PBIs) which CNG checked annually did not make it into the new system. CNG attempted to go back and rectify this by hand, but according to Tina Beach and Tom Wilson, some were missed. Exactly how many is unknown, in this district or all of CNG's service area districts. As such, UTC will require CNG to evaluate, for each of their districts, how many of these structures/areas are in each district and compare this with what is actually being surveyed on an annual basis. A listing of these structures/areas, by district with addresses, will be sent to UTC after completion of this evaluation. Any structure/areas identified which are not on the current listing of such facilities in CNG's system will be immediately surveyed and added to the annual survey. These "new" facilities will be noted on the listing to be sent to WUTC as newly identified. Please identify when these tasks will be completed.

Note during the inspection there was some confusion regarding non-customers whose property fronts a street which has a buried gas main. UTC's position is there is no difference between non-customers and customers in the definition of HOS/PBs. CNG is to survey the right-of-way fronting these areas on an annual basis, regardless of whether they are a customer or not. If there is a service to the property, CNG is to survey the service to the building wall per 480-93-188 (1) (d).

# AREAS OF CONCERN

# 1. WAC 480-93-170-Tests and Reports for Pipelines

(7) Each gas pipeline company must keep records of all pressure tests performed for the life of the pipeline and must document the following information:

- (a) Gas Pipeline Company's name;
- (b) Employee's name;
- (c) Test medium used;
- (d) Test pressure;
- (e) Test duration;
- (f) Line pipe size and length;
- (g) Dates and times; and
- (h) Test results.

# **Finding(s)**:

CNG's 2012, *12" V90 Replacement Project* included a pressure test of the installation after completion. After inspecting the data sheet from the pressure testing, it was noted that CNG failed to identify the test medium used on the record document per procedure CP 665.036. In response, CNG pointed out that CP 665 also states that valve installations may only use nitrogen for the test medium. CNG also produced an Airgas invoice for nitrogen supplied for the test dated 8/7/2012-which is the date of the first test.

The issue, however, is not whether nitrogen was used, as it appears that it was, but rather the record document for a critical component of the distribution system which confirms MAOP was incomplete. Given the series of recent catastrophic events relating to pipelines and the subsequent investigation noting that records management of these critical MAOP confirming documents was less than satisfactory, it is surprising to find these records for a very recent construction project to be compromised. The WUTC and PHMSA believe this to be a critical issue which must be emphasized at all levels of CNG's organization. Records (and their management), especially of MAOP confirming documents, must be complete, accurate and readily available. Please ensure that CNG places the appropriate level of scrutiny on this situation so that a future violation, incident or loss of life or property does not occur.

## 2. WAC 480-93-188 Gas leak surveys

(4) Each gas pipeline company must conduct special leak surveys under the following circumstances:

(c) Unstable soil areas where active gas pipelines could be affected;

# Finding(s):

During a pre-inspection site visit, it was noted that a section of Mt. Brynion Road near the intersection of Williams Finney Road appeared to have recent pavement work completed. It appeared that Mt. Brynion Road was moving downhill due to movement of the underlying land-i.e. a landslide. When CNG staff was asked about this situation, they did not know of any landslide issues in this area and said all landslide issues are handled by CNG's engineering department. The District Manager also added that they currently do a special leak survey on a portion of the high pressure 12-inch line that feeds Longview Fibre whenever they get a "heavy rain". This location was located on UTC's mapping system which has historic landslides plotted. The location corresponds to a historic landslide area near the pipeline. CNG staff indicated that landslide training is not part of the OQ program and that landslide occurrences are handled on a case by case basis by CNG's engineering department.

UTC is concerned that in areas, such as Longview, where known and potentially still active, historic landslide areas could affect CNG's pipelines, that a program is not in place to alert CNG's personnel of potential dangers. UTC believes CNG should train their staff to be cognizant of potential landslide indicators to identify and potentially prevent future catastrophic incidents from occurring. Procedures should be developed to identify and manage this threat.

# 3. <u>49 CFR §192.805</u> Qualification program

Each operator shall have and follow a written qualification program. The program shall include provisions to:

- (a) Identify covered tasks;
- *(b) Ensure through evaluation that individuals performing covered tasks are qualified;*
- (g) Identify those covered tasks and the intervals at which evaluation of the individual's qualifications is needed.
- (h) After December 16, 2004, provide training, as appropriate, to ensure that individuals performing covered tasks have the necessary knowledge and skills to perform the tasks in a manner that ensures the safe operation of pipeline facilities; and

## **Finding(s)**:

During the field OQ evaluation, an employee was asked to take rectifier reads at GB02 Kalama. The employee responded that he was not "comfortable" performing this covered task as he does not perform it routinely—one other employee routinely performs this task. According to CNG OQ records, this employee is qualified to perform this task. If the employee is properly qualified per CNG's OQ qualification program, they should not be "uncomfortable" in performing covered tasks. CNG needs to "ensure that individuals performing covered tasks have the necessary knowledge and skills to perform the tasks in a manner that ensures the safe operation of pipeline facilities". CNG needs to determine what additional training or other appropriate methodology needs to be employed to ensure its employees are qualified and competent to perform OQ covered tasks.

#### 4.

# 49 CFR §192.616 Public Awareness

- (e) The program must include activities to advise affected municipalities, school districts, businesses, and residents of pipeline facility locations.
- (f) The program and the media used must be as comprehensive as necessary to reach all areas in which the operator transports gas.

# Finding(s):

In their Public Awareness plan, CNG identified, "Affected public-non customers" as a stakeholder audience but did not send them targeted information as required. As noted in the 2012 PA Plan effectiveness review, they failed to use targeted brochures, pamphlets etc. to inform this group. Instead, they used TV, radio etc. CNG needs to ensure the PA plan (CNG plans on updating its plan by April, 2012) reaches its intended audience by targeting its identified stakeholders with specific information for that group.

# **APPENDIX C**



# STATE OF WASHINGTON WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250 (360) 664-1160 • TTY (360) 586-8203

# **CERTIFIED MAIL**

May 29, 2013

Mr. Eric Martuscelli Vice President-Operations Cascade Natural Gas Corporation 8113 W. Grandridge Blvd. Kennewick, WA 99336

Dear Mr. Martuscelli:

# RE: <u>2013 Natural Gas Standard Inspection – Cascade Natural Gas (CNG) - Bellingham</u> <u>District</u>

Staff from the Washington Utilities and Transportation Commission (staff) conducted a standard inspection from May 13-16, 2013 of Cascade Natural Gas Corporation's (CNG) Bellingham District gas system. The inspection included a review of district records and inspection of selected pipeline facilities.

Our inspection indicates one probable violation as noted in the enclosed report. We also noted two 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 1, 2013. The response should include how and when you plan to bring the probable violations into full compliance. We also request your response to our areas of concern.

### 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

R

• Consider the matter resolved without further commission action.

Cascade Natural Gas Corporation 2013 Natural Gas Standard Inspection – Bellingham District May 29, 2013 Page 2

If you have any questions, or if we may be of any assistance, please contact Dennis Ritter at (360) 664-1159. Please refer to the subject matter described above in any future correspondence pertaining to this inspection.

Sincerely,

David D. Lykken Pipeline Safety Director

Enclosure

cc: Steve Kessie, Manager-Operations Services, CNG Tina Beach, Manager of Standards & Compliance, CNG Vicki Ganow, Pipeline Safety Specialist, CNG

Enclosure

# WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION 2013 Natural Gas Pipeline Safety Inspection Cascade Natural Gas Corporation-Bellingham District

The following probable violation and areas of concern of Title 49 CFR Part 192 were noted as a result of the 2013 inspection of the Cascade Natural Gas Corporation Bellingham District. The inspection included a random selection of records (operation and maintenance, emergency response, damage prevention) and field inspection of the pipeline facilities.

# PROBABLE VIOLATIONS

# 1. <u>49 CFR §192.619 Maximum allowable operating pressure (MAOP) - Steel or plastic</u> <u>pipelines</u>

 (a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph
 (c) or (d) of this section, or the lowest of the following:

- (1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part.
- (2) The pressure obtained by dividing the pressure to which the segment was tested after construction as follows:
- *(i)* For plastic pipe in all locations, the test pressure is divided by a factor of 1.5.
- (ii) For steel pipe operated at 100 p.s.i. (689 kPa) gage or more, the test pressure is divided by a factor determined in accordance with the following table:

	Segment	Segment	Segment	
Class location	Installed Before Nov. 12, 1970	Installed After Nov. 11, 1970	Converted under§192.14	
1	1.1	1.1	1.25	
2	1.25	1.25	1.25	
3	1.4	1.5	1.5	
4	1.4	1.5	1.5	

Factors (see Note)

- Note: For offshore segments installed, or updated, or converted after July 31, 1977, that are not located on an offshore platform, the factor is 1.25. For segments installed, uprated, or converted after July 31, 1977 that are located on an offshore platform or on a platform in inland navigable waters including a pipe riser, the factor is 1.5
- (3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. This pressure restriction applies unless the segment was tested according to the requirements in paragraph (a)(2) of this section after the applicable date in the third column or the segment was uprated according to the requirements in subpart K of this part:

Pipeline segment	Pressure date	Test date
-Onshore gathering line that first became subject to this part (other than §192.612) after April 13, 2006.	March 15, 2006, or date line becomes subject to this part, whichever is later.	5 years preceding applicable date in second column.
-Onshore transmission line that was a gathering line not subject to this part before March 15, 2006.		
Offshore gathering lines	July 1, 1976	July 1, 1971
All other pipelines	July 1, 1970	July 1. 1965

- (4) The pressure determined by the operator to be the maximum safe pressure after considering the history of the segment, particularly known corrosion and the actual operating pressure.
  - (b) No person may operate a segment to which paragraph (a)(4) of this section is applicable, unless overpressure protective devices are installed on the segment in a manner that will prevent the maximum allowable operating pressure from being exceeded, in accordance with §192.195.
  - (c) The requirements on pressure restrictions in this section do not apply in the following instance. An operator may operate a segment of pipeline found to be in satisfactory condition, considering its operating and maintenance history, at the highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column of the table in paragraph (a)(3) of this section. An operator must still comply with §192.611.
  - (d) The operator of a pipeline segment of steel pipeline meeting the conditions prescribed in § 192.620(b) may elect to operate the segment at a maximum allowable operating pressure determined under § 192.620(a)

## **Finding(s)**:

During the records review to confirm MAOP of HP lines, CNG staff were asked to produce the MAOP confirming documents for Line 1-8" Bellingham HP. CNG at the time of the inspection could not produce supporting MAOP documents for this line. This line was installed in 1957. The two documents CNG did produce cannot be considered reliable records. One was undated and titled "Construction Specification for Proposed Pipeline (Order Cause Nos.U-8799-8800, Rule 20)". This document notes the pipeline was to be tested to a pressure of 500 psi. The other document was a 1970 letter to Lee Johnson & Associates which states that the line was "built to the following specifications" including pipe grade, diameter, thickness, coating and construction test pressure. These documents do not provide a definitive answer supporting the current MAOP of 380 psi as they are not original record documents. CNG is searching their files for any additional information on this pipeline, however, the records available during the inspection do not allow confirmation of MAOP according to this subpart.

Records (and their management), especially of MAOP confirming documents, must be complete, accurate and readily available. CNG needs to have documents which support all the "facts" outlined in the 1970 letter to Lee Johnson & Associates for Line 1-8" Bellingham HP. If pipe material cannot be ascertained, then 49 CFR 192.105 requires using 24,000 as the pipe strength in the design pressure formula to calculate MAOP.

Additionally, records management (not being able to find MAOP confirming documents) was also an issue during the 2013 CNG Longview inspection. It appears that this is not an isolated incident. Therefore, CNG must confirm the MAOP of all their HP lines with supporting documentation for Bellingham as well as all other districts. Please tell us the date by which CNG can produce the confirmation with supporting documentation.

# AREAS OF CONCERN OR FIELD OBSERVATIONS

# 2. WAC 480-93-124 Pipeline Markers

(1) Each gas pipeline company must place pipeline markers at the following locations:

- (a) Where practical, over pipelines operating above two hundred fifty psig;
- (b) Over mains and transmission lines crossing navigable waterways (custom signage may be required to ensure visibility);
- (c) Over mains and transmission lines at river, creek, drainage ditch, or irrigation canal crossings where hydraulic scouring, dredging, or other activity could pose a risk to the pipeline (custom signage may be required to ensure visibility);
- (d) Over gas pipelines at railroad crossings;
- (e) At above ground gas pipelines except service risers, meter set assemblies, and gas pipeline company owned piping downstream of the meter set assembly. The minimum lettering size requirements located in 49 CFR § 192.707 (d)(1) do not apply to services;
- (f) Over mains located in Class 1 and 2 locations;
- (g) Over transmission lines in Class 1 and 2 locations, and where practical, over transmission lines in Class 3 and 4 locations; and
- (h) Over mains and transmission lines at interstate, U.S. and state route crossings where practical.
- (2) If practical, the gas pipeline company must place markers on both sides of any crossing listed in subsection (1) of this section.

## Finding(s):

During pre-inspection field reconnaissance it was noted that at several locations-Sumas Ave. at Johnson Creek, Double Ditch Rd at Main St. in Lynden and E. Badger Rd at Fishtrap Creek in Lynden- CNG markers were not present. When asked about these locations, CNG sent personnel out to evaluate. It was determined that markers were needed. CNG generated work-orders and had these installed before end of inspection. However, it brings up the question as to how many more water crossings might need markers. CNG needs to evaluate all water crossings per (1)(c) above and determine if markers are needed. If markers are needed, they shall be installed and added to CNG's GIS system. Please tell us the date by which CNG will have this evaluation completed.

# 3. <u>192.467 External corrosion control: Electrical isolation.</u>

(d) Inspection and electrical tests must be made to assure that electrical isolation is adequate.

# Finding(s):

During the field inspection of the Sumas Gate station, CNG personnel noted that they cannot check isolation between the CNG and Spectra piping as this would require a border crossing to physically test. CNG stated that their corrosion personnel are aware of this and are working on a solution. CNG must be able to inspect and test the isolation between the two systems. Please tell us the date by which CNG will have a solution for this area of concern.

# **APPENDIX D**

# Woodard, Marina (UTC)

From:	Beach, Tina <tina.beach@cngc.com></tina.beach@cngc.com>				
Sent:	Friday, June 28, 2013 1:07 PM				
То:	Woodard, Marina (UTC)				
Cc:	Kessie, Steve; Martuscelli, Eric; Ganow, Vicki; Marek, Chanda; Nelson, Greg; Bergner,				
	Kathy				
Subject:	CNGC Response to Bellingham District Inspection				
Attachments:	CNGC_Response_2013-6-28 Bellingham Dist Insp.pdf				

Dear Marina;

Please find the attached Response to 2013 Natural Gas Standard Inspection – Bellingham District due July 1, 2013 . Please forward to the appropriate Washington Utility and Transportation staff. As requested by Mr. Lykken and Mr. Subsits Cascade Natural Gas Corporation will need only to provide this electronically unless requested otherwise by your agency. Please contact Steve Kessie at 509-734-4575 with any additional questions or comments you have regarding this response.

# Tina R. Beach

Manager of Standards and Compliance



8113 Grandridge Blvd. Kennewick, WA 99336 (509) 734-4576 Kennewick office (206) 445-4121 Work cell (509) 737-9803 Fax (406) 939-2240 Home cell <u>tina.beach@cngc.com</u>

# RECEIVED

JUN 282013 State of Washington UTC Pipeline Safety Program



8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166 TELEPHONE 509-734-4500 FACSIMILE 509-737-9803 www.cngc.com

# RECEIVED

JUN 282013

State of Washington

Pipeline Safety Program

June 28, 2013

David Lykken- Director of Pipeline Safety Program State of Washington Utilities and Transportation Commission 1300 S. Evergreen Park Dr. SW P.O. Box 47250 Olympia, WA 98504-7250

Subject: Response to 2103 Natural Gas Standard Inspection – Bellingham District

Dear Mr. Lykken,

This letter is intended to address all probable state safety code violations and areas of concern. We specifically are addressing how and when we plan to bring the probable violations and areas of concern into full compliance. The inspection was conducted on May 13-16, 2013 in Bellingham, Washington.

The following is in response to one probable violation and two areas of concern:

### PROBABLE VIOLATIONS

1. 49 CFR §192.619 Maximum allowable operating pressure (MAOP)- Steel or plastic pipelines (a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following: (1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part. (2) The pressure obtained by dividing the pressure to which the segment was tested after construction as follows: (i) For plastic pipe in all locations, the test pressure is divided by a factor of 1.5. (ii) For steel pipe operated at 100 p.s. i. (689 kPa) gage or more, the test pressure is divided by a factor determined in accordance with the following table: Factors (see Note) Segment Segment Segment Class location Installed Before Installed After Converted Nov. 11, 1970 under \$192.14 Nov. 12, 1970 1.1 1.1 1.25 1.25 1.25 1.25 2 3 1.4 1.5 1.5 1.4 1.5 1.5 Note: For offshore segments installed, or updated, or converted after July 31, 1977, that are not located on an offshore

Note: For offshore segments installed, or updated, or converted after July 31, 1977, that are not located on an offshore platform, the factor is 1.25. For segments installed, uprated, or converted after July 31, 1977 that are located on an offshore platform or on a platform in inland navigable waters including a pipe riser, the factor is 1.5.

(3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. This pressure restriction applies unless the segment was tested according to the requirements in paragraph (a)(2) of this section after the applicable date in the third column or the segment was uprated according to the requirements in subpart K of this part:

Pipeline segment	Pressure date	Test date
-Onshore gathering line that first became subject to this part (other than §192.612) after April 13, 2006.	March 15, 2006, or date line becomes subject to this part, whichever is later.	5 years preceding applicable date in second column.
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Offshore gathering lines	July 1, 1976	July 1, 1971
All other pipelines	July 1, 1970	July 1, 1965

Response to 2013 Bellingham District Inspection Letter

- (4) The pressure determined by the operator to be the maximum safe pressure after considering the history of the segment, particularly known corrosion and the actual operating pressure.
  - (b) No person may operate a segment to which paragraph (a)(4) of this section is applicable, unless overpressure protective devices are installed on the segment in a manner that will prevent the maximum allowable operating pressure fi'om being exceeded, in accordance with § 19 2.19 5.
  - (c) The requirements on pressure restrictions in this section do not apply in the following instance. An operator may operate a segment of pipeline found to be in satisfactory condition, considering its operating and maintenance his/my, at the highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column of the table in paragraph (a)(3) of this section. An operator must still comply with §192.611.
  - (d) The operator of a pipeline segment of steel pipeline meeting the conditions prescribed in§ 192.620(b) may elect to operate the segment at a maximum allowable operating pressure determined under§ 192.620(a).

#### Finding(s):

During the records review to confirm MAOP of HP lines, CNG staff were asked to produce the MAOP confirming documents for Line 1-8" Bellingham HP. CNG at the time of the inspection could not produce supporting MAOP documents for this line. This line was installed in 1957. The two documents CNG did produce cannot be considered reliable records. One was undated and titled "Construction Specification for Proposed Pipeline (Order Cause Nos.U-8799-8800, Rule 20)". This document notes the pipeline was to be tested to a pressure of 500 psi. The other document was a 1970 letter to Lee Johnson & Associates which states that the line was "built to the following specifications" including pipe grade, diameter, thickness, coating and construction test pressure. These documents do not provide a definitive answer supporting the current MAOP of 380 psi as they are not original record documents. CNG is searching their files for any additional information on this pipeline, however, the records available during the inspection do not allow confirmation of MAOP according to this subpart.

Records (and their management), especially of MAOP confirming documents, must be complete, accurate and readily available. CNG needs to have documents which support all the "facts" outlined in the 1970 letter to Lee Johnson & Associates for Line 1-8" Bellingham HP. If pipe material cannot be ascertained, then 49 CFR 192.105 requires using 24,000 as the pipe strength in the design pressure formula to calculate MAOP.

Additionally, records management (not being able to find MAOP confirming documents) was also an issue during the 2013 CNG Longview inspection. It appears that this is not an isolated incident. Therefore, CNG must confirm the MAOP of all their HP lines with supporting documentation for Bellingham as well as all other districts. Please tell us the date by which CNG can produce the confirmation with supporting documentation.

#### Cascade Response

Cascade Natural Gas Corporation (CNGC) acknowledges that MAOP confirming documents for Line 1 8" Bellingham HP were not available during the audit. A review of all CNGC HP records has been initiated and is anticipated to be completed by September 30, 2013. As part of this review, CNGC will address any HP lines whose MAOP confirming documents cannot be located.

#### AREAS OF CONCERN OR FIELD OBSERVATIONS

#### 2. WAC 480-93-124 Pipeline Markers

- (1) Each gas pipeline company must place pipeline markers at the following locations:
  - (a) Where practical, over pipelines operating above two hundred fifty psig;
  - (b) Over mains and transmission lines crossing navigable waterways (custom signage may be required to ensure visibility);
  - (c) Over mains and transmission lines at river, creek, drainage ditch, or irrigation canal crossings where hydraulic scouring, dredging, or other activity could pose a risk to the pipeline (custom signage may be required to ensure visibility);
     (d) Over one pipeline at wilload accessing.
  - (d) Over gas pipelines at railroad crossings;
  - (e) At above ground gas pipelines except service risers, meter set assemblies, and gas pipeline company owned piping downstream of the meter set assembly. The minimum lettering size requirements located in 49 CFR § 192.707 (d)(l) do not apply to services;
  - (f) Over mains located in Class I and 2 locations;
  - (g) Over transmission lines in Class 1 and 2 locations, and where practical, over transmission lines in Class 3 and 4locations; and
  - (h) Over mains and transmission lines at interstate, US and state route crossings where practical.
- (2) If practical, the gas pipeline company must place markers on both sides of any crossing listed in subsection (1) of this section.

#### Finding(s):

During pre-inspection field reconnaissance it was noted that at several locations-Sumas Ave, at Johnson Crcek, Double Ditch Rd at Main St. in Lynden and E. Badger Rd at Fishtrap Creek in Lynden- CNG markers were not present. When asked about these locations, CNG sent personnel out to evaluate. It was determined that markers were needed. CNG generated work-orders and had these installed before end of inspection. However, it brings up the question as to how many more water: crossings might need

markers. CNG needs to evaluate all water crossings per (1) (c) above and determine if markers are needed. If markers are needed, they shall be installed and added to CNG's GIS system. Please tell us the date by which CNG will have this evaluation completed.

### Cascade Response

CNGC has initiated the supplementary pipeline marker evaluation in the Bellingham district. The evaluation is anticipated to be completed by December 31, 2013. A correction should be noted for one of the field locations cited in the finding. Markers were not placed on East Badger Road at Fishtrap Creek as CNGC does not have a main or a transmission line that crosses the creek at this location but other crossings near this area were inspected for markers and remediation was made where needed.

#### 3. 192.467 External corrosion control: Electrical isolation

(d) Inspection and electrical tests must be made to assure that electrical isolation is adequate.

#### Finding(s):

During the field inspection of the Sumas Gate station, CNG personnel noted that they cannot check isolation between the CNG and Spectra piping as this would require a border crossing to physically test. CNG stated that their corrosion personnel are aware of this and are working on a solution. CNG must be able to inspect and test the isolation between the two systems. Please tell us the date by which CNG will have a solution for this area of concern

#### Cascade Response

During the field inspection, CNGC's staff performed the OQ task as assigned, however answering the question regarding electrical isolation was beyond the scope of his expertise. CNGC's Corrosion Department has responsibility for monitoring all work performed in the field as it relates to corrosion control. To address the isolation question posed by WUTC staff, the Manager of Corrosion Control was consulted to explain the process for checking electrical isolation at the Sumas Gate Station and to verify it is being monitored. He indicated this takes place during the annual CP surveys. The process is to take a pipe to soil potential within the Sumas Gate Station to verify normal CP operations. Should the potential indicate a change in normal CP operations, a Corrosion Control Tech. would initiate troubleshooting to determine the cause of the deficiency. CNGC will continue to monitor electrical isolations during the annual survey.

Please contact Steve Kessie at 509-734-4575 with questions or comments.

Respectfully Submitted,

Eric Martuscelli, Vice President, Operations Cascade Natural Gas Corporation

# **APPENDIX E**

#### Woodard, Marina (UTC)

From: Sent: To: Cc: Subject: Attachments:

Follow Up Flag: Flag Status: Ogden, Jeremy <Jeremy.Ogden@cngc.com> Friday, September 27, 2013 3:50 PM Woodard, Marina (UTC) Martuscelli, Eric; Kessie, Steve; Beach, Tina CNGC Response to Bellingham District Inspection CNGC Response - MAOP Validation - 9-27-13.pdf

Follow up Flagged SEP 27 2013 State of Washington UTC Pipeline Safety Program

RECEIVED

**Categories:** 

**Red Category** 

#### Marina:

Please find attached Cascade Natural Gas's response to 2013 Natural Gas Standard Inspection – Bellingham District due September 30, 2013. Please forward to the appropriate WUTC staff. Please contact me with any additional questions or comments. Thank you.

1

#### Jeremy

Jeremy Ogden, P.E. | Director, Engineering Services

Cascade Natural Gas Corporation A Subsidiary of MDU Resources Group, Inc. 8113 Grandridge Blvd, Kennewick, WA 99336 [office] 509.734.4509 [cell] 509.440.1467 [email] jeremy.ogden@cngc.com



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September 27, 2013

David D. Lykken Pipeline Safety Director Washington Utilities and Transportation Commission 1300 S. Evergreen Park Drive S.W. P.O. Box 47250 Olympia, WA 98504-7250 RECEIVED

SEP 272013 State of Washington UTC Pipeline Safety Program

8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166 TELEPHONE 509-734-4500 FACSIMILE 509-737-7166

www.cngc.com

Subject: Cascade Natural Gas – Maximum Allowable Operating Pressure (MAOP)

David:

In response to a 2013 inspection performed by WUTC staff in the Bellingham District, Cascade Natural Gas (Cascade) has recently completed a review of the documentation on its high pressure (HP) pipelines which are operating in the state of Washington. The purpose of this review is to validate the Maximum Allowable Operating Pressure (MAOP) for each pipeline. This review included records located in Cascade's General Office, district offices, off-site storage facilities, and electronically stored files. As a result of this review Cascade discovered 28 pipeline sections with missing or insufficient documentation to validate the current MAOP. Cascade has prepared a plan of action for these pipelines and TABLE 1 - PLAN OF ACTION following this letter summarizes this plan.

Cascade has prepared a schedule to gather missing or insufficient information, or to replace the affected pipeline section. This schedule will cover 13 years and will address all 28 pipeline sections from most critical to least critical, with only two exceptions. These exceptions are pipeline sections that are already planned for replacement. This schedule can be seen in TABLE 2 - SCHEDULE TO GATHER INFORMATION.

In addition, as a result of the review described above, some of Cascade's pipelines will be operating with an MAOP based on an assumed yield strength of 24,000 psi, as prescribed in §192.107. TABLE 3 – PIPELINES ASSUMING YIELD STRENGTH OF 24,000 PSI following this letter summarizes this information. Please note that the MAOP for these pipelines did not change, only the hoop stress and subsequent %SMYS calculations. Additionally, none of the changes resulted in a pipeline being stressed to greater than 20% SMYS. Because these pipeline sections are operating safely, no other action is planned.

Cascade appreciates the working relationship that we have with the WUTC. We feel that our efforts to date, coupled with the plan presented in this correspondence, will enhance the safety and reliability of our system. We look forward to working with you and your staff as we further



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refine the details of this plan. If you have any questions or would like to discuss anything further, please feel free to contact me to discuss.

Sincerely,

Jeremy Ogden, P.E. Director, Engineering Services Cascade Natural Gas Corporation jeremy.ogden@cngc.com 509-734-4509

enclosures

TABLE 1 - PLAN OF ACTION							
Aberdeen District							
Line #	Description	Year Installed	Critical Information	Plan of Action			
12	2" Elma HP Line	1978	Pressure test documentation	Validate operating pressure.			
			Bellingham District				
Line #	Description	Year Installed	Critical Information	Plan of Action			
1	8" HP Line	1956	Pipe grade and wall thickness	Remove sections of retired in place pipe and test for pipe grade and wall thickness. Prepare sampling plan for further testing if necessary.			
2	2" Bellingham HP Distribution System	1967	Pressure test documentation	Pipeline will be removed/downrated as part of future project to remove pipelines from aging bridges.			
3	8" Central Whatcom HP Line	1957	Pipe grade and wall thickness	Test samples from James Street and Lampman Road, and any other points that are available, for pipe grade and wall thickness. Prepare sampling plan for further testing if necessary.			
21	16" Squalicum HP Line	1993	Pipe grade	Prepare sampling plan to verify pipe grade of 2,600 ft of pipeline.			
		T	Bremerton District				
Line #	Description	Year Installed	Critical Information	Plan of Action			
2	8" Bremerton Line	1963	Pipe grade	Test abandoned sections to verify pipe grade.			
	8" Bremerton HP Line	1971	Pressure test documentation	Validate operating pressure.			
			Konnewick District				
Line #	Description	Year Installed	Critical Information	Plan of Action			
1	8" Attalia HP Line	1958	Pine grade	Test previously removed sections for pipe grade			
1	12" Attalia HP Line	1968	Pipe grade and wall thickness	Test and/or remove 183 ft section			
4	Pasco HP Distribution System	1995	Pipe material	Work Order states from pipe in one section. Test pipe to verify material, grade, and thickness. Alternative is to replace 187 ft section of pipeline.			
16	4" North Pasco HP Line	Various	Pressure test documentation	Validate operating pressure test or replace 531 ft section of pipeline.			
18	6" West Richland HP Line	2010	Pressure test documentation	Validate operating pressure.			
			Longview District				
Line #	Description	Year Installed	Critical Information	Plan of Action			
1	12" Longview-Kelso HP Distribution Line	1957	Pipe grade and wall thickness	repare samping plan to verify pipe grade and wall thickness. Lest retired in place sections and sections which have previously been removed.			
1	8" Longview-Kelso HP Distribution Line	1957	Pipe grade and wall thickness	In process of being replaced.			
2	4" Kalama HP Line	1976	Pressure test documentation	Validate operating pressure.			
8	8" Kalama HP Line	1996-1997	Pipe grade, wall thickness, and pressure test documentation	Test retired in place pipe and samples removed during replacements. Validate operating pressure on applicable sections.			
			Mt Vernon District				
Line#	Description	Vear Installed	Critical Information	Plan of Action			
Line #	Description	Tear mistaneu	Critical Information	As-builts show X-42 pipe MTR shows Grade B In-situ testing			
1	8" Anacortes HP Line	1972	Pipe grade	and/or replacement of 80 ft of pipeline will be required.			
1	8" Anacortes HP Line	1957	Pipe grade and wall thickness	replacements. If needed, prepare sampling plan.			
2	8" March Point HP Line	1957	Pipe grade and wall thickness	replacements. If needed, prepare sampling plan.			
15	U IVIL VERION HP LINE	2009	rressure test documentation	vanuate operating pressure.			
		1	Walla Walla District - None				
	Wenatchee District						
Line #	Description	Year Installed	Critical Information	Plan of Action			
1	6" & 8" Moses Lake HP Line	1957	Pipe grade and wall thickness	Prepare sampling plan to verify pipe grade and wall thickness.			
2	2" Wheeler HP Line	1962	Pipe grade and wall thickness	Prepare sampling plan to verify pipe grade and wall thickness.			
3	4" Othello Line	1971	Wall thickness	Validate operating pressure or replace 191 ft section of pipeline.			
		Sunnyside I	District (Merged with Yakima Dis	strict)			
Line #	Description	Year Installed	Critical Information	Plan of Action			
5	6" Toppenish-Zillah HP Line	1956	Pipe grade and wall thickness	Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.			
5	6" Toppenish-Zillah HP Line	1993	Pipe grade and wall thickness	Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.			
6	3" Zillah HP Line	1956	Pipe grade and wall thickness	Prepare sampling plan to verify pipe grade and wall thickness.			
8	3" South Toppenish HP Line	1956	Pipe grade and wall thickness	Prepare sampling plan to verify pipe grade and wall thickness.			
			Yakima District				
Line #	Description	Year Installed	Critical Information	Plan of Action			
1	8" Yakima HP Line	1978	Pressure test documentation	Validate operating pressure.			

		D 14	2	2014	Diana Charles	
District	Line #	Description	Year Installed	Critical Information	Plan of Action	
D 11' 1	1		1057	D'a consider and small she is here as	Remove sections of retired in place pipe and test for pipe grade and	
Bellingham	1	8" HP Line	1956	Pipe grade and wall thickness	wall thickness. Prepare sampling plan for further testing if	
					necessary.	
					Test samples from James Street and Lampman Road, and any other	
Bellingham	3	8" Central Whatcom HP Line	1957	Pipe grade and wall thickness	points that are available, for pipe grade and wall thickness. Prepare	
					sampling plan for further testing if necessary.	
Mt. Vernon	1	8" Anacortes HP Line	1957	Pipe grade and wall thickness	Test samples from abandoned sections and those removed during	
					replacements. If needed, prepare sampling plan.	
				015		
			2	2015		
District	Line #	Description	Year Installed	Critical Information	Plan of Action	
Mt. Vernon	1	8" Anacortes HP Line	1972	Pipe grade	As-builts show X-42 pipe, MTR shows Grade B. In-situ testing	
			10/2	<b>P</b> . 1	and/or replacement of 80 ft of pipeline will be required.	
Bremerton	2	8" Bremerton Line	1963	Pipe grade	Test abandoned sections to verify pipe grade.	
				2014		
District	Line #	Description	Year Installed	Critical Information	Plan of Action	
Longview	2	4 Kalama HP Line	1976	Pressure test documentation	Validate operating pressure.	
Sunnyside	5	6" Toppenish-Zillah HP Line	1956	Pipe grade and wall thickness	1 est samples from abandoned sections and those removed during	
					replacements. If needed, prepare sampling plan.	
Bellingham	21	16" Squalicum HP Line	1993	Pipe grade	Prepare sampling plan to verify pipe grade of 2,600 ft of pipeline.	
		-				
Bellingham	2	2" Bellingham HP Distribution System	1967	Pressure test documentation	Pipeline will be removed/downrated as part of future project to	
					remove pipeunes from aging bridges.	
			2		The C.L. of	
District	Line #	Description	Year Installed	Critical Information	Plan of Action	
Mt. Vernon	2	8" March Point HP Line	1957	Pipe grade and wall thickness	Test samples from abandoned sections and those removed during	
		All and all reads of the second product transport.		10	replacements. If needed, prepare sampling plan.	
				Pipe grade, wall thickness, and	Test retired in place pipe and samples removed during	
Longview	8	8" Kalama HP Line	1996-1997	pressure test documentation	replacements. Validate operating pressure on applicable sections.	
			L	^		
			2	2018		
District	Line #	Description	Year Installed	Critical Information	Plan of Action	
Kennewick	1	8" Attalia HP Line	1958	Pipe grade	Test previously removed sections for pipe grade.	
					113	
					Prepare sampling plan to verify pipe grade and wall thickness. Test	
Longview	1	12" Longview-Kelso HP Distribution Line	1957	Pipe grade and wall thickness	retired in place sections and sections which have previously been	
					removed.	
Wenatchee	1	6" & 8" Moses Lake HP Line	1957	Pipe grade and wall thickness	Prepare sampling plan to verify pipe grade and wall thickness.	
2019						
			<u> </u>			
District	Line #	Description	Year Installed	Critical Information	Plan of Action	
District	Line #	Description	Year Installed	Critical Information	Plan of Action Prepare sampling plan to verify pipe grade and wall thickness. Test	
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District Longview Kennewick Sunnyside	Line #	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line	Year Installed 1957 1968 1993	Critical Information Pipe grade and wall thickness Pipe grade and wall thickness Pipe grade and wall thickness	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during the samples from abandoned sections.	
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District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District District	Line # 1 1 5 Line # 1 3 Line # 1 Line # 1 Line # 1 Line # 1 Line #	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 12" Description 8" Bremerton HP Line Description	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed 1971 Year Installed	Critical Information Pipe grade and wall thickness Pipe grade and	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure tart or replace 51 ft coarting of	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Bremerton District Kennewick	Line # 1 1 5 Line # 1 1 3 Line # 11 Line # 11 Line # 16	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line Description 8" Bremerton HP Line Description 4" North Pasco HP Line	Year Installed 1957 1968 1993 Year Installed 1957 1957 1957 Year Installed 1971 Year Installed 1971 Year Installed Various	Critical Information Pipe grade and wall thickness CO20 Critical Information Pipe grade and wall thickness CO21 Critical Information Pressure test documentation CO22 Critical Information Pressure test documentation Pressure test documentation CO22 Critical Information Pressure test documentation CO22 Critical Information Pressure test documentation Pressure test documentation Pressure test documentation CO22 Critical Information Pressure test documentation CO22 Critical Information CO2 Critical Information CC2 Critical Information CC2 Critical Information CC2 Critical Information CC2 CC2 CC2 CC2 CC2 CC2 CC2 CC2 CC2 CC	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure test or replace 531 ft section of pipeline.	
District Longview Kennewick Sunnyside District Longview Wenatchee District District Bremerton District Kennewick Kennewick	Line # 1 1 5 Line # 1 1 Line # 1 Line # 1 Line # 1 1 Line # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 4" Othello Line 8" Bremerton HP Line 10 10 10 10 10 10 10 10 10 10 10 10 10	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed Year Installed Various 2000	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pressure test doc	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ff section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Validate operating pressure test or replace 531 ft section of pipeline.           Validate operating pressure	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon	Line # 1 1 5 Line # 1 3 Line # 1 1 Line # 1 1 Line # 1 1 1 Line # 1 1 1 Line # 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 8" Bremerton HP Line 10 10 10 10 10 10 10 10 10 10 10 10 10	Year Installed           1957           1968           1993           Year Installed           1957           1968           1993           Year Installed           1957           1957           1957           1957           1957           1971           Year Installed           1971           Year Installed           Various           2009	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness CO21 Critical Information Pressure test documentation	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon	Line # 1 1 5 Line # 1 3 Line # 1 Line # 1 Line # 1 1 Line # 16 15	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 2" Description 8" Bremerton HP Line 2" Description 4" North Pasco HP Line 6" Mt. Vernon HP Line	Year Installed 1957 1968 1993 Year Installed 1957 1957 1957 1971 Year Installed 1971 Year Installed Various Various 2009	Critical Information Pipe grade and wall thickness Wall thickness Pipe grade and wall thickness	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District District Bremerton District Kennewick Mt. Vernon District	Line # 1 1 5 Line # 1 1 3 Line # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 4" Othello Line 8" Bremerton HP Line 10 10 10 10 10 10 10 10 10 10 10 10 10	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed 1971 Year Installed Various 2009	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pressure test doc	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure test or replace 531 ft section of pipeline.           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee Ustrict District District Bremerton District Kennewick Mt. Vernon District Longview	Line #	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 2" Description 8" Bremerton HP Line 2" Description 4" North Pasco HP Line 6" Mt. Vernon HP Line 2" Description 6" Wast Richland HP Line	Year Installed           1957           1968           1993           Year Installed           1957           1971           Year Installed           1971           Year Installed           Various           2009           Year Installed           2010	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pr	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ff section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure test or replace 531 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick	Line # 1 1 5 Line # 1 3 Line # 1 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 2" Description 8" Bremerton HP Line 2" Description 4" North Pasco HP Line 6" Mt. Vernon HP Line 2" Description 6" West Richland HP Line	Year Installed           1957           1968           1993           Year Installed           1957           1968           1993           Year Installed           1957           1957           1957           1957           Year Installed           1971           Year Installed           Various           2009           Year Installed           2010	Critical Information Pipe grade and wall thickness Wall thickness Pipe grade and wall thickness	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick	Line # 1 1 5 Line # 1 1 3 Line # 1 Line # 1 1 Line # 1 1 Line # 16 15 Line # 18	Description           12" Longview-Kelso HP Distribution Line           12" Attalia HP Line           6" Toppenish-Zillah HP Line           12" Longview-Kelso HP Distribution Line           4" Othello Line           4" Othello Line           8" Bremerton HP Line           12" North Pasco HP Line           6" Mt. Vernon HP Line           6" Mt. Vernon HP Line	Year Installed 1957 1968 1993 Year Installed 1957 1957 1957 1957 Year Installed 1971 Year Installed Various 2009 Year Installed	Critical Information Pipe grade and wall thickness Wall thickness Pipe grade and wall thickness	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick	Line # 1 1 5 Line # 1 1 . Line # 1 . Line # 1 . Line # 1 . Line # 16 . Line # 18 . Line # . L	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 4" Othello Line 8" Bremerton HP Line Description 4" North Pasco HP Line 6" Mt. Vernon HP Line Description 6" West Richland HP Line Description	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed 1971 Year Installed Various 2009 Year Installed Various 2009 Year Installed	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pressure test d	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Plan of Action           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 531 ft section of pipeline.           Validate operating pressure.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee Ustrict District Bremerton District Kennewick Mt. Vernon District Kennewick Mt. Vernon District Kennewick	Line #	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 12" Longview-Kelso HP Distribution Line 4" Othello Line Description 8" Bremerton HP Line Description 6" Mt. Vernon HP Line Description 6" West Richland HP Line Description 2" Elma HP Line	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed 1971 Year Installed Various 2009 Year Installed 2010 Year Installed 1979 Year Installed Year Installed 1979 Year Installed	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness CO21 Critical Information Pressure test documentation Pressure test documentati	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ff section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District District Bremerton District Kennewick Mt. Vernon District Kennewick District Aberdeen	Line # 1 1 5 Line # 1 3 Line # 1 1 Line # 1 1 Line # 16 15 Line # 18 Line # 12	Description           Description           12" Longview-Kelso HP Distribution Line           12" Attalia HP Line           6" Toppenish-Zillah HP Line           12" Longview-Kelso HP Distribution Line           4" Othello Line           12" Longview-Kelso HP Distribution Line           8" Bremerton HP Line           0escription           4" North Pasco HP Line           6" Mt. Vernon HP Line           0escription           6" West Richland HP Line           2" Elma HP Line	Year Installed 1957 1968 1993 Year Installed 1957 1957 1957 1957 1971 Year Installed 1971 Year Installed Various 2009 Year Installed 2010 Year Installed 1978	Critical Information Pipe grade and wall thickness Pipe grade and	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick District Aberdeen Kennewick Kennewick	Line # 1 1 5 Line # 1 1 3 Line # 1 1 1 1 1 Line # 1 1 Line # 1 1 Line # 1 1 Line # 1 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line  Description 12" Longview-Kelso HP Distribution Line 4" Othello Line 4" Othello Line  Description 8" Bremerton HP Line  Description 4" North Pasco HP Line  Description 6" Mt. Vernon HP Line  Description 6" West Richland HP Line  Description 2" Elma HP Line	Year Installed           1957           1968           1993           Year Installed           1957           1971           Year Installed           1971           Year Installed           1971           Year Installed           Year Installed           Various           2009           Year Installed           2010           Year Installed           1978           1905	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pressure test d	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee U District District District Kennewick Mt. Vernon District Kennewick District Kennewick District Kennewick District Kennewick Longview District Kennewick Longview	Line # 1 1 5 Line # 1 1 3 Line # 1 1 4	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 6" Bremerton HP Line 10 10 10 10 10 10 10 10 10 10 10 10 10	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed Year Installed Various 2009 Year Installed 2010 Year Installed 1978 1995	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness CO21 Critical Information Pressure test documentation Pressure test documentati	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ff section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure test or replace 531 ft section of pipeline.           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick District Kennewick District Aberdeen Kennewick	Line # 1 1 5 Line # 1 3 Line # 1 1 Line # 1 4	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 12" Longview-Kelso HP Distribution Line 8" Bremerton HP Line 10 10 10 10 10 10 10 10 10 10 10 10 10	Year Installed           1957           1968           1993           Year Installed           1957           1968           1993           Year Installed           1957           1957           1957           1957           Year Installed           Various           2009           Year Installed           2010           Year Installed           1978           1995	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness CO21 Critical Information Pressure test documentation Pressure test documentati	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ff section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick District Aberdeen Kennewick	Line # 1 1 1 5 Line # 1 1 3 Line # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description           12" Longview-Kelso HP Distribution Line           12" Attalia HP Line           6" Toppenish-Zillah HP Line           12" Longview-Kelso HP Distribution Line           4" Othello Line           4" Othello Line           8" Bremerton HP Line           12" North Pasco HP Line           6" Mt. Vernon HP Line           12" Elma HP Line           Pescription           2" Elma HP Line	Year Installed           1957           1968           1993           Year Installed           1957           1971           Year Installed           1971           Year Installed           Year Installed           Various           2009           Year Installed           2010           Year Installed           1978           1995	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pipe material P	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick District Kennewick District Kennewick District Aberdeen Kennewick	Line # 1 1 5 Line # 1 1 1 3 Line # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 4" Othello Line 8" Bremerton HP Line Description 4" North Pasco HP Line 6" Mt. Vernon HP Line Description 6" West Richland HP Line Description 2" Elma HP Line Pasco HP Distribution System Description	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed Various 2009 Year Installed 2010 Year Installed 1978 1995 Year Installed	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 531 ft section of pipeline.           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee Ustrict District Bremerton District Kennewick Mt. Vernon District Aberdeen Kennewick Verlain	Line # 1 1 5 Line # 1 3 Line # 1 1 1 5 Line # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description 12" Longview-Kelso HP Distribution Line 12" Attalia HP Line 6" Toppenish-Zillah HP Line 12" Longview-Kelso HP Distribution Line 4" Othello Line 12" Longview-Kelso HP Distribution Line 4" Othello Line Description 8" Bremerton HP Line 0" Description 4" North Pasco HP Line 6" Mt. Vernon HP Line 0" Description 6" West Richland HP Line 2" Description 2" Elma HP Line Pasco HP Distribution System 2" Longview HP Line 2" Description 2" Longview HP Line 2" Description 2" Elma HP Line 2" Description 2" Elma HP Line 2" Description 2" Longview HP Line 2" Description 2" L	Year Installed	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pr	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ff section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick District Aberdeen Kennewick District Aberdeen Kennewick District Aberdeen Kennewick District Yakima	Line # 1 1 5 Line # 1 3 Line # 1 1 Line # 1 1 Line # 1 1 Line # 1 1 Line # 1 2 Line # 1 1 Line #	Description           12" Longview-Kelso HP Distribution Line           12" Attalia HP Line           6" Toppenish-Zillah HP Line           12" Longview-Kelso HP Distribution Line           4" Othello Line           2" Longview-Kelso HP Distribution Line           4" Othello Line           8" Bremerton HP Line           6" Mt. Vernon HP Line           6" Mt. Vernon HP Line           2" Elma HP Line           Pescription           2" Elma HP Line           Pasco HP Distribution System           2" Elma HP Line           2" Webager HP Line           2" Webager HP Line	Year Installed           1957           1968           1993           Year Installed           1957           1957           1957           1957           Year Installed           1971           Year Installed           1971           Year Installed           2009           Year Installed           2010           Year Installed           1978           1995           Year Installed           1978           1978           1978           1978           1978           1978           1978	Critical Information Pipe grade and wall thickness Pipe grade grad	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.           Validate operating pressure. <t< td=""></t<>	
District Longview Kennewick Sunnyside District Longview Wenatchee District Bremerton District Kennewick Mt. Vernon District Kennewick District Kennewick District Aberdeen Kennewick District Aberdeen Kennewick	Line # 1 1 1 5 Line # 1 1 3 Line # 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Description           12" Longview-Kelso HP Distribution Line           12" Attalia HP Line           6" Toppenish-Zillah HP Line           Bescription           12" Longview-Kelso HP Distribution Line           4" Othello Line           Bescription           8" Bremerton HP Line           Description           6" Mt. Vernon HP Line           Description           6" West Richland HP Line           Description           2" Elma HP Line           Pasco HP Distribution System           Pasco HP Distribution System           2" Elma HP Line           2" Wheeler HP Line	Year Installed 1957 1968 1993 Year Installed 1957 1971 Year Installed Various 2009 Year Installed 1971 Year Installed 1978 1995 Year Installed 1978 1995	Critical Information Pipe grade and wall thickness Wall thickness Wall thickness Wall thickness Wall thickness Critical Information Pressure test documentation Pipe material Pipe material Critical Information Pipe grade and wall thickness	Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Test and/or remove 183 ft section.           Test samples from abandoned sections and those removed during replacements. If needed, prepare sampling plan.           Plan of Action           Prepare sampling plan to verify pipe grade and wall thickness. Test retired in place sections and sections which have previously been removed.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure or replace 191 ft section of pipeline.           Validate operating pressure test or replace 531 ft section of pipeline.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Plan of Action           Validate operating pressure.           Validate operating pressure.           Plan of Action           Validate operating pressure.           Validate operating pressure.           Work Order states Iron pipe in one	
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#### TABLE 2 - SCHEDULE TO GATHER INFORMATION

TABLE 3 - PIPELINES ASSUMING YIELD STRENGTH OF 24,000 PSI							
Aberdeen District							
Line #	Description	Segment Description	MAOP (psig)	<b>Revised %SMYS</b>			
4	4" Elma HP Line	R-6 to R-60	150	7.48%			
8	4" montesano HP Distribution System	R-4 to R-5	135	6.73%			
9	2" Elma Rendering Plant HP Line	Route 8 Crossing	150	7.48%			
		Bellingham District					
Line #	Description	Segment Description	MAOP (psig)	Revised %SMYS			
2	4" Bellingham HP Distribution System	High Street	155	9.31%			
2	8" Bellingham HP Distribution System	Original line	155	14.81%			
2	10" Bellingham HP Distribution System	Original line	155	15.85%			
4	4" South Lynden HP Line	Original line	250	12.47%			
8	2" Nooksach HP Distribution System	Tap line 4 south	250	8.03%			
	D	amorton District None					
	18	emerton District - None					
		Kennewick District					
Line #	Description	Segment Description	MAOP (psig)	<b>Revised %SMYS</b>			
4	Pasco HP Distribution System	Original line and N. of 8th St.	300	14.96%			
		Longview District					
Line #	Description	Segment Description	MAOP (psig)	<b>Revised %SMYS</b>			
3	4" Dike Road HP Line	Original Line	80	4.81%			
	1	Mt. Vernon District					
Line #	Description	Segment Description	MAOP (psig)	<b>Revised %SMYS</b>			
3	6" Anacortes HP Distribution System	518 Hillcrest Drive to R-32	105	7.71%			
3	8" Anacortes HP Distribution System	R-31 to 518 Hillcrest Drive	105	10.04%			
4	4" Mt. VernonHP Line	Original Line	250	12.47%			
5	3" Burlington HP Line	R-18 to R-19	249	11.64%			
7	4" North Texas Road HP Line	North Texas Road near R-85	250	8.03%			
8	4" Arlington HP Line	Gate to R-86	249	12.42%			
		Walla Walla District					
Line #	Description	Segment Description	MAOP (nsig)	Revised %SMVS			
1	8" Walla Walla HP Line	Original Line	150	1/ 3/%			
2	3" College Place HP Line	Original Line	150	7.01%			
2 5 Contege Place HP Line Original Line 150 7.01%							
Wenatchee District							
Line #	Description	Segment Description	MAOP (psig)	<b>Revised %SMYS</b>			
10	6" West Wheeler HP Line	205 ft segment installed in 1997	250	18.35%			
12	6" Wenatchee HP Line	Original line	225	16.52%			
	•						
	Sunnyside Dis	trict (Merged with Yakima Distric	et)				
Line #	Description	Segment Description	MAOP (psig)	<b>Revised %SMYS</b>			
1	3" Sunnyside HP Line	Original line	200	9.35%			
2	2" South Sunnyside HP Line	North section of line	200	6.43%			
3	4" Grandview HP Line	Original line	250	12.47%			
4	3" Prosser HP Line	O-01 to R-1	250	11.69%			
7	4" Wapato HP Line	Original line	152	7.58%			
9	3" Granger HP Line	Original line	175	8.18%			
Yakima District - None							

# **APPENDIX F**

# Regarding the CNG High Pressure (HP) Pipeline Maximum Allowable Operating Pressure--Supporting Documentation Data Request

# October 10, 2013

To: Steve Kessie, CNG, Manager-Operations Services (via email)

Please provide the UTC with the following data requests (DR).

# The scope of the following DR's should be limited to the high pressure (HP) lines in CNG's Washington system which have insufficient documentation to determine MAOP.

# DR No.1

Please provide an updated Table 1 (or a new table) which lists ALL of the pipeline segments which have deficient MAOP records. Also add the following pipe data columns to Table 1 (or a new table): 1) grade; 2) wall thickness; 3) test pressure; 4) year installed; 5) %SMYS--based on existing (current) operations; 6) pipe segment length; 7) a column denoting transmission or not; 8) class location.

# DR No.2

Please provide an updated Table 3 which shows only those pipelines from Table 1 which CNG reduced the pipe strength to 24,000 as allowed in 49 CFR 192.107(b). Also, please add a new column for 1) wall thickness (real or assumed and clarify which), 2) pipe length and 3)class location.

# DR No.3

Please provide leak history and any exposed pipe condition reports for all pipelines which have deficient/unknown MAOP records.

# DR No.4

Please provide and update to Table 2 indicating why CNG placed a particular pipeline in year one versus year 4 or 10 (ie: Was this decision based on location? leak history? HCAs? permitting? customer base?, etc.).

# **APPENDIX G**



# STATE OF WASHINGTON WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250 (360) 664-1160 • TTY (360) 586-8203

# **CERTIFIED MAIL**

November 5, 2013

Eric Martuscelli Vice President-Operations Cascade Natural Gas Corporation 8113 W. Grandridge Blvd Kennewick, WA 99336

Dear Mr. Martuscelli:

## RE: 2013 Natural Gas Standard Inspection - Tri-Cities and Walla Walla Districts

The Washington Utilities and Transportation Commission (UTC) staff conducted a natural gas safety standard inspection, during the week of October 14-18, 2013, of Cascade Natural Gas (CNG) – Tri-Cities and Walla Walla Districts. The inspection included a records review and inspection of the pipeline facilities.

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

# Your response needed

Please review the attached report and respond in writing by December 6, 2013. 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:

R

• Issue an administrative penalty under RCW 81.88.040, or;

Cascade Natural Gas 2013 Tri Cities/Walla Walla Inspection November 5, 2013 Page 2

- 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.

We have not yet decided whether to pursue a complaint or penalty in this matter. Should an administrative law judge decide to pursue a complaint or penalty, your company will have an opportunity to present its position directly to the commissioners.

We would like to note that during this was the fourth of four CNG inspections completed this year. It was clear that overall, CNG's records and compliance have greatly improved over previous inspections. We expect CNG to continue on this course and would like to thank CNG's personnel for their cooperation and assistance during these inspections.

If you have any questions, please contact Dennis Ritter, Pipeline Safety Engineer at (360) 664-1159. Please refer to the subject matter described above in any future correspondence pertaining to this inspection

Sincerely,

David D. Lykken Pipeline Safety Director

Enclosure

cc: Steve Kessie, Manager-Operations Services, Cascade Natural Gas Corporation Tina Beach, Manager of Standards & Compliance, Cascade Natural Gas Corporation Vicki Ganow, Pipeline Safety Specialist, Cascade Natural Gas Corporation Kevin McCallum, Pipeline Safety Specialist, Cascade Natural Gas Corporation

# WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION 2013 Standard Natural Gas Safety Inspection Cascade Natural Gas, Tri-Cities and Walla Walla Districts

The following probable violations of Title 49, CFR Part 192 and WAC 480-93 were noted as a result of the natural gas safety inspection of CNG's Tri-Cities and Walla Walla district records, plans, procedures and pipeline facilities.

# PROBABLE VIOLATIONS

# 1. WAC 480-93-185 Gas leak investigation:

(1) Each gas pipeline company must investigate any odor, leak, explosion, or fire, which may involve its gas pipelines, promptly after receiving notification. Where the investigation reveals a leak, the gas pipeline company must grade the leak in accordance with WAC 480-93-186, and take appropriate action. The gas pipeline company must retain the leak investigation record for the life of the pipeline.

# Finding(s):

CNG failed to grade 3 leaks as noted below. All three of these leaks were severed lines:

- a. Kennewick WO#197180, 10/25/12—contractor who struck line had pinched off broken end so gas was not "blowing", however, the line was severed and not graded per CNG CP 750.
- b. Kennewick WO#20064, 3/14/13—form noted "blowing gas". Leak grade was not graded per CNG CP 750.
- c. Kennewick WO#200503, 3/16/13—landscaper cut the service which had an EFV which prevented gas from blowing. However, line as severed and not graded per CNG CP 750:

## 2. WAC 480-93-186 Leak evaluation:

(3) The gas pipeline company must check the perimeter of the leak area with a combustible gas indicator. The gas pipeline company **must perform a follow-up** inspection on all leak repairs with residual gas remaining in the ground as soon as practical, **but not later than thirty days** following the repair.

# Finding(s):

3.

Two instances were found were CNG failed to follow up the initial leak response within the required 30 days:

- a. Kennewick WO#194048, 6/27/12—651 Oklahoma St., First response was 6/27/12; follow up was 8/30/12.
- b. Kennewick WO#202022, 9/5/13—679 S. Oklahoma St., First response was 9/5/13; follow up was on 10/8/13.

## WAC 480-93-188 Gas leak surveys:

(1) Each gas pipeline company must perform gas leak surveys using a gas detection instrument covering the following areas and circumstances:

(a) Over all mains, services, and transmission lines including the testing of the atmosphere near other utility (gas, electric, telephone, sewer, or water) boxes or manholes, and other underground structures;

## Finding(s):

CNG uses printouts from its GIS mapping system to allow field crews the ability to "highlight" the pipelines they survey on a real time basis. In reviewing these leak survey records, several pipeline segments, stubs or services in both Tri Cities and Walla Walla were not highlighted. In some instances there was an issue, such as a locked gate, preventing access. CNG's procedure requires this to be noted on a separate "AOC" sheet (CNG 297) so it can be surveyed at a later date. Several non-highlighted pipeline facilities did not appear on AOC sheets and therefore, it could not be determined if the line had actually been surveyed. See attached sheets for locations.

### 4. WAC 480-93-180 Plans and procedures.

Each gas pipeline company must have and follow a gas pipeline plan and procedure manual (manual) for operation, maintenance, inspection, and emergency response activities that is specific to the gas pipeline company's system. The manual must include plans and procedures for meeting all applicable requirements of 49 CFR §§ 191, 192 and chapter 480-93 WAC, and any plans or procedures used by a gas pipeline company's associated contractors.

# Finding(s):

(1)

CNG CP 754.033 states, "Personnel shall grade each meter set and service riser listed in the shutdown section using the inspection criteria in section .02. If a meter set or riser is noted as "Needs Paint", or "Needs Repair", a description of the condition should be taken of the condition in the space provided. An individual completing a set of meters shall indicate by signing and dating the page of the report they completed."

During atmospheric corrosion control records review in Walla Walla, it was noted that there were pages of records which did not have a signature or name, just a date (see below). Additionally, it was noted the many different ways that CNG field personnel "signed" the forms: initials, first name, last name, or a combination of all three. The practice should be consistent for all personnel.

- 2012 Walla Walla Book 1, Shutdown section 26-I008, pg 11/451
  - 2013 Walla Walla Book 1, Shutdown section 26-I001, pgs 17-22/1382
- 2013 Walla Walla Book ?, Shutdown section 26-I004, pgs 113-122/1382

## AREAS OF CONCERN AND RECOMMENDATIONS

## 1. 49 CFR §192.517(a) Records/

- (a) Each operator shall make, and retain for the useful life of the pipeline, a record of each test performed under §§ 192.505 and 192.507. The record must contain at least the following information:
  - (1) The operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used.
  - (2) Test medium used.
- (3) Test pressure.
- (4) Test duration.
- (5) Pressure recording charts, or other record of pressure readings.
- (6) Elevation variations, whenever significant for the particular test.
- (7) Leaks and failures noted and their disposition.

## 2. <u>49 CFR § 192.619 Maximum Allowable Operating Pressure Steel or plastic</u> pipelines:

- (a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph
   (c) or (d) of this section, or the lowest of the following:
  - (1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part. However, for steel pipe in pipelines being converted under §192.14 or uprated under subpart K of this part, if any variable necessary to determine the design pressure under the design formula (§192.105) is unknown, one of the following pressures is to be used as design pressure:
    - (i) Eighty percent of the first test pressure that produces yield under section N5 of Appendix N of ASME B31.8 (incorporated by reference, see §192.7), reduced by the appropriate factor in paragraph (a)(2)(ii) of this section; or
    - (ii) If the pipe is 12<sup>3</sup>/<sub>4</sub> inches (324 mm) or less in outside diameter and is not tested to yield under this paragraph, 200 p.s.i. (1379 kPa) gage.
  - (2) The pressure obtained by dividing the pressure to which the segment was tested after construction as follows:
    - *(i) For plastic pipe in all locations, the test pressure is divided by a factor of 1.5.*
    - (ii) For steel pipe operated at 100 p.s.i. (689 kPa) gage or more, the test pressure is divided by a factor determined in accordance with the following table:

Class location	Factors <sup>1</sup> , segment—										
	Installed before (Nov. 12, 1970)	Installed after (Nov. 11, 1970)	Converted under §192.14								
1	1.1	1.1	1.25								
2	1.25	1.25	1.25								
3	1.4	1.5	1.5								
4	1.4	. 1.5	1.5								

Note: For offshore segments installed, or updated, or converted after July 31, 1977, that are not located on an offshore platform, the factor is 1.25. For segments installed, uprated, or converted after July 31, 1977 that are located on an offshore platform or on a platform in inland navigable waters (including a pipe riser), the factor is 1.5

(3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. This pressure restriction applies unless the segment was tested according to the requirements in paragraph (a)(2) of this section after the applicable

date in the third column or the segment was uprated according to the requirements in subpart K of this part:

Pipeline segment	Pressure date	Test date
—Onshore gathering line that first became subject to this part (other than §192.612) after April 13, 2006	March 15, 2006, or date line becomes subject to this part, whichever is later	5 years preceding applicable date in second column.
—Onshore transmission line that was a gathering line not subject to this part before March 15, 2006		
Offshore gathering lines	July 1, 1976	July 1, 1971.
All other pipelines	July 1, 1970	July 1, 1965.

The pressure determined by the operator to be the maximum safe pressure (4)after considering the history of the segment, particularly known corrosion and the actual operating pressure.

- No person may operate a segment to which paragraph (a)(4) of (b)this section is applicable, unless overpressure protective devices are installed on the segment in a manner that will prevent the maximum allowable operating pressure from being exceeded, in accordance with §192.195.
- (c)
- The requirements on pressure restrictions in this section do not apply in the following instance. An operator may operate a segment of pipeline found to be in satisfactory condition, considering its operating and maintenance history, at the highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column of the table in paragraph (a)(3) of this section. An operator must still comply with §192.611

#### **Findings:**

Based on findings from previous CNG inspections completed this year, CNG has reviewed all of its high pressure pipelines in all units looking for missing data used to confirm MAOP including this unit. CNG has formulated a program to obtain all missing data and Pipeline Safety is currently reviewing it. However, pressure test records for the 8" Attalia Line were asked for during this inspection. CNG did not have complete pressure test records (per Kathleen Chirgwin, GO).

In reviewing CNG's table of missing information submitted to the UTC as part of the above mentioned program, the 8" Attalia line was included, however, pressure testing records were not listed as missing; only "pipe grade" was listed as missing. This portion of the code is not retroactive and the 8" Attalia line was installed pre code. CNG still must confirm MAOP per 192.619, if the pressure testing documents are not complete. We will require CNG to submit its MAOP confirming documents for the 8-inch Attalia line to the UTC within 30 calendar days from the date of this letter.

### WAC 480-93-140(1) 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.

## **Findings:**

2.

3.

A review of the annual regulator maintenance records indicated that regulators R31 Kennewick, R37 Pasco, R39 Finley, and R64 Kennewick, had springs installed which were outside the set pressures of the regulator or relief. While not necessarily a violation of the code, CNG should have some documentation as to why this practice is being used. CNG did not provide documentation during the inspection. It should be noted, this same issue occurred in the Yakima/Sunnyside district inspection (9/27/13). At that time, CNG stated that GO Engineering establishes and approves all set points and spring ranges for regulators. CNG stated they would have justification "soon" and so it was not written into the report. As of the date of this report, CNG still has not provided justification. It should also be noted, that a regulator company Emerson (Fisher) was contacted to ask whether this situation was a safety concern. Emerson stated it was not a safety concern, but may be a reliability or accuracy issue. They recommend operators use springs (the lighter the better) with a range which encompasses the set point of the regulators/relief.

### WAC 480-93-188(5) Gas leak surveys:

(5) Each gas pipeline company must keep leak survey records for a minimum of five years. At a minimum, survey records must contain the following information:

- (a) Description of the system and area surveyed (including maps and leak survey logs);
- (b) Survey results;
- (c) Survey method;
- (d) Name of the person who performed the survey;
- (e) Survey dates; and
- (f) Instrument tracking or identification number.

#### **Findings:**

CNG performs quarterly patrolling on the Columbia Mall rooftop (meter's and regulators are on the roof). During the patrol they also do leak surveys, however, they do not write down the instrument number on the patrol form—there actually is not a place on the form to write it. The same form used in Walla Walla does have place holder for this information. CNG should consider using this version of the form for all patrolling to assist field crews in writing down information

5

# **APPENDIX H**

## Huynh, Rhonda (UTC)

From:	Beach, Tina <tina.beach@cngc.com></tina.beach@cngc.com>
Sent:	Thursday, April 17, 2014 12:02 PM
То:	Huynh, Rhonda (UTC)
Cc:	Martuscelli, Eric; Ogden, Jeremy; Kessie, Steve
Subject:	FOLLOW UP: MAOP Validation - Response TriCities/Walla Walla Standard Inspection
	2013
Attachments:	WUTC - 4-17-14.pdf

Dear Rhonda;

Per Dennis Ritter's original request dated October 10<sup>th</sup>, 2013 and subsequent discussions between Mr. Ogden and Mr. Lykken; please find the attached request for information related to 49CFR 192.619 Maximum Operating Pressure steel or plastic pipelines. Please forward this information to Mr. Lykken and Mr. Ritter. If you have further questions related to this data feel free to contact Mr. Ogden or myself.

Sincerely,

Tina R. Beach Manager of Standards and Compliance



8113 Grandridge Blvd. Kennewick, WA 99336 (509) 734-4576 Kennewick office (206) 445-4121 Work cell (509) 737-9803 Fax <u>tina.beach@cngc.com</u>

## RECEIVED

## APR 17 2014

State of Washington UTC Pipeline Safety Program



In the Community to Serve<sup>®</sup>

April 17, 2014

8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166 TELEPHONE 509-734-4500 FACSIMILE 509-737-7166 www.cngc.com

RECEIVED

David D. Lykken Pipeline Safety Director Washington Utilities and Transportation Commission 1300 S. Evergreen Park Drive S.W. P.O. Box 47250 Olympia, WA 98504-7250 APR 17 2014 State of Washington

UTC Pipeline Safety Program

Subject: Cascade Natural Gas – Maximum Allowable Operating Pressure (MAOP)

David:

Transmitted herewith is the data requested in the October 10, 2013 data request from the WUTC. TABLE 1 – PIPELINES WITH MISSING MAOP INFORMATION addresses DR #1 and TABLE 3 – PIPELINES ASSUMING YIELD STRENGTH OF 24,000 PSI addresses DR #2. Cascade has contracted with irth Solutions to perform a class location study on all of the high pressure (HP) pipelines and it is anticipated that the results will be available in late spring 2014. Additionally, the information requested in DR #3 is too large to be transmitted by email and will be posted in the UTC online portal, as instructed by Dennis Ritter.

As a response to DR #4, the schedule shown in TABLE 2 - SCHEDULE is based on a matrix that Cascade created to prioritize pipeline segments. This matrix took into account % SMYS of pipe and fittings, pressure rating of fittings, population density near pipeline, length of pipeline segment, and documentation available. The schedule was then prepared to address the pipelines, with higher priorities first and minor exceptions as deemed necessary.

If you have any questions or would like to discuss anything further, please feel free to contact me to discuss.

Sincerely,

Jeremy Ogden, P.E. Director, Engineering Services Cascade Natural Gas Corporation jeremy.ogden@cngc.com 509-734-4509

#### TABLE 1 - PIPELINES WITH MISSING MAOP INFORMATION

image         image </th <th></th> <th></th> <th></th> <th></th> <th>Aberdeen District</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>					Aberdeen District						
9         9000         90000         90000         9000         9000         9000         900000         900000         900000         900000         900000         900000         900000         900000         900000         900000         9000000         9000000         9000000         9000000         90000000         90000000         900000000         90000000000         9000000000000000000000000000000000000	Line#	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (psig)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
No.         South is a state of the s			1972	Pressure rating on Sav-A-Valves (2)	Expose and inspect Sav-A-Valves. Replace caps if necessary.	42,000	0.188	750	19.99	908	N
Image: state	1	8" Kitsap Line	2000	158 ft of pipe assumed to be Grade B	Test to verify pipe grade as X42 or greater.	52,000	0.312	1080	29.13	1,035	N
1         1			1963	Under rated Sav-A-Valves (2) and transition fittings (2)	Expose and inspect to verify pressure rating and grade.	46,000	0.188	750	24.88	35,770	Ŷ
1111000 <t< td=""><td>3</td><td>4" McCleary HP Line</td><td>1963</td><td>Pressure test documentation</td><td>MAOP based on operating history.</td><td>35,000</td><td>0.188</td><td>None</td><td>5.13</td><td>225</td><td>N</td></t<>	3	4" McCleary HP Line	1963	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	5.13	225	N
Image: state in the state interaction of the state interactin of the state interactin of the state interaction of the stat	8	4" Montesano HP Distribution System	1964	Pressure test documentation	MAOP based on operating history	35,000	0.188	None	3.66	1.645	N
Nome         Nome </td <td></td> <td></td> <td>1964</td> <td>Pressure test documentation</td> <td>MAOP based on operating history</td> <td>35,000</td> <td>0.154</td> <td>None</td> <td>1 30</td> <td>5 280</td> <td>N</td>			1964	Pressure test documentation	MAOP based on operating history	35,000	0.154	None	1 30	5 280	N
Image: starting starti	9	2" Flow Rendering Plant HP Line	1701	Pressure test documentation nine	MAOP based on operating history. Assume minimum size acycle	55,000	0.104	TUNC	0.00	51200	
10         10         10000         1000         1000         1			1964	grade and wall thickness	and wall thickness values.	24,000	0.156	None	9.01	252	N
Image in the image is a set of the set of t	15	12 Kitsap HP Line	1995	Under rated Sav-A-vaive	Expose and inspect Sav-A-valve. Replace it necessary.	52,000	0.312	1080	19.61	34,782	N
Dec of the state of					Beilingham District				-		
1         Network Price         Norm of the second sequency parameter second seq	Line#	Description	Installed	Critical Information	Plan of Action	Pipe Grade	(in.)	(psig)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
	1	8° Bellingham HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Remove sections of retired in place pipe and test for pipe grade and wall thickness.	24,000	0.188	None	36.32	15,094	N
			1956	Pressure test documentation and pipe grade	1.	24,000	0.188	None	14.81	16,475	N
1         1			1956	Pressure test documentation and	MAOP based on operating history. Pipelines will be removed/downrated as part of future project to remove pipelines	24,000	0.188	None	18.46	19,400	N
Partial PL Dischein Symp         Price of Machine         Mode Machine			1960	Pressure test documentation, pipe	from bridges which will be replaced.	24,000	0.156	None	9.31	1,508	N
2         Number of the second of the se			100000	grade and wall thickness			1.98.9	Revision (			
Image: Probability of the strength of t	2	Bellingham IIP Distribution System	1964	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	5.30	2,356	N
Image: bis product of a security of the			1965	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	7.80	988	N
Image: second			1966	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	7.80	1,577	N
Image: Province in decounting of the second signed plane, and			1966	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	10.16	396	N
Image: space of the s			1967	Pressure test documentation	MAOP based on operating history.	35,000	0.154	None	3.41	2,025	N
No.         Percent Whenen IF lace         Interpretation of sectorial planes, for any sectorial planes, fo			1972	Pipe grade and wall thickness	Pipelines will be removed/downrated as part of future project to remove pipelines from bridges which will be replaced.	24,000	0.156	225	9.31	219	N
Image: stand	3	3 S* Central Whatcom HP Line		Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Test samples from Janes Street and Lampman Road, and any other points that are available, for pipe grade and wall thickness.	24,000	0.188	None	36.32	57,437	N
4         * Soch 1 galon IIP Line         1961         presence to descention, presence to descentio			1993	Pipe grade on transition fittings	Expose and inspect fittings for pipe grade, either by stamp indentification or in-situ testing.	46,000	0.188	680	24.91	10,579	N
6         7         Fended BP Lae         1982         Description System         1993         Description System         1994         Description System         1995         Description System         1995         Performant System         1000         Performant System	4	4* South Lynden HP Line	1961	Pressure test documentation, pipe	MAOP based on operating history. Assume minimum pipe grade	24,000	0.156	None	15.02	35,441	N
1         2 Nackack IP Dischulus System         1900         Pressure test scenaration, of March Michaes and March Michaes Nature.         2 4000         0 1314         Nos.         8.0         77.3         N           0         1 Labe Trend Boal Transmission Lise         1960         Pres grade and Michaes Nature.         197.00         0.0158         5.000         0.0158         5.000         0.0158         5.000         10.050 <t< td=""><td>6</td><td>4" Ferndale HP Line</td><td>1962</td><td>Under rated flange tee at V-47</td><td>Inspect during V-47 project in 2014.</td><td>25,000</td><td>0.188</td><td>500</td><td>18,19</td><td>8,120</td><td>N</td></t<>	6	4" Ferndale HP Line	1962	Under rated flange tee at V-47	Inspect during V-47 project in 2014.	25,000	0.188	500	18,19	8,120	N
1         Late Technic Information Line         1965         Open and and with the constraint of 1014.         24000         0.188         569         56.2         10.314         Y           10         16 Y. Nathan Tannsition Line         1971         Under rand Suss-A Value         Expose and Japect to write pressure aring.         33.000         0.188         600         13.68         18.00         N           11         2 Sussition IP Line         1973         Under rand Suss-A Value         Expose and Japect to write pressure aring.         33.000         0.188         600         13.68         8.01         N           12         3 Sussition IP Line         1973         Under rand Suss-A Values         Expose and Impect Sus-A-Values. Regiser caps if necessary.         42.000         0.188         700         9.09         9.09         N           14         4 Framework intermediation	8	2" Nooksack HP Distribution System	1963	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade and wall thickness values.	24,000	0.154	None	8.03	732	N
10         10         10         Number of monitorial line         1971         Under rand Space View         Explose inplicit in Subter length in Sub	9	8" Lake Terrell Road Transmission Line	1965	Pipe grade and wall thickness	Test samples in-situ in 2015.	24,000	0.188	569	36.32	10.314	Y
12         12 North Jayoka HF Line         1973         User and Sava Avalue         Espone and larger to wrife pressmer and a         32,000         0.281         607         1.06         8,161         N           12         16 Seguidean HF Line         1973         Pep ande         Is its toting in Jacotions minimum.         24,000         0.281         607         1.06         8,161         N           14         Seguidean HF Line         Total def         Chilcal Information         Pine and Action         Pipe Grade         Will Toldnes         For Personance and a son-A-Value         Espone and inspect Sav-A-Value         Espone and inspect	10	16" N. Whatcom Transmission Line	1971	Under rated plugs at valves	Replace plugs in 5 valves beginning in 2014.	52,000	0.25	926	36.92	143,907	Y
11         19:3         ppg gade         as situ toring in 3 locations minimum.         24,000         0.281         6.30         2.600         N           Intersection Biafrid           Description         Yea         Price and Mark         Pripe Gade         Will Tachang         Pripe Segment Longth	12	4" North Lynden HP Line	1978	Under rated Say-A-Valve	Expose and inspect to verify pressure rating.	35,000	0.188	600	13.68	8,161	N
Intersection District         Intersection District           Line #         Description         Your [0,0]         Critical Information [2]         Prosent radies on Six-A-Values [2]         Prosent radies on Six-A-Value [2]         Procest radies on Six-A-Value [2]         Prosent radies on	21	16" Squalicum HP Line	1993	Pipe grade	In situ testing in 3 locations minimum,	24,000	0.281	620	29.66	2.600	N
Interscient DistrictInterscient DistrictLine #DiscriptionNumber of Chical InformationPion ActionPipe GraneWall TakawaPion Personane information (NP)Image: Produce ratio of Same Array in the Chical InformationPipe GraneWall TakawaWall TakawaPipe Same Information (NP)Image: Produce ratio of Same Array in the Chical InformationPipe GraneWall TakawaWall TakawaPipe Same Information (NP)Image: Produce ratio of Same Array in the Chical InformationPipe GraneWall TakawaWall TakawaPipe GraneWall TakawaPipe GranePipe											
Line         Description         Year (number)         Critical Information (2)         Plane of Action         Page Case (3)         Will Tucking (6)         Pipe Segmen Leng(2) (6)         <	1				Bremerton District						
Image: second	Line #	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (pslg)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
1 $\frac{1}{100}$ $\frac$			1972	Pressure rating on Sav-A-Valves	Expose and inspect Sav-A-Valves. Replace caps if necessary.	42,000	0.188	750	19.99	908	N
Image: Problem in the state of th	1	8" Kitsao Line	2000	158 ft of pipe assumed to be	Test to verify nipe grade as X42 or greater.	52.000	0.312	1080	29.13	1.035	N
Image: state			1052	Under rated Sav-A-Valves (2)	Provide a standard and a	16.000	0.199	760	21.00	26 320	v
28' Bremerten Transmission Line1903Pge grade and wall thickness.Test abundhend sections to verify pipe grade and wall thickness.24,0000.18875047,602,843Y64' Olympic View HP Line1973Under rated plugs (2) in a valueReplace plags.44,0000.188None7.185,780N118' Bremerton HP Line1964Pressure test documentationMAOP based on operating history.46,0000.188None7.185,780N1512' Kitsap HP Line1964Pressure test documentationValidate operating pressare.35,0000.188None9.443,269NInterstee Stavk-Avlave. Replace if necessary.35,0000.188None9.443,269NValidate operating pressare.35,0000.188None9.443,269NValidate operating pressare.35,0000.188None9.443,269NValidate operating pressare.7500.188None9.443,269NValidate operating history.Validate operating history.Validate for previously removed and abandonel sections to verify pipeValidate operating history.Validate operating history.35,0000.188None19.6649NValidate operating history.35,0000.188None14.6218.14NValidate operating history.3	-		1903	and transition fittings (2)	expose and inspect to verify pressure fatting and grade.	40,0887	0.188	730	24.00	33,770	
	2	8" Bremerton Transmission Line	1963	Pipe grade and wall thickness	Test abandoned sections to verify pipe grade and wall thickness.	24,000	0.188	750	47.69	2,843	Y
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	6	4" Olympic View HP Line	1973	Under rated plugs (2) in a valve	Replace plugs.	42,000	0.188	500	14.22	14,540	N
15       12* Kissap IIP Line       1995       Under rated Sav-A-Valve       Expose and inspect Sav-A-Valve. Replace if accessary.       52.000       0.312       1080       19.61       34,782       N         Kennevick District         Line #       Description       Year       Critical Information       Plan of Action       Pipe Grade       Value of Critical Information       Pressure test documentation         1       Attalia HP Line       1988       Pipe Grade       Test presioudy removed and abandoned sections to verify pipe grade.       24.000       0.018       30.70       28.67       78.449       N         1       Attalia HP Line       1968       Pressure test documentation       MAOP based on operating history.       35.000       0.018       None       14.57       42.00       N         1968       Pressure test documentation       MAOP based on operating history.       35.000       0.018       None       14.57       42.00       N       11.11       N         3       4* East Finley IP Line       1968       Pressure test documentation       MAOP based on operating history.       35.000       0.318       None       14.57       42.0       N         3       4* East Finley IP Line	11	8" Bremerton HP Line	1964	Pressure test documentation Pressure test documentation	MAOP based on operating history, Validate operating pressure,	46,000 35,000	0.188	None	7.18 9.44	5,780 3,269	N
Kennevick District           Line #         Description         Year Installed         Critical Information         Plan of Action         Pipe Grade         Wall Thickness (in.)         Test Pressure (prig)         % SMYS         Pipe Segment Length (h)         Transmission (V/S)           1         Analia HP Line         1958         Pipe Grade         Test previously removed and abandoned sections to verify pipe acide.         24.000         0.188         337         28.67         78.449         N           1         Analia HP Line         1968         Pressure test documentation         MAOP based on operating history.         35.000         0.188         None         19.66         49         N           1968         Pressure test documentation         MAOP based on operating history.         35.000         0.25         Nene         21.86         18.3         N           1968         Pressure test documentation         MAOP based on operating history.         35.000         0.33         None         14.56         25         N           1968         Pressure test documentation         MAOP based on operating history.         55.000         0.25         None         14.51         21.498         N           4         Pasce HP Distribution System         1960         Pressure test documentation	15	12* Kitsap HP Line	1995	Under rated Sav-A-Valve	Expose and inspect Sav-A-Valve. Replace if necessary.	52,000	0.312	1080	19.61	34,782	N
Handling         Year Installed         Year Installed         Critical Information         Plan of Action         Pipe Grade         Wall Tichlows         Testspressure (rpd)         % SMYS         Pipe Segment Lend (rb)         Testspressure (rb)         % SMYS         Pipe Segment Lend (rb)         Testspressure (rb)         % SMYS         Pipe Segment Lend (rb)         Testspressure (rb)         % SMYS         Pipe Segment Lend (rb)         Month (rb)         No           1         Manual HP Line         1968         Pressure test documentation (rb)         MAOP based on operating history.         35.000         0.188         None         14.51         44.9         No           3         4* East Finley IP Line         1968         Pressure test documentation (rb)         MAOP based on operating history.         35.000         0.138         None         14.71         11.11         No           3         4* East Finley IP Line         1960         Pressure test documentation (rb)         MAOP based on operating history.         35.000         0.188         None         16.56 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											
Line #         Description         Year Installed         Critical Information         Plan of Action         Plan of Action Action         Plan of Action Action <t< td=""><td>F</td><td></td><td></td><td></td><td>Kennewick District</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	F				Kennewick District						
Image: Note of the second se	Line #	Description	Year	Critical Information	Plan of Action	Pipe Grade	Wall Thickness	Test Pressure	% SMYS	Pipe Segment Length	Transmission (Y/N)
Image: Product of the section of the sectio			1958	Pipe Grade	Test previously removed and abandoned sections to verify pipe	24,000	0.188	337	28.67	78,449	N
1         Analia HP Line         1968         Pressure test documentation         MAOP based on operating history.         35,000         0.25         None         21.86         183         N           1968         Pressure test documentation         MAOP based on operating history.         35,000         0.375         None         14.57         42         N           1968         Pressure test documentation         MAOP based on operating history.         35,000         0.33         None         14.57         42         N           3         4* East Finley IIP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.138         None         14.71         11.11         NN           3         4* East Finley IIP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         45.55         2.4908         NN           5         4* Yonthwest Pasco IIP Line         1960         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         10.65         2.847         N           6         4* Glak Road HP Line         1966         Pressure test documentation         MAOP based on operating history.         3			1968	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	19.66	49	N
Image: Pressure test documentation         MAOP based on operating history.         35,000         0.375         None         14.57         42         N           1968         Pressure test documentation         MAOP based on operating history.         35,000         0.375         None         14.57         42         N           3         4* East Finley IIP Line         1968         Pressure test documentation         MAOP based on operating history.         55,000         0.23         None         14.57         42         N           3         4* East Finley IIP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         8.55         2.498         N           4         Pasco HP Distribution System         1960         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         8.55         2.498         N           5         4* Northwest Pasco HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         10.2         2.498         N           6         4* Glake Road HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000 </td <td>1</td> <td>Attalia HP Line</td> <td>1968</td> <td>Pressure test documentation</td> <td>MAOP based on operating history.</td> <td>35,000</td> <td>0.25</td> <td>None</td> <td>21.86</td> <td>183</td> <td>N</td>	1	Attalia HP Line	1968	Pressure test documentation	MAOP based on operating history.	35,000	0.25	None	21.86	183	N
Image: Pressure test documentation         MAOP based on operating history.         35,000         0.33         None         16.56         25         N           3         4° East Finky IP Line         1968         Pressure test documentation         MAOP based on operating history.         52,000         0.25         None         14.71         111         None           4< Pasce HP Distribution System			1968	Pressure test documentation	MAOP based on operating history.	35,000	0.375	None	14.57	42	N
1968         Pressure text documentation         MAOP based on operating history.         52,000         0.25         None         14.71         111         N           3         4* East Finley IIP Line         1967         Pressure text documentation         MAOP based on operating history.         35,000         0.158         None         8.55         2.498         N           4         Pasco IIP Distribution System         1960         Pipe grade ad vall blickness         3 avoue minimum pipe grade ad vall blickness values.         23,000         0.156         450         18.03         10.125         N           5         4* Northwest Pasco IIP Line         1966         Pressure text documentation         MAOP based on operating history.         35,000         0.188         None         10.26         2.477         N           6         4* Clade Road HP Line         1966         Pressure text documentation         MAOP based on operating history.         35,000         0.188         None         10.26         2.477         N           7         2* Burbank HP Line         1967         Pressure text documentation         MAOP based on operating history.         35,000         0.188         None         5.43         2.052         N           7         2* Burbank HP Line         1967         Pressur			1968	Pressure test documentation	MAOP based on operating history.	35,000	0.33	None	16.56	25	N
3         4* East Finley IIP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         8.55         2.498         N           4         Pasco HP Distribution System         1960         Pipe grade and wall thickness         Assume minimum pipe grade and wall thickness values.         24,000         0.156         450         18.03         10,125         N           5         4* Northwest Pasco HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         10.26         2.847         N           6         4* Glade Road HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         5.13         2.052         N           7         2* Burbank HP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.154         None         3.48         3.5200         N           7         2* Burbank HP Line         1967         Pressure test documentation, pipe MAOP based on operating history.         35,000         0.156         None         3.48         3.5200         N           8         4* Finley HP Line.<			1968	Pressure test documentation	MAOP based on operating history.	52,000	0.25	None	14.71	111	N
4         Pasce HP Distribution System         1960         Pipe grade and wall thickness         Assume minimum pipe grade and wall thickness values.         24,000         0.156         450         18.03         10.125         N           5         4' Northwest Pasco HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         10.26         2.477         N           6         4' Gradke Road HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         5.13         2.052         N           7         2' Burbank HP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.154         None         5.43         3,520         N           8         4' Finley HP Line         1959         Pressure test documentation, pipe MAOP based on operating history.         35,000         0.156         None         3.48         3,520         N           8         4' Finley HP Line         1959         Pressure test documentation, pipe MAOP based on operating history.         Assume minimum pipe grade         24,000         0.156         None         12.02         12,391         N           11	3	4" East Finley HP Line	1967	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	8.55	2,498	N
5         4' Northwest Pasco HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         10.26         2.847         N           6         4' Glade Road HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,000         0.188         None         5.13         2.052         N           7         2' Burbank HP Line         1967         Pressure test documentation, MAOP based on operating history.         35,000         0.154         None         3.48         3.520         N           8         4' Finley HP Line         1959         Pressure test documentation, pipe MAOP based on operating history. Assume minimum pipe grade 24,000         0.156         None         12.02         12.391         N           11         4' Plymouth HP Line         1980         Under rated SavA-Valve         Expose and inspect Sav-A-Valve. Replace if necessary.         35,000         0.188         600         13.68         4,112         N	4	Pasco HP Distribution System	1960	Pipe grade and wall thickness	Assume minimum pipe grade and wall thickness values.	24,000	0,156	450	18,03	10,125	N
6         4* Glade Road HP Line         1966         Pressure test documentation         MAOP based on operating history.         35,00         0.18         None         5.13         2.052         N           7         2* Burbank HP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.154         None         3.48         3,520         N           8         4* Finley HP Line.         1959         Pressure test documentation, pipe         MAOP based on operating history. Assume minimum pipe grade         24,000         0.156         None         3.48         3,520         N           11         4* Pinnouth HP Line         1950         Under rated Sav-A-Valve         Expose and impect Sav-A-Valve. Replace if necessary.         35,000         0.188         600         13.68         4,112         N	5	4" Northwest Pasco HP Line	1966	Pressure test documentation	MAOP based on operating history	35,000	0.188	None	10.26	2,847	N
7         2* Burbank HP Line         1967         Pressure test documentation         MAOP based on operating history.         35,000         0.154         None         3.48         3.520         N           8         4* Finley HP Line         1959         pressure test documentation, pipe MAOP based on operating history. Assume minimum pipe grade         24,000         0.154         None         3.48         3.520         N           11         4* Phymouth HP Line         1960         Under rated SavA-Valve         Expose and inspect SavA-Valve. Replace if necessary.         35,000         0.188         600         13.68         4,112         N	6	4" Glade Road HP Line	1966	Pressure test documentation	MAOP based on operating history	35,000	0.188	None	5.13	2.052	N
8     4° Finley HP Line     1959     Pressure test documentation, pipe     MAOP based on operating history. Assume minimum pipe grade     24,000     0.156     None     12.02     12,391     N       11     4° Plymouth HP Line     1980     Under rated SavA-Valve     Expose and inspect SavA-Valve. Replace if necessary.     35,000     0.188     600     13.68     4,112     N	7	2" Burbank HP Line	1967	Pressure test documentation	MAOP based on operating history	35,000	0.154	None	3.48	3.520	N
Image: International system         Image: International system <t< td=""><td>8</td><td>4" Finley HP Line</td><td>1959</td><td>Pressure test documentation, pipe</td><td>MAOP based on operating history. Assume minimum pipe grade</td><td>24,000</td><td>0.156</td><td>None</td><td>12.02</td><td>12,391</td><td>N</td></t<>	8	4" Finley HP Line	1959	Pressure test documentation, pipe	MAOP based on operating history. Assume minimum pipe grade	24,000	0.156	None	12.02	12,391	N
	11	4" Plymouth HP Line	1980	Under rated Sav-A-Valve	Expose and inspect Sav-A-Valve. Replace if necessary.	35,000	0.188	600	13.68	4,112	N

= ASSUMED VALUE

				Longview District				-		
Line #	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (psig)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
1	Longview-Kelso HP Distribution Line	1957	Pipe grade and wall thickness	Test retired in place sections and sections which have previously been removed.	24,000	0.25	400	26.56	27,350	N
	·	1957	Pressure test documentation, pipe grade and wall thickness	le and wall thickness and wall thickness values.		0.156	None	15.02	4,964	N
2	4" Kalama HP Line	1976	Pressure test documentation	Validate operating pressure.	35,000	0.188	None	10.26	18,075	N
3	4" Dike Road HP Line (Longview)	1965	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume numinum pipe grade and wall thickness values.	24,000	0.156	None	4.81	6,463	N
7	12* South Longview HP Line	1995	Assumed Grade B transition	Expose and test fittings for grade.	52,000	0.312	1050	19.61	18,373	N
		1990	Pressure test documentation, pipe	Vandale operating pressure.	46,000	0.332	None	8.47	2,049	N
8	8" Kalama HP Line	1997	grade, and wall thickness	Test retired in place pipe and samples removed during	24,000	0,188	None	28.67	7,132	N
		1997	Pressure test documentation and pipe grade	replacements. Vanuale operating pressure on appreade sections.	24,000	0.25	None	21.56	550	N
		1997	Pressure test documentation	Validate operating pressure.	46,000	0.25	None	11.25	550	N
				Mt. Vernon District				-		
Line #	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (psig)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
1	S" Anacortes HI <sup>p</sup> Line	1957	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating pressure. Test samples from abandoned sections and those removed during replacements.	24,000	0.188	None	34.41	103,743	N
		1972	Pressure test documentation	Replace section of pipeline.	35,000	0.188	None	23.59	80	N
2	8" March Point HP Line	1957	grade and wall thickness	locations minimum.	24,000	0.188	None	34.41	9,233	N
		1956	Pressure test documentation and pipe grade	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.188	None	7.71	7,352	N
3	Anacortes HP Distribution System	1956	Pressure test documentation and pipe grade	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.188	None	10.04	4,675	N
		1957	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade and wall thickness values.	24,000	0.156	None	6.31	349	N
4	4" Mt. Vemon HP Line	1957	Pipe grade and wall thickness	Assume minimum pipe grade and wall thickness values.	24,000	0.156	None	15.02	29,922	N
5	3" Burlington HP Line	1957	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade and wall thickness values.	24,000	0.156	None	11.64	5,769	N
7	4" North Texas Road HP Line	1960	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade and wall thickness values.	24,000	0.154	None	8.03	914	Ν
8	4" Arlington IIP Line	1961	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade and wall thickness values.	24,000	0.156	None	14.96	10,177	N
10	4" Sedro-Wootley HP Line	1968	Pressure test documentation	MAOP based on operating history.	35,000	0.188	None	3.42	3,633	N
12	6" North Oak Harbor HP Line	1969	Under rated stopper fitting	Expose and inspect stopper fitting. Replace if necessary.	42,000	0.188	675	13.55	19.048	N
		1983	Unknown grade and wall thickness on fittings	Expose and perform in-situ testing.	52,000	0.281	750	27,37	64,426	Y
14	16" Fredonia Transmission Line	1983	Unknown grade and wall thickness on fittings	xpose and perform in-situ testing. 49,000		0.312	750	26.16	563	Y
		2001	Unknown grade and wall thickness on fittings	Expose and perform in-situ testing.	52,000	0.312	800	23.89	323	Y
16	16" March Point Transmission Line	1992	Unknown grade and wall thickness on fittings	Expose and perform in-situ testing.	52,000	0.281	750	27.37	43,344	Y
				Walla Walla District		_				
Line #	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (psig)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
1	8° Walla Walla HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade and wall thickness values.	24,000	0.188	None	14.34	4,595	N
2	3" College Place HP Line	1956	Pressure test documentation, pipe	MAOP based on operating history. Assume minimum pipe grade and wall thickness values	24,000	0.156	None	7.01	2,474	N
-										
-				Wenatchee District						
Line #	Description	Installed	Critical Information	Plan of Action	Pipe Grade	(in.)	(psig)	% SMYS	(ft)	Transmission (Y/N)
	6" & 9" Marat Laba Lib Lina	1957	grade and wall thickness	MAOP based on operating history. Test samples in-situ.	24,000	0.188	None	18.35	509	N
*	o k o moses lake in line	1957	grade and wall thickness	MAOP based on operating history. Test samples in-situ.	24,000	0.188	None	23.89	12,956	N
		1981	Pipe grade and wall thickness	Test samples in-situ.	24,000	0.156	375	15.02	2,041	N
2	2" Wheeler HP Line	1962	grade and wall thickness	and wall thickness values.	24,000	0.154	None	8.03	2,375	N
3	4" Othello Transmission Line	1971	Wall thickness	Validate wall thickness or replace 191 ft section of pipeline.	35,000	0.188	465	20.14	191	Ŷ
10	6" West Wheeler HP Line	1968	Pipe grade and wall thickness	Assume minimum pipe grade and wall thickness values.	35,000	0.188	755	8.55	205	N
12	6" Wenatchee HP Line	1956	Pressure test documentation, pipe	MAOP based on operating history. Assume minimum pipe grade	24,000	0.188	None	16.52	31,812	N
			Brand and the discales	AND AND ADDRESS TRANSPORT						
-				Yakima District						
Line #	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (psig)	% SMYS	Pipe Segment Length (ft)	Transmission (V/N)
		1956	Pressure text documentation, pipe grade and wall thickness	MAOP based on operating history. Test samples from abandoned sections and in-situ.	24,000	0.188	None	19.12	3,032	N
1	8" Yakiwa HP Line	1956	Pressure test documentation and pipe grade	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.5	None	7.19	695	N
		1961	Pipe grade and wall thickness	Test samples from abandoned sections and in-situ.	24,000	0.188	360	19.12	4,891	N
		1978	Pressure test documentation	Validate operating pressure.	35,000	0.188	None	13.11	42	N
		1710	and the second and the dealership		10,000	0.23	Tode	endu.	1,000	14

= ASSUMED VALUE

				Sunnyside District (Merged with Yakhna District)						
Line #	Description	Year Installed	Critical Information	Plan of Action	Pipe Grade	Wall Thickness (in.)	Test Pressure (psig)	% SMYS	Pipe Segment Length (ft)	Transmission (Y/N)
1	3° Sunnyside HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.156	None	9.35	4,536	N
2	2" South Sunnyside HP Line	1959	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.154	None	6.43	4,018	N
3	4* Grandview HP Line	1956	Pressure test documentation, pipe grade and wall thickness	Replace pipeline in 2015.	24,000	0.156	None	15.02	4,736	N
4	3" Prosser HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.156	None	11.69	5,832	N
5	6* Toppenish-Zillah HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Sample sections removed in 2014 and abandoned sections to validate pipe grade and wall thickness.	24,000	0.188	None	29.37	32,566	N
6	3° Zillah HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.156	None	18.70	873	N
7	4* Wapato HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.156	None	9.13	33,284	N
8	3" South Toppenish HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.156	None	8.18	6,161	N
9	3* Granger HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Assume minimum pipe grade value.	24,000	0.156	None	8.18	31,347	N

= ASSUMED VALUE

#### TABLE 2 - SCHEDULE

District	Line#	Description	2 Year Installed	014 Critical Information	Plan of Action
Bellingham	1	8" Bellingham HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Remove sections of retired i place pipe and test for pipe grade and wall thickness.
Yakima (Sunnyside)	5	6° Toppenish-Zillah HP Line	1956	Pressure test documentation, pipe grade and wall thickness	MAOP based on operating history. Sample sections removed in 2014 and abandoned sections to validate pipe grade and wall
Bellingham	6	4" Ferndale HP Line	1962	Under rated flange tee at V-47	thickness. Inspect during V-47 project in 2014.
Bellingham	10	16" N. Whatcom Transmission Line	1971	Under rated plugs at valves	Replace plugs in 5 valves beginning in 2014.
District	Line #	Description	20 Vear Installed	015 Critical Information	Plan of Action
	1	2 CALIFICATI		Pressure lost documentation and	MAOP based on operating history. Pipelines will be
Bellingham	2	Bellinghum HP Distribution System	1956	pipe grade	removed/downrated as part of future project to remove pipelines from bridges which will be replaced.
		-	1983	thickness on fittings	Expose and perform in-situ testing.
Mi. Verson	14	16" Fredonia Transmission Line	1983	Unknown grade and wall	Expose and perform in-situ testing.
			2001	Unknown grade and wall	Expose and perform in situ testing
	-			thickness on fittings Unknown grade and wall	erfor and ferration and ready
Bellingham	16	16" March Point Transmission Line	1992	thickness on fittings	Expose and perform in-situ testing.
Bellingham	9	8" Lake Terrell Road Transmission Line	1965	Pipe grade and wall thickness Pressure test documentation, pipe	Test samples in-situ in 2015. MAOP based on operating history. Test samples in-situ at 4
Mt. Vernon	2	8" March Point HP Line	1957	grade and wall thickness	locations minimum.
Yakima (Sunnyside)	3	4" Grandview HP Line	1936	Pressure test documentation, pipe grade and wall thickness	Replace pipeline in 2015.
Bellingham	10	16" N. Whatcom Transmission Line	1971	Under rated plugs at valves	Replace plugs in 5 valves beginning in 2014.
District	l line #	Description	20	Critical Information	Han of Action
Mt Vemor	1	S* Anucorta: HP Line	1057	Pressure test documentation, pipe	MAOP based on operating pressure. Test samples from abando
ML VEIIM	-	s Anacoucs III Line	1237	grade and wall thickness	sections and those removed during replacements, MAOP based on operating history. Test samples from James Si
Bellingham	3	8° Central Whatcom HP Line	1957	grade and wall thickness	and Lampman Road, and any other points that are available, for grade and wall thickness.
Kennewick	Т	Attalia HP Line	1958	Pipe Grade	Test previously removed and abundoned sections to verify pipe grade.
Contraction of the			1968	Pressure test documentation	MAOP based on operating history.
District -	Lina#	Description	20 Vear Installed	017 Critical Information	Plan of Action
Bremerton	2	8" Bremerton Transmission Line	1963	Pine grade and wall thickness	Test abandoned sections to write nine made and wall thickness
Dicticition	-	o on include Harding of Hard		The grane and wan mickains	Text astronomic sections are evily pipe grane and wait initiant of
Longview	1	Longview-Kelso HP Distribution Line	1957	Pipe grade and wall thickness	been removed.
Bremerton	6	4" Olympic View HP Line	1973	Under rated plugs (2) in a valve	Replace plugs.
District	Line #	Description	20 Year Installed	Critical Information	Plan of Action
			1996	Pressure test documentation	Validate operating pressure.
			1997	Pressure test documentation, pipe erade, and wall thickness	Test retired in place nine and samples removed during replacer
Longview	8	8° Kalama HP Line	1997	Pressure test documentation and	Validate operating pressure on applicable sections.
			1997	pipe grade Pressure test documentation	Validate operating pressure.
			20	19	1
District	Line #	Description	Year Installed	Critical Information	Plan of Action
Dennighan		To aquateoutra Line	1957	Pressure test documentation, pipe	MAOD hursd on operation bistony. Tast complex in situ
Wenatchee	1	6" & 8" Moses Lake HP Line	1957	grade and wall thickness Pressure test documentation, pipe	MAOP based on operating history. Test samples in-situ
			1981	grade and wall thickness Pipe grade and wall thickness	Test samples in-situ.
			26	20	
District	Line #	Description	Year Installed	Critical Information	Plan of Action
Yakima	1	8° Yakima HP Line	1956	grade and wall thickness	sections and in-situ.
	-	1	1961	Pipe grade and wall thickness	Test samples from abandoned sections and in-situ.
Bellingham	2	Bellingham HP Distribution System	1956	Pressure test documentation, pipe grade and wall thickness	place pipe and test for pipe grade and wall thickness. Prepare sampling plan for further testing if necessary.
		n	20	21	
Mt. Vernon	1.1ne #	6" North Oak Harbor HP Line	Year Installed	Under rated stopper fitting	Plan of Action Expose and inspect stopper fitting. Replace if necessary.
Bellingham	3	8* Central Whatcom HP Line	1993	Pipe grade on transition fittings	Expose and inspect fittings for pipe grade, either by stamp
Bellingham	12	4" North Lynden HP Line	1978	Under rated Sav-A-Valve	Expose and inspect to verify pressure rating.
			20	22	
District	Line #	Description	Year Installed	Critical Information	Plan of Action Validate operating pressure
Yakima	1	8° Yakima HP Line	1978	Pressure test documentation	Validate operating pressure.
Aberdeen Bremerton	i	8" Kitsap Line	1963	Under rated Sav-A-Valves (2) and transition fittings (2)	Expose and inspect to verify pressure rating and grade.
District	Line #	Description	20 Year Installed	23 Critical Information	Pian of Action
Bremerton	11	8" Bremerton HP Line	1971	Pressure test documentation	Validate operating pressure.
Longview	7	12" South Longview HP Line	1995	Assumed Grade B transition fittings on X52 pipeline	Expose and test fittings for grade.
District	Line #	Description	20 Year Installed	24 Critical Information	Plan of Action
Longview	2	4* Kalama HP Line	1976	Pressure test documentation	Validate operating pressure.
Mt. Vernon	1	8" Anacortes HP Line	1972	Pressure test documentation	Replace section of pipeline.
District	Line #	Description	Year Installed	Critical Information	Plan of Action
Aberdeen	1	8" Kitsap Line	2000	158 ft of pipe assumed to be Grade B	Test to verify pipe grade as X42 or greater.
Mt. Vernon	11	6" Whidbey Island HP Line	1969	Pipe and valve assembly	Replace 45 ft of pipe and valve assembly.
			20	26	
District	Line #	Description	Year Installed	Critical Information	Plan of Action
Bremerton	1	8" Kitsap Line	1972	(2)	Expose and inspect Sav-A-Valves. Replace caps if necessary,
Aberdeen	15	12" Kitsap HP Line	1995	Under rated Sav-A-Valve	Expose and inspect Sav-A-Valve. Replace if necessary,
District	Line#	Description	Year Installed	Critical Information	Plan of Action
		1" Othello Transmission Lina	1971	Wall thickness	Validate wall thickness or replace 191 ft section of pipeline.
Wenatchee	3	4 One no Transmission Ente	17/1		

#### TABLE 3 - PIPELINES ASSUMING YIELD STRENGTH OF 24,000 PSI

		Aberdeen	District				
11	Deve detter	Constant Description	Pipe Segment Length	MAOP	Pro Conto	Wall Thickness	a cure
Lane #	Description	Segment Description	(N)	(psig)	Pipe Grade	(in.)	* 50115
9	2" Elma Rendering Plant HP Line	Route 8 Xing	252	150	24,000	0.156	9.01
				_			
_		Bellinghan	District	MICON	1	In and	1
Line #	Description	Segment Description	ripe Segment Length	MAOP (nein)	Pipe Grade	Wall Thickness	% SMYS
	9* Dallingham UD Ling	Errow O S to D 19	15.001	200	24.000	0.199	76.32
- 1	o Bennighan in Luie	Original Line	15,094	155	24,000	0.188	14.81
		Original Line	10,475	155	24,000	0.188	19.01
2	Bellingham HP Distribution System	d" off of High St	1508	155	24,000	0.188	0.21
		d" off of High St	1,500	155	24,000	0.156	9.51
2	2" Central Whatsom UP Line	Quining Lins	57.137	100	24,000	0.190	26.22
3	d" South I under HP Line	Original Line	37,457	360	24,000	0.166	15.02
4	4 South Lynden HP Line	Original Line	33,441	230	24,000	0.150	15.02
8	2 Nooksack HP Distribution System	Tap line 4 south	132	250	24,000	0.154	8.03
21	8 Lake Ferrell Road Transmission Line	Original Line	2,600	350	24,000	0.185	30.32
21	to squareanth Luc	Original Line	2,000	250	24,000	0.281	29.00
		Bremerton	District				
Line #	Decadution	Segment Description	Pipe Segment Length	MAOP	Dina Canda	Wall Thickness	a exere
Line #	Description	Segment Description	(ft)	(psig)	Pipe Grade	(in.)	1 % anna
2	8" Bremerton Transmission Line	Original Line	2,843	499	24,000	0.188	47.69
_	1	Kennewick	District	100-040-002200	1	1	
Line #	Description	Segment Description	Pipe Segment Length	MAOP	Pipe Grade	Wall Thickness	% SMYS
			(ft)	(psig)		(in.)	
1	Attalia HP Line	8" Attalia HP Line	78,449	300	24,000	0,188	28.67
4	Pasco HP Distribution System	Original Line	10,125	300	24,000	0.156	18.03
8	4" Finley HP Line	Original Line	12,391	200	24,000	0.156	12.02
-		Longing	District				
-	1	Longview	Dina Semant to and	MION	T	Wall This	
Line #	Description	Segment Description	Pipe Segment Length	(ncia)	Pipe Grade	Wall Thickness	% SMYS
		Ortstand Line	00	(psig)	21,000	0.26	26.66
1	Longview-Kelso HP Distribution Line	Original Line	27,550	250	24,000	0.25	20.30
-	and a trating to a	Original Line	4,961	230	24,000	0.136	15.02
3	4 Dike Road HP Line (Longview)	Original Line	0,403	80	24,000	0.156	4.81
8	8" Kalama HP Line	Industrial Addition	7,132	300	24,000	0.188	28.67
		Industrial Addition	550	300	24,000	0.25	21.30
		Mt. Vernor	District				
	11 11 11 11 11 11 11 11 11 11 11 11 11		Pipe Segment Length	MAOP	and a second	Wall Thickness	
Line #	Description	Segment Description	(N)	(psig)	Pipe Grade	(in.)	% SMYS
1	8" Anacortes HP Linc	Original Line	103,743	360	24,000	0,188	34.41
2	8" March Point HP Line	Original Line	9.233	360	24,000	0.188	34.41
		518 Hillcrest Dr. to R-32	7.352	105	24,000	0.188	7.71
3	Anacortes HP Distribution System	R-31 to 518 Hillcrest Dr.	4,675	105	24,000	0.188	10.04
	and a second	20th St HP stub	349	105	24,000	0.156	6.31
4	4* Mt. Vemon HP Line	Original Line	29.922	250	24,000	0.156	15.02
5	3" Burlington HP1 inc	R-18 to R-19	5 769	249	24 000	0.156	11.64
7	4" North Texas Road HP Line	North Texas Rd near R-85	914	250	24,000	0.154	8.03
8	4" Arlington HP Line	Gate to R-86	10,177	249	24,000	0.156	14.96
					here and the second		
_	r	Walla Wall	a District			-	
Line #	Description	Segment Description	Pipe Segment Length	MAOP	Pine Grade	Wall Thickness	G SMYS
	- tothe -		(ft)	(psig)	- ope second	(in.)	
1	8" Walla Walla HP Line	Original Line	4,595	150	24,000	0.188	14.34
. 2	3" College Place HP Line	Original Line	2,474	150	24,000	0.156	7.01
		Wenatchee	District	MIOD	1		-
Line #	Description	Segment Description	Pipe Segment Length	(nsin)	Pipe Grade	Wall Thickness	% SMYS
		Original Line	500	250	24,000	0.188	19.35
1	6" S. 8" Morar Laka UP Line	Original Line	12.066	250	24,000	0,100	10.55
2	o te o moses Late In Ene	Somera Main Comparing	2011	250	24,000	0.166	15.07
2	25 Wheeder HD Line	Original Line	2,011	250	24,000	0.150	13.02
10	6" West Wheeler HP Line	1007 Addition	2,575	250	24,000	0.134	10.05
12	6" Wenatches HP Line	Original Line	31.812	230	24,000	0.188	16.52
14	o webatence fit Line	Original Dife	31,012	223	24,000	0.145	10.52
-		Yakima I	District		-		
12	Decedention	Francist Description	Pipe Segment Length	MAOP	Dias Casta	Wall Thickness	a erre
Line #	Description	Segment Description	(R)	(psig)	Pipe Grade	(in.)	% SM15
		Original Line	3,032	200	24,000	0.188	19.12
1	8" Yakima HP Line	Fish 8* Yakima River Crossing	695	200	24,000	0.5	7.19
		8" Terrace Heights to R-5	4,891	200	24,000	0.188	19.12
		Sunnerida Distatet (M	d with Vokima Distal-O				
-	140	auniyane District (alerge	Pine Sormout Longth	MAOP		Wall Thiskness	
Line #	Description	Segment Description	(ft)	(nsla)	Pipe Grade	(in )	% SMYS
1	3" Summaride HP Line	Original Lina	4 526	200	24 000	0.156	0.26
1	2" Could Summid- 110 Line	North coulor - Cha	030 ب <del>ا</del>	200	24,000	0.130	9.33
2	2 Soun Sunnyside IIP Line	North section of line	4,018	200	24,000	0.154	0.43
3	4 Grandview HP Line	Original Line	4,/36	250	24,000	0.156	15.02
4	5 Prosser HP Line	0-01 to R-1	3,832	250	24,000	0.156	11.69
3	o Toppenish-Zillan HP Line	Original Libe	32,566	400	24,000	0.188	29.37
0	5 Zillan HP Line	Original Line	8/3	400	24,000	0.156	18.70
7	4" Wapato HP Line	Original Line	33,284	152	24,000	0.156	9.13
8	3 South Toppenish HP Line	Original Line	6,161	175	24,000	0.156	8.18
9	3" Granger HP Line	Original Line	31.347	175	24,000	0.156	8.18

= ASSUMED VALUE

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# **APPENDIX I**

### BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In re

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# DOCKET PG-150120

Commission Investigation of the Gas Pipeline System of Cascade Natural Gas Corporation

### STIPULATED AGREEMENT

## I. NATURE OF AGREEMENT

This Stipulated Agreement (Agreement) is entered into between Cascade Natural Gas Corporation ("Cascade" or "Company") and Staff of the Washington Utilities and Transportation Commission ("Commission Staff" or "Staff") (collectively, "the Parties") for the purpose of resolving issues resulting from natural gas inspections conducted on the Company's high pressure pipelines located in the following areas: Longview District, Bellingham District and Kennewick District.

This Agreement is subject to review and disposition by the Washington Utilities and Transportation Commission ("Commission"), and it is not effective until approved by the Commission.

The Parties understand that the process for approval is at the discretion of the Commission. However, the Parties believe the Commission may approve this Agreement by Order consistent with the conditions stated herein by taking action at an open public meeting, if the Commission desires to do so. The Parties recommend that procedure to the Commission.

### **STIPULATED AGREEMENT - 1**

#### II. BACKGROUND

Cascade owns and operates a natural gas distribution system in Washington State. In this docket, Commission Staff conducted a series of Standard Natural Gas Pipeline Inspections of Cascade's pipeline facilities in the Longview District, Bellingham District and Kennewick District. The inspections included a review of Cascade's records, policies and procedures, and pipeline facilities. The inspections took place between the months of March through October 2013.

During four independent inspections conducted on March 28, 2013, May 16, 2013 and October 7, 2013, Commission Staff requested from Cascade additional documentation on four randomly selected high pressure pipelines. Staff requested this documentation in order to confirm the selected pipelines' maximum allowable operating pressure (MAOP). In all four cases, the documentation provided Staff was missing some form of essential data necessary for Staff to judge whether the MAOP of the pipelines could be validated.

Given the above information, Commission Staff then requested from Cascade a list of all high pressure pipelines in its Washington service territory where some form of essential data necessary to confirm the pipeline's MAOP was missing. Cascade provided such a list on September 27, 2013. Staff reviewed the newly provided information and believed that further information would be necessary to clarify the information provided.

#### **III. AGREEMENT**

Consistent with the above-stated facts, Commission Staff and Cascade have agreed to a systematic process designed to provide Staff certain detailed information regarding Cascade's high pressure pipeline system. Staff and Cascade seek Commission approval of

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the Parties' proposed treatment of the matters set forth herein. To that end, the Parties agree and stipulate as follows:

- Cascade will submit to the Commission a written plan that Cascade intends to implement for the purpose of determining the MAOP of all its high pressure pipelines in Washington for which there is insufficient documentation to confirm the current MAOP. The plan shall be submitted to the Commission within six months from the approval of this Agreement and should include:
  - A summary of all high pressure systems with data currently insufficient to demonstrate and confirm the MAOP of such systems. The Parties agree that for purposes of this Agreement, high pressure shall be defined as any system greater than 60 psig.
  - For pre-code pipe with unknown characteristics, written documentation describing the basis or bases by which the Company has determined said pipe's current MAOP.
  - iii. Any such process or processes the Company uses to validate data to calculate hoop stress for unknown pipe, including but not limited to, pipe grade, diameter and wall thickness. Such process or processes must conform to the requirements set forth in 49 CFR 192.107. Any new or innovative processes for validating pipe characteristics shall be submitted to the Commission for review.
  - iv. For the high pressure pipelines identified pursuant to section i. above, the following information:
    - 1. Percentage of Specified Minimum Yield Strength (%SMYS);

2. Test pressure;

3. Installation year

4. Critical missing information; and,

- 5. An action plan for each pipeline segment set forth in a tabular format. v. Rationale describing the prioritization of the action plan referenced in section iv, above.
  - vi. A process for identifying when immediate corrective actions will be required
  - vii. Time frames for completion of the action plan for each pipeline segment referenced in section iv, above. The Company shall also provide a justification for the established times frames for each line segment.
- 2. Until a pipe's characteristics can be verified, Cascade will assume the most stringent criteria for unknown pipe characteristics, as described in 49 CFR 192. 107 & 109. If said stringent criteria puts the line over 20% Specified Minimum Yield Strength ("SMYS"), the line shall immediately be incorporated into Cascade's transmission integrity management program. For said pipe, the Company shall perform a threat evaluation, and incorporate the pipe into its risk and pipe assessments.
- The baseline assessment for all high pressure lines moving into transmission 3. status shall be completed within three years from the date this Agreement is approved.
- 4. If at any time Cascade decides to accept the most stringent criteria as the final resolution for a particular line segment, then it must submit an amended plan reflecting this change to the Commission for approval.

**STIPULATED AGREEMENT - 4** 

- If assumptions for unknown pipe characteristics as described in 49 CFR 192.107
   & 109 result in a hoop stress of 20% SMYS or greater, that pipeline will be leak surveyed two (2) times per calendar year.
- Pre -1970 pipe calculated at over 30% SMYS will undergo a 20% pressure reduction if the seam type is unknown.
- Cascade will submit an annual status report on its progress in implementing the plan with appropriate updates to project summary tables.
- 8. If an amendment to the plan is necessary, Cascade will submit the proposed amended plan to Staff for review at least ninety (90) days prior to the time Cascade submits the amended plan to the Commission for formal approval.

### IV. GENERAL PROVISIONS

Nothing in this Agreement affects the ability of the Commission Staff to seek a complaint for penalties or other appropriate relief, if gas pipeline safety rule violations are found in subsequent inspections by Commission Staff of the Company's gas distribution system, policies and procedures. However, so long as Cascade performs the actions set forth in Section III of this Agreement, Commission Staff does not intend to utilize the information provided by Cascade in compliance with this Agreement, including but not limited to Cascade's submission of a written action plan and Cascade's implementation of said plan, to generate enforcement actions or to recommend that the Commission take enforcement actions. Nothing in this Agreement prevents or places any conditions upon the Company from contesting any such Commission enforcement action, if any is initiated.

#### STIPULATED AGREEMENT - 5

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This is the entire agreement of the Parties. The Agreement supersedes all prior oral and written agreements on issues addressed herein. It may not be cited as precedent in any proceeding other than a proceeding to enforce the terms of this Agreement.

This Agreement is considered executed when all Parties sign the Agreement. A designated and authorized representative may sign the Agreement on a party's behalf. The Parties may execute this Agreement in counterparts. If the Agreement is executed in counterparts, all counterparts shall constitute one agreement. An Agreement signed in counterpart and sent by facsimile is as effective as an original document. A faxed signature page containing the signature of a party is acceptable as an original signature page signed by that party. Each Party shall indicate the date of its signature on the Agreement. The date of execution of the Agreement will be the latest date indicated on the signatures.

Upon execution, Commission Staff will make reasonable efforts to have the matter placed on the Commission's open meeting agenda within a short period following the execution of this Agreement. If this matter is not handled at a Commission open public meeting, the Parties agree to support the Agreement during the course of whatever procedures the Commission determines are appropriate.

For Commission Staff:

David Lykken Director, Pipeline Safety Washington Utilities and Transportation Commission

Date signed: 2/2/15

**STIPULATED AGREEMENT - 6** 

For Cascade Natural Gas Company:

Eric Martuscel/i Vice President of Operations Cascade Natural Gas Company

Date signed: 1-30-15

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# **APPENDIX J**

## BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Investigation of the Gas Pipeline System of	) ) DOCKET PG-150120
	) ORDER 01
Cascade Natural Gas Corporation	<ul> <li>) ORDER ACCEPTING</li> <li>) AGREEMENT AND CLOSING</li> <li>) DOCKET</li> </ul>
	)

## BACKGROUND

1 The Washington Utilities and Transportation Commission (Commission) regulates the safety of gas pipelines, including those owned and operated by Cascade Natural Gas Corporation (CNG or Company). Commission Staff (Staff) conducted gas pipeline inspections in the Longview, Bellingham and Kennewick districts, in March, May, and October 2013, respectively.

2 Staff sent Inspection Reports to CNG on April 11, May 29, and November 5, 2013, alleging several violations of Commission statutes and rules and identifying areas of concern. CNG provided a written response to the reports on May 10, June 28, and December 18, 2013. CNG and staff engaged in further discussion regarding the investigation, Staff's findings, and CNG's responses, and subsequently reached an agreement to resolve the issues Staff identified.

3 On February 3, 2015, Commission Staff and CNG filed a "Stipulated Agreement to Close Docket" (the Agreement). The Agreement is attached as Exhibit A to, and incorporated into, this Order. The Agreement addresses certain issues in this docket, including compliance and specific steps CNG will take to improve its system and practices.

4 The Agreement is not effective until it is accepted by the Commission. If CNG fails to comply with the terms of the Agreement or this Order, the Commission may invoke its authority to assess penalties for violations of a Commission order.

## DISCUSSION

5 The terms of the Settlement Agreement are not contrary to law or public policy and reasonably resolve all issues in this proceeding. The Settlement Agreement supports the Commission's goal of compliance by requiring the Company to take specific actions to bring its system and practices in line with regulations governing natural gas pipelines. Given these factors, we find the Settlement Agreement is consistent with the public interest and should be approved as filed.

## FINDINGS AND CONCLUSIONS

- 6 (1) The Washington Utilities and Transportation Commission is an agency of the State of Washington vested by statute with the authority to regulate the safety of gas pipeline companies.
- 7 (2) CNG is a gas pipeline company operating in the state of Washington subject to Commission jurisdiction.
- 8 (3) Commission Staff conducted inspections of CNG's gas pipeline system in the Longview, Bellingham, and Kennewick districts in March, May, and October 2013, respectively.
- 9 (4) Commission Staff and CNG have entered into a Settlement Agreement, attached as Exhibit A to, and incorporated into, this Order, as an appropriate resolution of the issues raised by the inspections in March, May, and October 2013.
- 10 (5) After reviewing the Agreement entered into between CNG and Commission Staff, and giving due consideration, the Commission finds that the Agreement is in the public interest and represents an appropriate resolution of the issues raised by the inspections of CNG's natural gas pipelines in the Longview, Bellingham and Kennewick districts in March, May, and October 2013, respectively.
- 11 (6) The Settlement Agreement is effective date as of the date of this Order.

## ORDER

## THE COMMISSION ORDERS:

- (1) The Settlement Agreement is approved without condition, is attached as Exhibit A to, and incorporated into, this Order, and is adopted as the final resolution of the disputed issues in this docket.
- 13 (2) The Commission retains jurisdiction to effectuate the terms of this Order.

DATED at Olympia, Washington, and effective February 12, 2015.

## WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

## DAVID W. DANNER, Chairman

PHILIP B. JONES, Commissioner

ANN E. RENDAHL, Commissioner

# **APPENDIX K**



#### STATE OF WASHINGTON

UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 
 Olympia, Washington 98504-7250
 (360) 664-1160 
 TTY (360) 586-8203

### **CERTIFIED MAIL**

January 12, 2016

Eric Martuscelli Vice President-Operations Cascade Natural Gas Corporation 8113 W. Grandridge Blvd. Kennewick, WA 99336

Dear Mr. Martuscelli:

## RE: PG-150120 - Violation of Stipulated Agreement (Insp. No. 2655)

The Washington Utilities and Transportation Commission (Commission) and Cascade Natural Gas Corporation (CNGC) entered into the attached Stipulated Agreement (Agreement) on February 2, 2015. The Agreement laid out how CNGC would collect information, prioritize and execute steps to confirm the maximum allowable operating pressure (MAOP) for high pressure pipelines in Washington. Section III.1 of the Agreement states that CNGC will submit a written plan to the Commission within six months of approval of the Agreement. The Agreement became effective when the Commission signed the Order on Feburary 12, 2015. Therefore, CNGC had until August 12, 2015 to submit the written plan. At present, no plan has been received by the Commission. CNGC staff stated it was not submitted due to personnel issues. None the less, CNGC is in violation of a Commission Order referencing this Stipulated Agreement.

Per Section IV of the Agreement, the Commission's intentions were to not pursue any enforcement actions for these MAOP defeciences as long as CNGC performs the actions established in Section III of the Agreement. CNGC has not performed and is therefore in violation of the Order. Therefore, the Commission is obligated, in the public interest, to issue a complaint unless the performance defeciencies are immediately rectified. As such, CNGC must submit the aforementioned written plan required by Section III of the Agreement to the Commission by no later than January 29, 2016.

Cascade Natural Gas Corporation PG-150120 – Violation of Stipulated Agreement (Insp. No. 2655) January 12, 2016 Page 2

If you have any questions or if we may be of any assistance, please contact Dennis Ritter at (360) 664-1159. Please refer to the inspection number above in any future correspondence.

Sincerely,

Alan E. Rathbun Pipeline Safety Director

### Enclosure

cc: Steve Kessie, Director Operation Services, CNG
 Jeremy Ogden, Director Engineering Services, CNG
 Mike Eutsey, Manager, Standards and Compliance, CNG
 Vicki Ganow, Pipeline Safety Specialist, CNG

## **APPENDIX L**



8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166 TELEPHONE 509-734-4500 FACSIMILE 509-737-7166 www.cngc.com

January 29, 2016

RECEIVED

## JAN 292016

State of Washington UTC Pipeline Safety Program

Alan Rathbun- Director of Pipeline Safety Program State of Washington Utilities and Transportation Commission 1300 S. Evergreen Park Dr. SW P.O. Box 47250 Olympia, WA 98504-7250

Re: MAOP Determination & Validation Plan Docket PG-150120

Dear Mr. Rathbun:

Sincerely,

In accordance with the Stipulated Agreement in Docket PG-150120 Cascade Natural Gas Corporation (CNGC) hereby submits its Maximum Allowable Operating Pressure (MAOP) Determination & Validation Plan. This plan outlines how CNGC will collect information, prioritize, and execute steps to confirm the MAOP for high pressure pipelines in Washington.

If there are any questions regarding this update please contact Jeremy Ogden at (509) 734-4509.

Sincerely,

Eric Martuscelli Vice President, Operations Cascade Natural Gas Corporation

# **Cascade Natural Gas Corporation**

# **MAOP Determination & Validation Plan**

in accordance with

## **Stipulated Agreement in Docket No. PG-150120**

Cascade Natural Gas Corporation - MAOP Determination & Validation Plan

Page 1 of 7

Cascade Natural Gas Corporation (Cascade) has prepared a Maximum Allowable Operating Pressure (MAOP) Determination & Validation Plan for all high pressure (HP) pipelines in the State of Washington. The purpose of this plan is to determine and verify the MAOP of all HP pipelines for which there is insufficient documentation to confirm the current MAOP. This MAOP Validation Plan consists of the following elements:

- 1. Summary of all HP pipelines with data currently insufficient to demonstrate and confirm MAOP
- 2. Determination of MAOP for each segment of pipeline
- 3. Process that Cascade will use to validate data to calculate hoop stress for unknown pipe
- 4. Action plan for each pipeline segment
- 5. Rationale describing prioritization of each action plan
- 6. Process for corrective actions and updates to plan
- 7. Schedule listing time frames for completion of action plan for each pipeline segment

Beginning in 2013, Cascade performed a comprehensive search of records to locate information that can be used to validate MAOP on HP pipelines in the state of Washington. Critical information that can validate MAOP includes, but is not limited to, pipeline diameter, wall thickness, pipe grade (i.e. X52), pressure rating of fitting, longitudinal seam type, pressure test records, and as-built records. Records searched included those in storage facilities, Cascade's District Offices and Kennewick General Office, and electronic records. This plan is based on the results of that search.

#### Summary of HP Systems

Table 1 lists the HP pipeline segments with data currently insufficient to demonstrate and confirm MAOP. This table also includes the MAOP, pipeline segment description, installation year, pipe diameter, pipe wall thickness, pipe grade, test pressure, % Specified Minimum Yield Strength (SMYS), critical missing information, and action plan. Information for this table was gathered through a comprehensive review of all of Cascade's available records. Critical missing information (wall thickness, pipe grade, pressure test) is highlighted in this table. Values shown in yellow highlighted fields indicate that Cascade has assumed the most stringent criteria for missing values.

If assuming the most stringent criteria resulted in a pipeline segment operating with a hoop stress of 20% SMYS or greater, that pipeline segment was reclassified as transmission and incorporated into Cascade's Transmission Integrity Management Program (TIMP). Additionally, these pipeline segments will have baseline assessments completed by February 2, 2018 and will be leak surveyed two (2) times per calendar year. Table 2 lists the pipeline segments that were reclassified as transmission. The entirety of some pipelines were classified as transmission even though only segments are operating at 20% SMYS or above.

In some instances, assuming the most stringent criteria for missing information resulted in a pre-1970 pipeline segment operating at greater than 30% SMYS. Those pipelines segments, and the justification for the corresponding action plan, are described below.

- 8" Bellingham HP Line #1 Testing up to this point indicates that this pipeline has a yield strength of 46,000 psi. This results in the pipeline operating at 18.9% SMYS, rather than 36.3% SMYS. Additionally, lowering the pressure to 20% below MAOP (288 psig) will result in Cascade likely not being able to supply gas to all customers. For these reasons, Cascade does not feel that it is prudent to lower the operating pressure and has made this pipeline one of the top priorities.
- 8" Central Whatcom HP Line #3 Pipeline is operating at greater than 20% below MAOP. Cascade does not plan to lower pressure further and has made this pipeline one of the top priorities.
- 3. 8" Lake Terrell Road Transmission Line #9 Pipeline is connected to 8" Central Whatcom HP Line, is operating at greater than 20% below MAOP. Additionally, Cascade's as-built documents for this pipeline call this pipe out as Grade B, which will result in the pipeline operating at 24.91% SMYS. This pipeline is currently operating as transmission and will continue to remain so. Cascade does not plan to lower pressure further and has made this pipeline one of the top priorities.
- 4. 8" & 12" Bremerton Line #2 Testing up to this point indicates that this pipeline has a yield strength of 46,000 psi and was manufactured with a high-frequency weld process. This results in the pipeline operating at 24.9% SMYS. Additionally, lowering the operating pressure to 20% below MAOP will result in Cascade likely not being able to supply gas to all customers in the Bremerton District. For these reasons Cascade does not feel that it is prudent to lower the operating pressure and has made this pipeline one of the top priorities.
- 5. 8" Anacortes HP Line #1 Testing up to this point indicates that this pipeline has a yield strength of at least 42,000 psi and was manufactured with a high frequency weld process. This results in the pipeline operating at 19.7% SMYS or below. For these reasons Cascade does not feel that it is prudent to lower the operating pressure and has made this pipeline one of the top priorities.
- 6. 8" March Point HP Line #2 Cascade will fabricate a regulator station and modify set points on the existing regulator station feeding this pipeline to lower the operating pressure to 20% below MAOP and meet customer demands. The lower operating pressure will result in the pipeline operating at 27.53% SMYS. In situ testing on this pipeline is Cascade's highest priority and will be performed in 2016.

#### Determination of MAOP

Tables 3-7 list the basis of determination for Cascade's pipeline segments which are missing critical information. Table 3 lists the pipelines that Cascade considers low-risk due to knowing wall thickness and pipe grade, operating below 20% SMYS, with the pressure test as the only missing information. Cascade has been safely operating these pipelines for approximately 50 years and requests an allowance to continue operating these pipelines at the currently established operating pressure and MAOP.

Table 4 lists the pipelines that Cascade considers low-risk due to operating below 20% SMYS with the most stringent criteria for missing critical information applied. These pipelines do not have pressure test records. Cascade has been safely operating these pipelines for approximately 50 years and requests an

Cascade Natural Gas Corporation – MAOP Determination & Validation Plan

Page 3 of 7

allowance to accept the most stringent criteria as final and continue operating these pipelines at the currently established operating pressure and MAOP.

Table 5 lists the pre-code pipelines for which Cascade has a pressure test, but the pressure test is not sufficient for the current MAOP. The wall thickness and pipe grade are known for these pipelines. Cascade has been safely operating these pipelines for approximately 50 years and requests an allowance to continue operating these pipelines at the currently established operating pressure and MAOP until an uprate can be completed.

Table 6 lists the pipelines which will undergo pressure testing, in situ testing, replacement, or other verification method. Cascade requests an allowance to continue operating all but one of these pipelines at the currently established operating pressure and MAOP until validation efforts are complete. The lone exception is the previously-mentioned 8" March Point HP Line #2, which will undergo a pressure reduction.

Table 7 lists the pipelines which have the MAOP determined by pressure testing. Validation efforts will be performed on some of these pipelines, and on some pipelines the most stringent criteria will be applied as final.

In all but three instances where Cascade requests an allowance to operate at the currently established operating pressure and MAOP, the MAOP is less than the most conservative design pressure calculated as prescribed in 49 CFR 192.105. In the three exceptions, the assumed yield strength results in a design pressure lower than the MAOP. However, all three pipelines have pressure test records and test results or as-built records giving a preliminary indication that the yield strength is greater than the most stringent criteria.

#### Processes to Validate Data

In addition to gathering information through a comprehensive review of all available records, Cascade's plan will include gathering and verifying data from pipelines in service. Methods that will be employed include:

- 1. Measuring pipe wall thickness with Ultrasonic Thickness (UT) gauge
- 2. Verifying pipe grade and/or longitudinal seam type through mechanical testing of samples at an accredited materials testing laboratory in accordance with 49 CFR 192.107
- 3. Verifying pipe grade by non-destructive in situ testing as described in a letter to the Washington Utilities and Transportation Commission (UTC) on June 2, 2015
- 4. Confirming pipe diameter through field measurements
- 5. Pressure testing
- 6. Exposing rated fittings to verify pressure rating

As information is collected the records will be stored on Cascade's SharePoint site. Any process used to validate data not listed above will be submitted to the UTC for review.

Cascade has contracted Parametrix, Inc. (Parametrix) to perform a statistical analysis of all pipeline segments with missing pipe grade and to determine the number of sampling points that will be required to validate pipe grade. This analysis will be conducted in accordance with 49 CFR 192 Appendix B – Qualification of Pipe. Parametrix will also work with Cascade's Engineering Services and local districts to identify the testing locations. Parametrix has completed the analysis for pipelines in Cascade's Bellingham and Mt. Vernon districts, and those results have been used to estimate the number of sampling points that will be required on pipelines in other districts until the analysis is completed in 2016.

Cascade has also contacted ABI Services, LLC (ABI), located in Oak Ridge, Tennessee, to perform in situ testing at the determined locations. Information describing their testing process was sent to the UTC on June 2, 2015, and approval of this testing method was received on January 12, 2016. Das-Co of Idaho, Inc. will be the excavation contractor used for the in situ testing.

#### **Action Plan**

Cascade has reviewed each segment of HP pipeline and identified those segments with missing critical information. Table 1 contains the pipelines by district and the overall action plans for each. The time frames for completion of each action plan are shown in Table 8. Plans of action include replacement, pressure testing, lowering pressure, mechanical testing of samples, statistical analysis and in situ testing, uprating, and operating pipeline with assumptions.

#### Prioritization

Cascade has prepared a matrix to individually evaluate each segment of HP pipeline with missing critical information. Components of the priority matrix, in descending order of weighting, are: urgent need, % SMYS of pipe and fittings, pressure rating of fittings, population density near pipeline, length of pipeline segment, and presence of as-built and pressure test records. The matrix produced a total prioritization score for each segment of pipeline and a prioritization score per length of pipeline. These scores were then combined with Subject Manner Expert (SME) knowledge of pipelines to finalize priorities. In general, pipeline segments operating at greater than 30% SMYS which were constructed prior to 1970 were the highest priorities, with subsequent priorities following the descending order of % SMYS.

#### Process for Corrective Actions and Update to Plan

Cascade will continue to evaluate all current and future HP pipelines on an ongoing basis to verify that critical information used to validate MAOP is known and to identify when immediate corrective actions are required. Existing pipelines will be evaluated annually by Cascade's Engineering Services group. Documentation for new pipelines will be audited by Cascade's Standards & Compliance group or Engineering Services group as construction of new pipelines is completed. If any critical information necessary to validate MAOP is discovered to be insufficient, corrective actions will be taken. Corrective actions include, but are not limited to, review of records as well as the processes used to validate data listed above.

Until a pipeline's characteristics can be verified, Cascade will assume the most stringent criteria for unknown pipe characteristics, as described in 49 CFR 192.107 & 109. If these assumptions result in a pipeline operating at 20% SMYS or greater, the pipeline will be leak surveyed two (2) times per calendar year and incorporated into Cascade's TIMP. For these pipelines, Cascade will perform a threat evaluation, and incorporate the pipe into risk and pipe assessments. Baseline assessments for all pipelines reclassified as transmission status shall be completed within three (3) years of reclassification.

When information is verified that results in a pipeline operating at a higher or lower % SMYS, changing classification from transmission to HP, or other similar actions, this plan will be amended and updated. If an amendment to the plan is necessary, Cascade will submit the proposed amended plan to Commission Staff for review at least ninety (90) days prior to the time Cascade submits the amended plan to the Commission for formal approval.

Cascade will also submit to Commission Staff an annual status report on the progress in implementing this plan. The annual status report will be submitted by March 15 of each year. As part of the annual status report every aspect of the plan will be reviewed and the tables and schedule will be revised as required. Test results will be updated, as well as any resulting changes in priorities and schedule. If Cascade decides to accept the most stringent criteria as the final resolution for a particular line segment, that will be included in an amended plan or annual status report and submitted to the Commission for approval.

#### Schedule

Table 8 below provides the schedule for the action plans for each HP pipeline segment with missing critical information. In situ testing, replacement, pressure testing, and fitting exposure have been scheduled commensurate with the availability of resources. The number of in situ tests that are scheduled to be completed each year are based on Cascade's prior experience with ECDA and ICDA digs as part of Cascade's TIMP.

Cascade Natural Gas Corporation - MAOP Determination & Validation Plan

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## TABLES

0								Table 1		
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (osi)	Test Pressure (psig)	% SMYS	Action Plan
Bellingham D	District									
1	8" Bellingham H.P. Line	380	Une 1-1	1956	8.625	0,188	24,000		36,3%	Request allowance to continue operating pipeline at pressure currently established, preliminary testing to be performed on available samples, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness, request allowance to continue operating pipeline at pressure currently established.
			F3h-1	1956	8.625	0.188	24,000		14.8%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.
	1. A A		lish-2	1956	10.75	0.133	24,000		18.5%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available,
	Ballianham M.C. Nitchuting Cartern	100	10c3298	1960	4.5	0,155	24,000		9.3%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as linal wall thickness and pipe grade, test samples as they become available.
•	beingnam n.v. bisarbouon system		10c8241	1964	4.5	0.188	35,000		5.3%	Request allowance to continue operating low-risk pipeline at pressure currently established.
			10c9683	1965	6.625	0,188	35,000		7.8%	Request allowance to continue operating low-risk pipeline at pressure currently established.
			11480-1	1966	6.625	0.188	35,000		7.8%	Request allowance to continue operating low-risk pipeline at pressure currently established.
			11480-2	1966	8.625	0,188	35,000		10,2%	Request allowance to continue operating low-risk pipeline at pressure currently established.
			13150	1967	2.375	0.154	35,000	100	3.4%	Converted to Intermediate Pressure.
			20564	1972	4,5	0,156	24,000	225	9.3%	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
3	B" Central Whatcom H.P. Line	380	Line 3-1	1957 *	8.625	0.188	24,000		36.3%	Preliminary testing to be performed on available sampler, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness, request allowance to continue operating pipeline at pressure currently established (20% below MACP).
			40855 (Transition fittings)	1993	8.625	0.155	24,000	680	36.3%	Third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness, request allowance to continue operating pipeline at pressure currently established (20% below MAOP).
4	4" South Lynden H.P. Line	250	Une 4-1	1961	4.5	0.156	24,000		15.0%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
8	2" Nooksack H.P. Distribution System	250	16C7000	1963	2.375	0.154	24,000		8.0%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
9	8" Lake Terrell Rd Transmission Line	380	18734-1	1965	8,625	0.188	24,000	569	36.3%	Third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness, request allowance to continue operating pipeline at pressure currently established (20% below MAQP).
10	16" N. Whatcom Transmission Line	600	18794	1971	16	0.25	52000	900	N/A	Expose and verify part # for elbow at V-175 and 4 plugs at V-38.
12	4" North Lynden H.P. Line	400	25773	1978	4.5	0.188	35000	600	N/A	Verify that Sav-A-Valve has sufficient pressure rating or is located on IP section.
21	12",16" & 4" Squalicum H.P. Line	250	41508	1993	16	0.281	24,000	620	29.7%	Third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness.
Aberdeen Di	strict			· · · · · · · · · · · · · · · · · · ·						
1.	S" Kitsan Line	366	19261	1972	8.625	0.188	42000	750	N/A	Expose Sav-A-Valves and verify pressure rating.
										Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become
3	4" McDeary H.P. Line	150	79C6323	1963	4.5	0.154	24,000		9.1%	available,
8	4" Montesano H.P. Distribution System	135	77C6321	1964	4,5	0.188	35000		4.6%	Request allowance to continue operating low-risk pipeline at pressure currently established.
		1 miles	78C7902-1	1964	2.375	0.156	35000		3.3%	Request allowance to continue operating low-risk objective at pressure currently established.
2	2" Elma Rendering Plant H.P. Line	150	78C7902-2	1964	4.5	0.154	24000		9.1%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
15*	12" Kitsap H.P. Line	499	44000	1995	12.75	0.312	52000	1080	N/A	Expose Sav-A-Valves and verify pressure rating.
Bremerton D	District				-					
2	8" & 12" Bremerton Transmission Une	499	BremertonL2-1	1963	8.625	0.188	24,000	750	47.7%	Preliminary testing to be performed on available samples, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade.
6	4" Olympic View H.P. Line	499	20367	1973	4.5	0.188	42000	500	N/A	Verify that plugs have sufficient pressure rating.
11	S" Bremeters H B Line	144	20C6316	1964	8.625	0.188	46000		7.2%	Request allowance to continue operating low-risk pipeline at pressure currently established.
	o bremerten na sene		18522	1971	8.625	0,168	35000		9.4%	Pressure test or replace, request allowance to continue operating pipeline at pressure currently established.
Mount Vern	on District					1022				Preliminary testing to be performed on available samples, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ
1	8" Anacortes H.P. Line	360	MTVL1-1	1957	8.625	0.138	24,000	_	34,4%	Tetting to verify pipe grade and wail thickness, request allowance to continue operating pipeline at pressure currently established, validate pressure rating of line stopper fittings at V-3/V-4.
			18191	1972	8.625	0.138	35,000		23,6%	Replace, request allowance to continue operating pipeline at pressure currently established.
			11C1144	1957	8,625	0,158	24,000		34.4%	Lower pressure to 20% below MAOP, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness, upon completion of testing request allowance to continue operating pipeline at pressure currently established.
2	8" March Point H.P. Une	360	1101144	1957	8.625	0.25	24,000		25.9%	Lower pressure to 20% below MADP, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness, upon completion of testing request allowance to continue operating pipeline at pressure currently established.
			11C5628	1963	8.625	0.188	24,000		34.4%	Lower pressure by 20% and replace, request allowance to continue operating pipeline at pressure currently established until replacement.
			MTVL3-1	1956	6.625	0.188	24,000		7.7%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.
3	Anacortes H.P. Distribution system	105	MTVL3-2	1956	8.625	0.188	24,000		10.0%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.
4	4" Mount Vernon H.P. Line	250	MTVL4-1	1957	4.5	0.156	24,000	400	15.0%	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
5	3" Burlington H.P. Line	249	211220	1957	3.5	0.156	24,000		11.6%	Request allowance to continue operating low-risk pipeline at pressure currently established until replacement in 2016.
7	4" North Texas Rd H.P. Line	250	1102775	1960	2.375	0.154	24,000		8.0%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
8	4" Arlington H.P. Une	249	F6h 18C4272	1961	4.5	0.156	24,000		15.0%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
10	4" Sedro-Woolley H.P. Line	100	14788	1968	4.5	0.188	35000	100	3,4%	Conduct uprate to validate MADP.
12	6" North Oak Harbor H.P. Une	400	17206	1972	6.625	0.188	42000	675	N/A	Validate pressure rating of line stopper fitting, elbow at V-193, and Sav-A-Valve and service tee at V-104.
14	16" Fredonia Transmission Line	500	30636 (Transition fittings)	1983	16	0.281	24,000	750	59.3%	Third party to perform statistical analysis to determine the number of test points and identify their locations. In situ testing to verify pipe grade and wall thickness.
			30636 (Elbows)	1983	16	0.375	35,000	750	30.5%	Third party to perform statistical analysis to determine the number of test points and identify their locations. In situ testing to verify pipe grade and wall thickness.
16	16" March Point Transmission Line	500	40000 (Transition fittings)	1992	16	0.281	24,000	750	59,3%	Third party to perform statistical analysis to determine the number of test points and identify their locations. In situ testing to verify pipe grade and wall thickness.
	and the second second second second		40000 (Elbows)	1992	16	0.375	35,000	750	30.5%	Third party to perform statistical analysis to determine the number of test points and identify their locations. In situ testing to verify pipe grade and wall thickness,

Table 1

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·	and a state of the	T	1	I and the second	The stand of	Inclusion in the second	Land to the second	The second second second	04.0000	
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Action Plan
Longview Dis	strict									<u>b</u>
		1	Pre-CNGC-L1-1	1957	12.75	0.25	24 000	400	26.6%	Conduct study to determine renlacement options and projects. Test existing samples
1 12	the second second second	1000		1001		015	24,000	400	20.074	Consist non-constraints provide and a project, the costing surgices and the cost stringent criteria as final wall thickness and pipe rade, test samples
1	Longview-Kelso H.P. Distribution Line	250	Pre-CNGC-L1-2	1957	45	0.156	24,000		15.0%	as they become available.
10000			28621	1980	12.75	0.25	52,000		12.3%	Pressure test or replace, request allowance to continue operating pipeline at pressure currently established.
2	4" Kalama H.P. Une	300	24676	1976	4.5	0.188	35,000		10.3%	Pressure test or replace, request allowance to continue operating pipeline at pressure currently established.
3	A" Dike Road H P. Line (Longview)	80	8208335	1965	às	0.156	74.000		4.8%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final for wall thickness and pipe grade, test
	- owe hold not she (congrew)	00	0208333	1905	~	0.230	24,000		4.078	samples as they become available.
			51820(1)	1996	8.625	0.332	46,000		8.5%	Pressure test and request allowance to continue operating pipeline at pressure currently established or replace.
8	8" Kalama H.P. Line	300	51820(2)	1997	8.625	0.188	24,000		28.7%	Pressure test and request allowance to continue operating pipeline at pressure currently established or replace.
10 Y 10	Construction of the second sec		51820 (3)	1997	8.625	0.25	24,000		21.6%	Pressure test and request allowance to continue operating pipeline at pressure currently established or replace.
		-	51620(4)	1997	8,625	0.25	46,000		11.3%	Pressure test and request asswance to continue operating pipeline at pressure currently established or replace.
7	12" South Longview H.P. Line	499	43600 (Transition fittings)	1995	12.75	0.312	24,000	1080	42.5%	Third party to perform statistical analysis to determine the number of test points and identify their locations, in situ testing to verify pipe grade and wall thickness.
Valiana Dista	in (funnalida)	_		-						
Tukina bisu	(Johnysbe)			-		-				In the second
1	3" Sunnyside H.P. Line	200	Fish-L1-1	1956	3.5	0.156	24,000		9.3%	hequest anowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as tinal wall thickness and pipe grade, test samples
-			and the second se	No.	and the second second		and the second		diana.	as may become available.
2	2" South Sunnyside H.P. Line	200	42C2530	1959	2.375	0.154	24,000		6.4%	instruction and a contract operating reversing presence or presence carefully calculations, accept mast surgers check as many many and the presence of a carefully calculation and a contract as many many and the presence of a carefully calculation and a contract as many many and the presence of a carefully calculation and a carefully calculation and a carefully carefully carefully carefully carefully and a carefully c
	Sa an order to the second second		and conten		110		-		1.4.4.14020	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples
3	4" Grandview H.P. Line	250	Fsh-L2-1	1956	4,5	0.156	24,000		15.0%	as they become available.
	20 B	050		1000		0.000	24.000			Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples
4	3" Prosser H.P. Line	250	TakimaL4-1	1956	3.5	0,156	24,000		11.7%	as they become available.
5	6" Topogolsh-Zillah H.P. Line	400	Vakimal S.1	1956	6.675	0.188	24,000		79 4%	Preliminary testing to be performed on available samples, third party to perform statistical analysis to determine the number of test points and identify their locations, in situ
-	o roppenditendit no tene		Taxing 1	1000	0.025	01400	24,000		aprent.	testing to verify pipe grade and wall thickness, request allowance to operate pipeline at pressure currently established.
6	3" Zillah H.P. Line	400	fish-16-1	1956	3.5	0.156	74.000	-	18.7%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples
	a and the same								A STATE	as they become available.
7	4" Wapato H.P. Line	152	fish-L7-1	1956	4.5	0.156	24,000		9.1%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples
		100 M	1000	Constant.				-		as they become available.
8	3" South Toppenish H.P. Line	175	fish-LS-1	1956	3.5	0,156	24,000		8.2%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples to their becomes and pipe.
-	Concernation of the Distance of the State	1995							1.000	as may become available.
9	3" Granger H.P. Line	175	fish-L9-1	1956	3.5	0.156	24,000		8.2%	nequest anomanie to continue operating nowing piperine as pressure contentry established, accept most stringent cititena as international processing pipe grade, rest samples as that have non-more sublished.
Valiana Diete	lat .				·					Para sur 2 normali antimores
Takina bisu			1	1	1	-	-	-		Received and the second s
			Fish_968	1956	8.625	0.188	24,000		19.1%	request advance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as linal wall trickness and pipe grade, test samples
	CONTRACTOR NOT THE OWNER OF THE O	and the second second		0.000	and the second s					as they become available.
1	S" Yakima H.P. Line	200	FISH_968_Lat_26	1956	8.625	0.5	24,000		7.2%	neques informers to contain operating our tax parameter preside contently standards, weep most stilling in one of the method and parameters and the standards and parameters at the been available.
			40C4357	1961	8.625	0.158	24,000	352	19.1%	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
			20375	1978	8.625	0.25	46,000		7.5%	Pressure test or replace, request allowance to continue operating pipeline at pressure currently established.
Wenatchee	District									
<b></b>	T	1	103-10-17.	000021	10000	10000	200240		1000	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples
			WenL1-1	1957	6.625	0.188	24.000		18.4%	as they become available,
	CT C OT A Same Lake 14 D Man	200								
	o deo muses care nor, cine	200	WenL1-2	1957	8.625	0.155	24,000		23.9%	resiminary recting to de performed on avalable semples, conditional party to perform souscide analysis to determine the normal of its points and identify their occupies, in situ testing to useful place performed on avalable semples, conditional party to perform souscide analysis to determine the normal of their occupies, in situ testing to useful place performed on available semples, conditional party to perform souscide analysis to determine the normal of the performance to occupie the source to occupie the performance to occ
										security to verify pipe grade and wan sinceress, request anowance to containe operating pipeline as pressure currently established.
		_	60390	1981	4.5	0.156	24,000	375	15.0%	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.
2	2" Wheeler H.P. Line	250	WenL2-2	1962	2.375	0.154	24,000		8.0%	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples
			-	10.00	2.030		No one			is they become available, verily pressure rating of block value at R-53.
3	4 Otherio transmission Dire	00+	18998	19/1	0.025	0.188	35,000	331	20.170	request allowance to compute operating pipeline at pressure currently established
10	4 South Moses cale H.P. Line	250	54006	1007	6.625	0.198	26,000	740	18.4%	negotas anowance to commo operanting towing pipeline at pressure currently essonated.
10	o west wheeler rist, time	250	2.008	1931	0.04.0	W.AOG	24,000	740	20,476	Request advance to continue one-visit policy extramptive stabilished, accent most stringent criteria as final wall thickness and pole grade, test samples,
12	6" Wenatchee H.P. Line	225	2912 fish	1956	6.625	0.188	24,000		16.5%	as they become available, validate pressure rating of stopper at odor/zer.
Kennewick										
-	1	-	1	1	T	1			-	Request allowance to continue operating pipeline at pressure currently established, preliminary testing to be performed on available samples, conduct study to determine
			01C4776	1958	8.625	0.158	24.000		28.7%	replacement options and projects, third party to perform statistical analysis to determine number of test points, operate with assumptions until realizement on the testine i
		· · · ·				10000				performed.
			Comments of the second s	1						Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options, verify pressure rating of Sav-
		2007	14375 (1)	1968	8.625	0.188	35,000		19.7%	A-Valve.
1	8"Attalia H.P. Line	300	a company	10/0			75 000			Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options, verify pressure rating of 1"
			14375(2)	1968	12.75	0.25	35,000		21.9%	bypass valve.
			14375 (3)	1968	12.75	0.375	35,000		14.6%	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options.
			14375 (4)	1968	12.75	0,33	35,000		16.6%	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options.
		-	14375 (5)	1968	12.75	0.25	52,000		14.7%	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options.
3	4" East Finley H.P. Line	250	12614	1967	4.5	0.188	35000	120	8.5%	Conduct uprate to validate MACP.
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	Accept most stringent criteria as inal wait thickness and pipe grade, inst samples as they become available.
5	4" Northwest Pasco H.P. Line	300	11097(1)	1966	4.5	0.155	35000		10,3%	Inequest allowance to continue operating (WH-fisk of peline 3) préssure currently established.
6	2" Buchash H P Line	150	11097 (2)	1966	4.5	0.188	35000	100	2.5%	nequest environme or summitter operating covertisk pipeline at pressure currenting established.
	2 DUI DUI R PLP, UNE	961	14.544	1.967	23/5	0.154	33000	100	3.376	permanent pointe to remain more a la contraine operating low-risk niceline at netsure currently established, arrent most striament reiteria as final wall thickness and nice areas that associate the second
8	4" Finley H.P. Line	200	53C2527	1950	4.5	0.156	24,000		12.0%	as they become available.
Walla Walla									-	
	Constant Alexandra Carlos	1	Land	T States	1 contact			1	STANSA	Request allowance to continue operating low-risk pipeline at metage ourgestly established, sevent most striagest relating so final wall thickness and size and a sevent sevent
1	8" Walla Walla H.P. Line	150	WWL1-1	1956	8.625	0.138	24,000		14.3%	as they become available.
-		1982	No. and Annual State	(Careers)	1000	Tanan.			1 CAR	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and one erade, test samples
2	3" College Place H.P. Line	150	WWL2-1	1956	3.5	0.156	24,000		7.0%	as they become available,
1										

Critical Missing Information

Post-Code Missing Pressure Test
	а 1		Table 2	5		53		
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	% SMYS
Bellingham Dis	strict			- Mi				
1	8" Bellingham H.P. Line	380	Line 1-1	1956	8.625	0.188	24000	36.3%
2	8" Control Whatsom H B Line	280	Line 3-1	1957	8.625	0.188	24000	36.3%
3	o Central Whatcom H.F. Line	560	40855 (Transition fittings)	1993	8.625	0.188	24000	36.3%
21	12",16" & 4" Squalicum H.P. Line	250	41508	1993	16	0.281	24000	29.7%
Mount Vernor	n District					ũ.		
1	8" Apparentes H.D. Line	360	MTVL1-1	1957	8.625	0.188	24000	34.4%
1	8 Anacortes H.P. Line	.560	18191	1972	8.625	0.188	35000	23.6%
		10. 1	11C1144	1957	8.625	0.188	24000	34.4%
2	8" March Point H.P. Line	360	11C1144	1957	8.625	0.25	24000	25.9%
			11C5628	1963	8.625	0.188	24000	34.4%
Longview Dist	rict							
1	Longview-Kelso H.P. Distribution Line	250	Pre-CNGC-L1-1	1957	12.75	0.25	24000	26.6%
	2		51820 (1)	1996	8.625	0.332	46000	8.5%
	9" Kalama H D Lina	200	51820 (2)	1997	8.625	0.188	24000	28.7%
°	8 Kalama H.P. Line	300	51820 (3)	1997	8.625	0.25	24000	21.6%
			51820 (4)	1997	8.625	0.25	46000	11.3%
Yakima Distric	t (Sunnyside)							
5	6" Toppenish-Zillah H.P. Line	400	YakimaL5-1	1956	6.625	0.188	24000	29.4%
Wenatchee Di	istrict							
	*		WenL1-1	1957	6.625	0.188	24000	18.4%
1		0 0	WenL1-2	1957	8.625	0.188	24000	23.9%
			60390	1981	4.5	0.156	24000	15.0%
3	4" Othello Transmission Line	400	18998	1971	6.625	0.188	35000	20.1%
Kennewick					V0-97			
			01C4776	1958	8.625	0.188	24000	28.7%
			14375 (1)	1968	8.625	0.188	35000	19.7%
	1 St.		14375 (2)	1968	12.75	0.25	35000	21.9%
0		0	14375 (3)	1968	12.75	0.375	35000	14.6%
			14375 (4)	1968	12.75	0.33	35000	16.6%
-		~ ~	14375 (5)	1968	12.75	0.25	52000	14.7%

	-		Tal	ole 3					
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	% SMYS	Design Pressure (psig
Bellingham	District			1					
			10c8241	1964	4.5	0.188	35,000	5.3%	877
			10c9683	1965	6.625	0.188	35,000	7.8%	795
2	Bellingham H.P. Distribution System	155	11480-1	1966	6.625	0.188	35,000	7.8%	795
			11480-2	1966	8.625	0.188	35,000	10.2%	610
			13150	1967	2.375	0.154	35,000	3.4%	1,362
Aberdeen D	istrict								
8	4" Montesano H.P. Distribution System	135	77C6321	1964	4.5	0.188	35000	4.6%	877
9	2" Elma Rendering Plant H.P. Line	150	78C7902-1	1964	2.375	0.156	35000	3.3%	1,379
Bremerton I	District								
11	8" Bremerton H.P. Line	144	20C6316	1964	8.625	0.188	46000	7.2%	802
Wenatchee	District			1					
6	4" South Moses Lake H.P. Line	250	14455	1968	4.5	0.188	35000	8.5%	877
Kennewick									
			14375 (1)	1968	8.625	0.188	35,000	19.7%	610
	Offensile U.D. Line	200	14375 (3)	1968	12.75	0.375	35,000	14.6%	824
1	o Attalia H.P. Line	500	14375 (4)	1968	12.75	0.33	35,000	16.6%	725
			14375 (5)	1968	12.75	0.25	52,000	14.7%	816
5	4" Northwest Pasco H.P. Line	300	11097 (1)	1966	4.5	0.188	35000	10.3%	877
6	4" Glade Road H.P. Line	150	11097 (2)	1966	4.5	0.188	35000	5.1%	877

			Tal	ble 4					
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	% SMYS	Design Pressure (psig
Bellingham	District				W				
	1)		fish-1	1956	8.625	0.188	24,000	14.8%	419
2	Bellingham H.P. Distribution System	155	fish-2	1956	10.75	0.188	24,000	18.5%	336
	P.C		10c3298	1960	4.5	0.156	24,000	9.3%	499
4	4" South Lynden H.P. Line	250	Line 4-1	1961	4.5	0.156	24,000	15.0%	499
8	2" Nooksack H.P. Distribution System	250	16C7000	1963	2.375	0.154	24,000	8.0%	934
Aberdeen D	istrict								
3	4" McCleary H.P. Line	150	79C6323	1963	4.5	0.154	24,000	9.1%	493
9	2" Elma Rendering Plant H.P. Line	150	78C7902-2	1964	4.5	0.154	24000	9.1%	493
Mount Vern	ion District						90 (Sec.		
2	Annonates U.B. Distribution Sustan	105	MTVL3-1	1956	6.625	0.188	24,000	7.7%	545
2	Anacortes H.P. Distribution System	105	MTVL3-2	1956	8.625	0.188	24,000	10.0%	419
5	3" Burlington H.P. Line	249	211220	1957	3.5	0.156	24,000	11.6%	642
7	4" North Texas Rd H.P. Line	250	11C2775	1960	2.375	0.154	24,000	8.0%	934
8	4" Arlington H.P. Line	249	Fish 18C4272	1961	4.5	0.156	24,000	15.0%	499
Longview Di	istrict								
1	Longview-Kelso H.P. Distribution Line	250	Pre-CNGC-L1-2	1957	4.5	0.156	24,000	15.0%	499
3	4" Dike Road H.P. Line (Longview)	80	82C8335	1965	4.5	0.156	24,000	4.8%	499
Yakima Dist	rict (Sunnyside)								
1	3" Sunnyside H.P. Line	200	Fish-L1-1	1956	3.5	0.156	24,000	9.3%	642
2	2" South Sunnyside H.P. Line	200	42C2530	1959	2.375	0.154	24,000	6.4%	934
3	4" Grandview H.P. Line	250	Fish-L2-1	1956	4.5	0.156	24,000	15.0%	499
4	3" Prosser H.P. Line	250	YakimaL4-1	1956	3.5	0.156	24,000	11.7%	642
6	3" Zillah H.P. Line	400	fish-L6-1	1956	3.5	0.156	24,000	18.7%	642
7	4" Wapato H.P. Line	152	fish-L7-1	1956	4.5	0.156	24,000	9.1%	499
8	3" South Toppenish H.P. Line	175	fish-L8-1	1956	3.5	0.156	24,000	8.2%	642
9	3" Granger H.P. Line	175	fish-L9-1	1956	3.5	0.156	24,000	8.2%	642
Yakima Dist	rict							1	
	8" Valime II D. Line	200	Fish_968	1956	8.625	0.188	24,000	19.1%	419
1	8 Takima H.P. Line	200	FISH_968_Lat_26	1956	8.625	0.5	24,000	7.2%	1,113
Wenatchee	District								
1	6" & 8" Moses Lake H.P. Line	250	WenL1-1	1957	6.625	0.188	24,000	18.4%	545
2	2" Wheeler H.P. Line	250	WenL2-2	1962	2.375	0.154	24,000	8.0%	934
10	6" West Wheeler H.P. Line	250	54006	1997	6.625	0.188	24,000	18.4%	545
12	6" Wenatchee H.P. Line	225	2912 fish	1956	6.625	0.188	24,000	16.5%	545
Kennewick						· · · · · · · · · · · · · · · · · · ·			
8	4" Finley H.P. Line	200	53C2527	1959	4.5	0.156	24,000	12.0%	499
Walla Walla	f x								
1	8" Walla Walla H.P. Line	150	WWL1-1	1956	8.625	0.188	24,000	14.3%	419
2	3" College Place H.P. Line	150	WWL2-1	1956	3.5	0.156	24.000	7.0%	642

				Table 5					_	
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig)
Mount Ver	non District									
10	4" Sedro-Woolley H.P. Line	100	14788	1968	4.5	0.188	35000	100	3.4%	877
Kennewick										
3	4" East Finley H.P. Line	250	12614	1967	4.5	0.188	35000	120	8.5%	877
7	2" Burbank H.P. Line	158	12301	1967	2.375	0.154	35000	100	3.5%	1,362

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			Tat	ole 6					
HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	% SMYS	Design Pressure (psig)
Bellingham	District								
1	8" Bellingham H.P. Line	380	Line 1-1	1956	8.625	0.188	24,000	36.3%	419
3	8" Central Whatcom H.P. Line	380	Line 3-1	1957	8.625	0.188	24,000	36.3%	419
Bremerton	District								1
2	8" & 12" Bremerton Transmission Line	499	BremertonL2-1	1963	8.625	0.188	24,000	47.7%	419
11	8" Bremerton H.P. Line	144	18522	1971	8.625	0.188	35000	9.4%	610
Mount Vern	on District								
	8" Assessment H D Line	260	MTVL1-1	1957	8.625	0.188	24,000	34.4%	419
7	8 Anacortes H.P. Line	500	18191	1972	8.625	0.188	35,000	23.6%	610
			11C1144	1957	8.625	0.188	24,000	34.4%	419
2	8" March Point H.P. Line	360	11C1144	1957	8.625	0.25	24,000	25.9%	557
			11C5628	1963	8.625	0.188	24,000	34.4%	419
Longview D	istrict								1
1	Longview-Kelso H.P. Distribution Line	250	28621	1980	12.75	0.25	52,000	12.3%	816
2	4" Kalama H.P. Line	300	24676	1976	4.5	0.188	35,000	10.3%	877
			51820 (1)	1996	8.625	0.332	46,000	8.5%	1,417
	Of Values II D. Line	200	51820 (2)	1997	8.625	0.188	24,000	28.7%	419
8	8" Kalama H.P. Line	300	51820 (3)	1997	8.625	0.25	24,000	21.6%	557
			51820 (4)	1997	8.625	0.25	46,000	11.3%	1,067
Yakima Dist	rict (Sunnyside)								
5	6" Toppenish-Zillah H.P. Line	400	YakimaL5-1	1956	6.625	0.188	24,000	29.4%	545
Yakima Dist	rict								
1	8" Yakima H.P. Line	200	20375	1978	8.625	0.25	46,000	7.5%	1,067
Wenatchee	District								
1	6" & 8" Moses Lake H.P. Line	250	WenL1-2	1957	8.625	0.188	24,000	23.9%	419
3	4" Othello Transmission Line	400	18998	1971	6.625	0.188	35,000	20.1%	795
Kennewick									
	Offenselie U.D. Line	200	01C4776	1958	8.625	0.188	24,000	28.7%	419
1	o Autalia n.r. une	500	14375 (2)	1968	12.75	0.25	35,000	21.9%	549

HP Line #										
	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig
llingham [	District									
2	Bellingham H.P. Distribution System	155	20564	1972	4.5	0.156	24,000	225	9.3%	499
3	8" Central Whatcom H.P. Line	380	40855 (Transition fittings)	1993	8.625	0.188	24,000	680	36.3%	419
9	8" Lake Terrell Rd Transmission Line	380	18734-1	1965	8.625	0.188	24,000	569	36.3%	419
10	16" N. Whatcom Transmission Line	500	18794	1971	16	0.25	52000	900	N/A	650
12	4" North Lynden H.P. Line	400	25773	1978	4.5	0.188	35000	600	N/A	877
21	12",16" & 4" Squalicum H.P. Line	250	41508	1993	16	0.281	24,000	620	29.7%	337
berdeen Di	strict									
1*	8" Kitsap Line	366	19261	1972	8.625	0.188	42000	750	N/A	732
15*	12" Kitsap H.P. Line	499	44000	1995	12.75	0.312	52000	1080	N/A	1,018
remerton D	District									
6	4" Olympic View H.P. Line	499	20387	1973	4.5	0.188	42000	500	N/A	1,053
lount Vern	on District									
4	4" Mount Vernon H.P. Line	250	MTVL4-1	1957	4.5	0.156	24,000	400	15.0%	499
12	6" North Oak Harbor H.P. Line	400	17206	1972	6.625	0.188	42000	675	N/A	953
10	16" Frederia Transmission Line	500	30636 (Transition fittings)	1983	16	0.281	24,000	750	59.3%	337
74	10 Fredonia transmission Line	500	30636 (Elbows)	1983	15	0.375	35,000	750	30.5%	656
16	16" Marsh Baist Transmission Line	500	40000 (Transition fittings)	1992	16	0.281	24,000	750	59.3%	337
10	to March Point Transmission Line	500	40000 (Elbows)	1992	16	0.375	35,000	750	30.5%	656
ongview Di	strict	1	Δ							
1	Longview-Kelso H.P. Distribution Line	250	Pre-CNGC-L1-1	1957	12.75	0.25	24,000	400	26.6%	376
7	12" South Longview H.P. Line	499	43600 (Transition fittings)	1995	12.75	0.312	24,000	1080	42.5%	470
akima Distr	rict									
1	8" Yakima H.P. Line	200	40C4357	1961	8.625	0.188	24,000	352	19.1%	419
Venatchee	District									
1	6" & 8" Moses Lake H.P. Line	250	60390	1981	4.5	0.156	24,000	375	15.0%	499
ennewick		1			1					
		10								
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	Kennl4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0,156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	Kennl4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	0.156	24,000	450	18.0%	499

HP Line #	HP Line Name	HP Line Segment/WO Number	2016 Action	2017 Action	2018 Action	2019 Action	2020 Action	2021 Action	2022 Action
lingham	District								
1	8° Bellingham H.P. Line	Line 1-1	Request allowance to continue operating pipeline at pressure currently established, perform statistical analysis, replace section at Squalicum Creek crossing and test samples from that preject	in situ testing at 35 locations					
		fish-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.						
		fish-2	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, tost samples as they become available.						
		10c3298	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.					_	
2	Beflingham H.P. Distribution System	10c8241	Request allowance to continue operating low-risk pipeline at pressure currently established.						
		10c9683	Request allowance to continue operating low-risk pipeline at pressure currently established.					÷	
		11480-1	Request allowance to continue operating low-risk pipeline at pressure currently established.						
		11480-2	Request allowance to continue operating low-risk pipeline at pressure currently established.						
		13150	Converted to Intermediate Pressure.						
		20564	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.	1	1				10 C 10
3	8" Central Whatcom H.P. Line	Line 3-1	Operate at 20% below MAOP, perform statistical analysis	In situ testing at 70 locations	In situ testing at 65 locations				
	4" South Lynden H.P. Une	Line-4-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wait incluness and pipe grade, test samples as they become available.					÷	
8	2" Nooksack H.P. Distribution System	16C7000	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent otteria as final walt thickness and pipe grade, test samples as they become available.				2		
9	8" Lake Terrell Rd Transmission Line	18734-1	Request allowance to operate at 20% below MAOP, perform statistical analysis			In situ testing at 26 locations			
10	16" N. Whatcom Transmission Line	18794	Expose and verify part # for elbow at V-175 and 4 plugs at V-38,						
12	4" North Lynden H.P. Line	25773	Verify that Sav-A-Valve has sufficient pressure rating or is located on IP section.	· · · · · · · · · · · · · · · · · · ·					
21	12",16" & 4" Squalicum H.P. Une	41508	Perform statistical analysis		In situ testing at 13 locations				
erdeen (	listrict		The second s			1			
1.	8" Kitsap Line	19261	Expose Sav-A-Valves and verify pressure rating.						
3	4" McCleary H.P. Line	7906323	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.					1	
8	4" Montesano H.P. Distribution System	77C6321	Request allowance to continue operating low-risk pipeline at pressure currently established.			-			
	1.1.1.1.1.1.1.1.1.1	78C7902-1	Request allowance to continue operating low-risk pipeline at pressure currently established.						
9	2" Elma Rondering Plant H.P. Une	78C7902-2	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.						1 <sup>1</sup>
15*	12" Kitsap H.P. Line	44000	Expose Sav-A-Valves and verify pressure rating.						
	District							11	
emeston		Bernetteri 2.1	Request allowance to continue operating pipeline at pressure currently established, perform	in situ testing at approximately 15					
emerton 2	8" & 12" Bremerton Transmission Line	Decimier concert.	statistical analysis	locations					

Table 8

		2006316	Request allowance to continue operating low-risk pipeline at pressure currently established.						
	8" Bremerton H.P. Une	18522	Request allowance to continue operating pipeline at pressure currently established.	1. m. 1. X. 1.	Pressure test or replace.		IX- 2		
Mount Vern	on District								
		MTVL1-1	Request allowance to continue operating pipeline at pressure currently established, perform statistical analysis	Approximately 9 miles to be retired and replaced	In situ testing at approximately 65 locations	In situ testing at approximately 65 locations		an in the	
1	8" Anacortes H.P. Line	18191	Request allowance to continue uperating pipeline at pressure currently established until replacement	Replace		= ==			
с — а		11C1144	Lower operating pressure to be 20% below MAOP, perform statistical analysis, and in situ testing at 21 locations						
- 4	a March Point H.P. Line	1101144	Lower operating pressure by 20%, perform statistical analysis	in situ testine at 10 locations					
	(4)	1105620	I puer execution assesses by 20%	Paulscoment					
		MTVL3-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.						
3	Anacortes H.P. Distribution System	MTVL3-2	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final pipe grade, test samples as they become available.						
4	4" Mount Vernon H.P. Line	MTV14-1	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.					· · · ·	
5	3" Burlington H.P. Une	211220	Request allowance to continue operating low-risk pipeline at pressure currently established until replacement in 2016.						
7	4" North Texas Rd H.P. Line	11C2775	Acquest allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final well thickness and pipe grade, test samples as they become available.						
8	4" Arlington H.P. Une	Fish 1804272	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent orteria as final wall thickness and pipe grade, test samples as they become available.						
10	4" Sedro-Woolley H.P. Line	14788	Request allowance to continue operating low-risk pipeline at pressure currently established until uprate is completed	Conduct uprate to validate MAOP					
12	6" North Oak Harbor H.P. Line	17206	Validate pressure rating of line stopper fitting, elbow at V-193, and Sav-A-Valve and service ter at V-104	c					
		30635 (Transition fittings)	Perform statistical analysis			In situ testing at 15 locations			2
14	16" Fredonia Transmission Une	30636 (Fibows)	Perform statistical analysis			In situ testing at 10 locations			
		40000 (Tensilies Intent	Durform statistical maturic			In situ testing at 2 locations	T		1
16	16" March Point Transmission Line	House in an and the set					-	1	
-		40000 (Elbowe)	Perform statistical analysis			in site resting at to incations			
Longview Di	Strict	Pre-CNGC-L1-1	Conduct study to determine replacement options and projects, test existing samples	Replace Phase I	Replace Phase II	Prepace Phase III	Preplace Phase IV		
1	Longview-Kelso H.P. Distribution Line	Pre-CNGC-L1-2	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.	8 					8 0
	×	28621	Request allowance to continue operating pipeline at pressure currently established until pressure test or replacement is complete.	a a				Pressure test or replace	
2	4* Kalama H.P. Line	24676	Request allowance to continue operating pipeline at pressure currently established until pressure test or replacement is complete.					Pressure test or replace	Pressure test or replace
3	4" Dike Road H.P. Line (Longview)	82C8335	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final for wall thickness and pipe grade, test samples as they become available.						
		51820 (1)	Request allowance to continue operating pipeline at pressure currently established until pressure test or replacement is complete.		-	_		Pressure test or replace	Pressure test or replace

		51820 (2)	Request allowance to continue operating pipeline at pressure currently established until pressure test or replacement is complete.					Pressure test or replace	Pressure test or replace
	ar Kasima Kur, Une	51820 (3)	Request allowance to continue operating pipeline at pressure currently established until pressure test or replacement is complete.					Pressure test or replace	Pressure test or replace
÷.	<.	51820 (4)	Request allowance to combine operating pipeline at pressure currently established until pressure test or replacement is complete.					Pressure test or replace	Pressure test or replace
7	12" South Longview H.P. Line	43600 (Transition fittings)	Perform statistical analysis	1	10 C 10 C 10 C	In situ testing at approximately 10 locations			
Yakima Dist	rict (Sunnyside)								
1	3" Sunnyside H.P. Line	Fish-L1-1	Request allowance to continue operating kow-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.						.+
2	2" South Sunnyside H.P. Une	42C2530	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent orier/a as final wall thickness and pipe grade, test samples as they become available.						
3	4" Grandview H.P. Line	Fizh-12-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples at they become available.						
4	3" Prosser H.P. Line	Yakimald-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent otheria as final wall thickness and pipe grade, test samples as they become available.						
5	6" Toppenish-Zillah H.P. Une	Yakima15-1	Request allowance to continue operating pipeline at pressure currently established, perform statistical analysis and test available samples	Replace section on Fraley Road and test samples			In situ testing at approximately 82 locations		
6	3° Zilah H.P. Une	fish-16-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples at they become available.						
7	4" Wapato H.P. Line	fish-L7-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent orien as final wall thickness and pipe grade, test samples as they become available.		÷ 4	1.5			
8	3" South Topponish H.P. Line	fish-LB-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.						
9	3" Granger H.P. Line	fish-L9-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.				e.	-	
Yakima Dist	rict	<u>.</u>							
		Fish_968	Acquest allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria at final wall thickness and pipe grade, test samples at they become available.						
1	8" Yakima H.P. Une	FISH_968_Lat_26	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.	20		$r=r_{\rm e}^{-1}r_{\rm e}^{-1}r_{\rm e}^{-1}r_{\rm e}^{-1}$			
		40C4357	Accept most stringent offeria as final wall thickness and place grade, test samples as they become available.						
		20375	Requisit allowance to continue operating pipeline at pressure currently established until pressure test or replacement is complete.		Pressure test or replace				

-	and the second second second							5	2
Wenatchee	District								
		WenL1-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.			e		£	
1	to a, a moses Lake M.P. Line	WenL1-2	Request allowance to continue operating pipeline at pressure currently established, perform statistical analysis				In situ testing at approximately 33 locations		
		60390	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.						
z	2" Wheeler H.P. Line	WenL2-2	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent offenia as final wall thickness and pipe grade, test samples as they become available, verify pressure rating of block value at R-53						
3	4" Othello Transmission Line	18998	Request allowance to continue operating pipeline at pressure currently established until replacement is complete.	Replace 191 ft section at Booker Road Bridge			12		
6	4" South Moses Lake H.P. Line	14455	Request allowance to continue operating low-risk pipeline at pressure currently established.						2
10	6" West Wheeler H.P. Line	54006	Accept most stringent oriteria as final wall thickness and pipe grade, test samples as they become available.						2
12	6" Wenatchee H.P. Line	2912 fish	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent orderia as final wall thickness and pipe grade, text samples as they become available.	Validate pressure rating of stopper at odorizer.	n na 1890 <sup>8</sup> na X	aaa aa a			
Kennewick D	listrict	and some some some							
	ī	0104776	Request allowance to continue operating pipeline at pressure currently established, perform statistical analysis and replacement study				In situ testing at approximately 40 locations	In situ testing at approximately 156 locations	
= =		14375 (1)	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options, verify pressure rating of Sav-A-Valve.		v				
2	1962 2023 milet i accesso	14375 (2)	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options						
1	8"Attalia H.P. Une	14375 (3)	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options	=					Replacement or testing
		14375 (4)	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options					3	9
	>	14375 (5)	Request allowance to continue operating pipeline at pressure currently established, conduct study to determine replacement and testing options						
3	4" East Roley H.P. Line	12614	Request allowance to continue operating low-risk pipeline at pressure currently established until uprate is completed	Conduct uprate to validate MAOP					
4	Pasco H.P. Distribution System	KennL4-1	Accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.						
5	4" Northwest Pasco H.P. Line	11097 (1)	Request allowance to continue operating low-risk pipeline at pressure currently established.				· · · · · · · · ·		
6	4" Glade Road H.P. Line	11097 (2)	Request allowance to continue operating low-risk pipeline at pressure currently established.				2		14
7 -	2" Burbank H.P. Line	12301	Request allowance to continue operating low-risk pipeline at pressure currently established until uprate is completed	Conduct uprate to validate MAOP					
8	4" Finley H.P. Line	53C2527	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.	- -	-5				
Walls Walls	District								
1	S" Walta Walta H.P. Line	WWL1-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.						
2	3° College Place H.P. Line	WWL2-1	Request allowance to continue operating low-risk pipeline at pressure currently established, accept most stringent criteria as final wall thickness and pipe grade, test samples as they become available.				2		

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## **APPENDIX M**



8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166 TELEPHONE 509-734-4500 FACSIMILE 509-737-7166 www.cngc.com

April 29, 2016

### RECEIVED

Alan Rathbun- Director of Pipeline Safety Program State of Washington Utilities and Transportation Commission 1300 S. Evergreen Park Dr. SW P.O. Box 47250 Olympia, WA 98504-7250 MAY 0 2 2016

State of Washington UTC Pipeline Safety Program

RE: Docket PG-150120 – Response to March 22, 2016 WUTC Letter

Dear Mr. Rathbun:

In accordance with the Stipulated Agreement in Docket PG-150120 Cascade Natural Gas Corporation (CNGC) hereby submits its Maximum Allowable Operating Pressure (MAOP) Determination & Validation Plan. This plan outlines how CNGC will collect validation information, prioritize, and schedule steps to confirm the MAOP for referenced high pressure distribution and transmission pipelines in Washington.

If there are any questions regarding this submission please contact Jeremy Ogden at (509) 734-4509.

Sincerely,

Eric Martuscelli Vice President, Operations Cascade Natural Gas Corporation

In the Community to Serve'

# **Cascade Natural Gas Corporation**

### **MAOP Determination & Validation Plan**

in accordance with

### **Stipulated Agreement in Docket No. PG-150120**

Cascade Natural Gas Corporation (Cascade) has prepared a Maximum Allowable Operating Pressure (MAOP) Determination & Validation Plan for all high pressure (HP) distribution and transmission pipelines in the State of Washington. HP distribution is defined as having an MAOP greater than 60 psig which produces a hoop stress less than 20% Specified Minimum Yield Strength (SMYS). The purpose of this plan is to determine and validate the MAOP of all HP distribution and transmission pipelines for which there is insufficient documentation to confirm the current MAOP. This MAOP Validation Plan consists of the following elements:

- **1.** Summary of all HP distribution and transmission pipelines with data currently insufficient to demonstrate and confirm MAOP
- 2. Determination of MAOP for each segment of pipeline
- 3. Process that Cascade will use to validate data to calculate hoop stress for unknown pipe
- 4. Action plan for each pipeline segment
- 5. Rationale describing prioritization of each action plan
- 6. Process for corrective actions and updates to plan
- 7. Schedule listing time frames for completion of action plan for each pipeline segment

Critical information that can validate MAOP includes, but is not limited to, pipeline diameter, wall thickness, pipe grade (i.e. X52), pressure rating of fitting, longitudinal seam type, pressure test records, and as-built records.

#### Summary of HP Distribution and Transmission Pipelines

Table 1 – Summary of HP Distribution and Transmission Pipelines with Insufficient Data lists the HP distribution and transmission pipeline segments with data currently insufficient to demonstrate and confirm MAOP. This table also includes the MAOP, pipeline segment description, installation year, pipe diameter, pipe wall thickness, pipe grade, test pressure, % Specified Minimum Yield Strength (SMYS), critical missing information, and action plan. Information for this table was gathered through a comprehensive review of all of Cascade's available records. Critical missing information (wall thickness, pipe grade, pressure test) is highlighted in this table. Values shown in yellow highlighted fields indicate that Cascade has assumed the most stringent criteria for missing values.

If assuming the most stringent criteria resulted in a pipeline segment operating with a hoop stress of 20% SMYS or greater, that pipeline segment was reclassified as transmission and incorporated into Cascade's Transmission Integrity Management Program (TIMP) and was placed on a semiannual leak survey schedule. Additionally, these pipeline segments will have baseline assessments completed by February 2, 2018. Table 2 – Pipeline Segments Reclassified as Transmission lists the pipeline segments that were reclassified as transmission.

In some instances, assuming the most stringent criteria for missing information resulted in a pre-code pipeline segment operating at greater than 30% SMYS. Those pipelines segments, and the justification for the corresponding action plan, are described below.

- 8" Bellingham HP Line #1 Testing up to this point indicates that this pipeline has a yield strength of 46,000 psi. This results in the pipeline operating at 18.9% SMYS, rather than 36.3% SMYS. Additionally, lowering the pressure to 20% below MAOP (288 psig) will result in Cascade not being able to supply gas to all customers. For these reasons, Cascade does not feel that it is prudent to lower the operating pressure and has made this pipeline one of the highest priorities.
- 2. 8" Central Whatcom HP Line #3 The current operating pressure is more than 20% below MAOP. Cascade does not plan to lower pressure further and has made this pipeline one of the higher priorities.
- 3. 8" Lake Terrell Road Transmission Line #9 Pipeline is connected to 8" Central Whatcom HP Line, and the current operating pressure is more than 20% below MAOP. Additionally, Cascade's as-built documents for this pipeline call this pipe out as Grade B, which will result in the pipeline operating at 24.91% SMYS. This pipeline is currently operating as transmission and will continue to remain so. Cascade does not plan to lower pressure further and has made this pipeline one of the higher priorities.
- 4. 8" & 12" Bremerton Line #2 Testing up to this point indicates that this pipeline has a yield strength of 46,000 psi and was manufactured with a high-frequency weld process. This results in the pipeline operating at 24.9% SMYS. Additionally, lowering the operating pressure to 20% below MAOP will result in Cascade not being able to supply gas to all customers in the Bremerton District. For these reasons Cascade does not feel that it is prudent to lower the operating pressure and has made this pipeline one of the highest priorities.
- 5. 8" Anacortes HP Line #1 Testing up to this point indicates that this pipeline has a yield strength of at least 42,000 psi and was manufactured with a high frequency weld process. This results in the pipeline operating at 19.7% SMYS. For these reasons Cascade does not feel that it is prudent to lower the operating pressure and has made this pipeline one of the highest priorities.
- 6. 8" March Point HP Line #2 Cascade will fabricate a regulator station and modify set points on the existing regulator station feeding this pipeline to lower the operating pressure to 20% below MAOP and meet customer demands. The lower operating pressure will result in the pipeline operating at 27.53% SMYS. In situ testing on this pipeline is Cascade's highest priority and will be performed in 2016.

Table 3 – Branch Lines with Insufficient Data lists the validated pipelines which have branch lines with data currently insufficient to determine and confirm MAOP. All of these branch lines will be pressure tested or replaced. Additionally, all HP services that are determined to have insufficient data to validate MAOP will be pressure tested or replaced.

#### Determination of MAOP

Table 4 – Pre-Code Pipelines with Pressure Test lists the pre-code pipelines with unknown characteristics whose current MAOP is based on a pressure test. Missing information, such as pipe grade or wall thickness, will be obtained through testing.

Table 5 – Pre-Code Pipelines without Pressure Test lists the pre-code pipelines with unknowncharacteristics that do not have a pressure test as the basis of determination of current MAOP. WhileCascade Natural Gas Corporation – MAOP Determination & Validation PlanApril 29, 2016

there are varying degrees of preliminary and partial documentation for some of these pipelines, Cascade does not have operating records from 1965-1970 as described in 49 CFR 192.619(a)(3).

In all but one instance – Bremerton Line 2 in Table 4 – the current MAOP is less than the most conservative design pressure calculated as prescribed in 49 CFR 192.105. In this instance, the assumed yield strength based on the most stringent criteria results in a design pressure lower than the MAOP. However, the pipeline has pressure test records and test results giving a preliminary indication that the yield strength is greater than the most stringent criteria.

#### Processes to Validate Data

In addition to gathering information through a comprehensive review of all available records, Cascade's plan will include gathering and validating data from pipelines in service. Methods that will be employed may include but are not limited to:

- 1. Measuring pipe wall thickness with Ultrasonic Thickness (UT) gauge
- 2. Validating pipe grade and/or longitudinal seam type through mechanical testing of samples at an accredited materials testing laboratory in accordance with 49 CFR 192.107
- 3. Validating pipe grade by non-destructive in situ testing as described in a letter to the Washington Utilities and Transportation Commission (UTC) on June 2, 2015
- 4. Confirming pipe diameter through field measurements
- 5. Pressure testing
- 6. Exposing rated fittings to validate pressure rating

As information is collected the records will be stored in accordance with WAC-480-90-228 and 480-90-999. Any process considered to validate data not listed above will be submitted to the UTC for review prior to use. Any new or innovative processes for validating pipe characteristics shall be submitted to the Commission for review.

Cascade has contracted with Parametrix, Inc. (Parametrix) to perform a statistical analysis of all pipeline segments with missing pipe grade and to determine the number of sampling points that will be required to validate pipe grade. This analysis will be conducted in accordance with 49 CFR 192 Appendix B – Qualification of Pipe. Parametrix will also work with Cascade's Engineering Services to identify the testing locations. Parametrix has completed the analysis for pipelines in Cascade's Bellingham and Mt. Vernon districts, and those results have been used to estimate the number of sampling points that will be required on pipelines in other districts until the analysis in the remaining districts is completed in 2016.

Cascade has also contracted ABI Services, LLC (ABI), located in Oak Ridge, Tennessee, to perform in situ testing at the determined locations. Information describing their testing process was sent to the UTC on June 2, 2015, and approval of this testing method was received on January 12, 2016. Das-Co of Idaho, Inc. will be the excavation contractor used for the in situ testing. Cascade has coordinated with above contractors to begin work the week of July 11, 2016.

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#### **Pressure Testing**

In instances where pressure testing is required, Cascade's primary consideration is to isolate the pipeline and perform the pressure test. Test medium, pressure and duration will be based on current Cascade procedures. After completion of a successful pressure test, the pipeline will be put back into service.

In situations where isolation is not feasible due to factors such as customer loads or single feed systems, or construction constraints make replacement impractical, Cascade's secondary consideration is to pressure test an in-service pipeline. Cascade will consider two options for pressure testing an in-service pipeline. The first option is to use the current operating pressure as a test pressure. If it is determined that customer demands can be met by lowering the operating pressure by one third, Cascade will consider using the current operating pressure as a test pressure recording device will be connected to the pipeline to record the pressure, and the pipeline will be leak surveyed. Test pressure, duration, and leak surveys will be performed as necessary to ensure discovery of all potentially hazardous leaks in the segment being tested. This is similar to Method 2 in the April 8, 2016 NPRM for transmission lines.

To establish the current operating pressure as MAOP, the second option for in-service pressure testing will be used. The process for this option is as follows:

- 1. A pressure recording device will be installed to monitor the pressure during the incremental increases
- 2. A leak survey will be performed at the current operating pressure
- 3. Operating pressure will be increased (in 10 psig increments or 25% of the total pressure increase, whichever produces the fewer number of increments)
- 4. Leak survey will be performed after each incremental pressure increase
- 5. When test pressure is reached, it will be held per Cascade procedures and engineering specifications
- 6. Final leak survey will be performed
- 7. Pressure will be reduced to at or below newly established MAOP

It is not Cascade's intent to use this method to increase the current MAOP, but to establish the current operating pressure, which Cascade has been using for decades, as MAOP.

All proposed pressure testing options meet Subpart J requirements.

#### Action Plan

Cascade has reviewed each segment of HP pipeline and identified those segments with missing critical information. Table 1 contains the pipelines by district and the overall action plans for each. The time frames for completion of each action plan are shown in Table 6 - Schedule. Plans of action include replacement, pressure testing, lowering pressure, mechanical testing of samples, statistical analysis and in situ testing, uprating, and operating pipeline with assumptions.

#### **Prioritization**

Cascade has prepared a matrix to individually evaluate each segment of HP distribution and transmission pipeline with missing critical information. Components of the priority matrix, in descending order of weighting, are: % SMYS of pipe and fittings, available pressure test records, number of High Consequence Areas (HCAs) on a pipeline segment, class location, age of pipe (i.e. precode), and length of segment. The matrix produced a total prioritization score for each segment of pipeline, and pipelines were addressed in descending order of priority. In general, pre-code pipeline segments operating at greater than 30% SMYS without pressure test records were the highest priorities, with subsequent priorities influenced by the availability of pressure test records.

#### Process for Corrective Actions and Update to Plan

Cascade will continue to evaluate all current and future HP distribution and transmission pipelines on an ongoing basis to verify that critical information used to validate MAOP is known and to identify when immediate corrective actions are required. Existing pipelines will be evaluated annually by Cascade's Engineering Services group through the Distribution Integrity Management Plan (DIMP) and model. The plan and model will be reviewed annually to ensure that all information obtained as part of this MAOP Validation & Determination Plan is incorporated. Documentation for new pipelines will be audited by Cascade's Standards & Compliance group or Engineering Services group as construction of new pipelines is completed. If any critical information necessary to validate MAOP is discovered to be insufficient, corrective actions will be taken. Corrective actions include, but are not limited to, review of records as well as the processes used to validate data listed above.

Until a pipeline's characteristics can be verified, Cascade will assume the most stringent criteria for unknown pipe characteristics, as described in 49 CFR 192.107 & 109. If these assumptions result in a pipeline operating at 20% SMYS or greater, the pipeline will be leak surveyed two (2) times per calendar year and incorporated into Cascade's TIMP. For these pipelines, Cascade will perform a threat evaluation, and incorporate the pipe into risk and pipe assessments. Baseline assessments for all pipelines reclassified as transmission status shall be completed within three (3) years of reclassification.

When information is verified that results in a pipeline operating at a higher or lower % SMYS, changing classification from transmission to HP distribution, or other similar actions, this plan will be amended and updated. If an amendment to the plan is necessary, Cascade will submit the proposed amended plan to Commission Staff for review at least ninety (90) days prior to the time Cascade submits the amended plan to the Commission for formal approval.

Cascade will also submit to Commission Staff an annual status report on the progress in implementing this plan. The annual status report will be submitted by January 31 of each year. As part of the annual status report every aspect of the plan will be reviewed and the tables and schedule will be revised as required. Test results will be updated, as well as any resulting changes in priorities and schedule. If Cascade decides to accept the most stringent criteria as the final resolution for a particular line segment,

that will be included in an amended plan or annual status report and submitted to the Commission for approval.

#### **Schedule**

Table 6 – Time Frames for Completion provides the beginning and completion years for the action plans for each HP distribution and transmission pipeline segment with missing critical information. The priority matrix was the basis for the scheduling of action plans. Fifty percent of pipeline mileage will be addressed by 2018, and the remaining pipelines will be addressed by 2026. The schedule will be reviewed and revised with each annual update.

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TABLES

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me # ham Distric	HP Une Name	(Sist) 400M		A CONTRACTOR OF A CONTRACTOR O	With Stream Plan V	A new rest	A set of the set of th	and a second second second	The second secon	SYMS %	Under Rated Fitting Present	Action Plan
ham Distric		CANCELLE .	HP Line Segment/WO Number	Year installed	Publication (10-4	frail or Suan	Wall Thickness (in.)	Vield Strength (psi)	rest stressore (bad)	Statutes .		
-8	e											
	Bellingham Transmission Line	380	tine 1-1	1956	8.625	15,086	0.188	24,000	No Test	36.32%	N/A	in stu test, isolate and pressure test, replace section on James St.
			151-1	1956	8.625	16,475	0,153	24,000	No Test	14.34%	N/A	Replacement
			tish-2	1956	10.75	15,630	0.188	24,000	No Test	17.87%	N/N	Replacement
			1001315	1956	0.4	176	0.156	74 000	No lest	9/10/6	A/M	Neplacement
			1001333	1958	2.4	520	01:0	100/07	NO LEST	2010/2	4/4	Incplacement
			10c4709	1967	2375	221	0.150	24,000	No Test	2 82%	N/N	Reniscement
			10c5321	1963	2.375	1 505	0.154	24.000	No Test	4.82%	N/A	Replacement
			10c8241	1964	4.5	2,356	0.155	35,000	No Test	5.13%	N/N	Isolate and pressure test
2 Bel	Eingham H.P. Distribution System	150	10c9683	1965	6.625	988	0.188	35,000	No Test	7.55%	N/N	Replacement
			11480-1	1966	6.625	1,577	0.153	35,000	No Test	7.55%	N/A	Replacement
			11480-2	1966	8.625	396	0.188	35,000	No Test	9.83%	N/N	Replacement
			1003831	1966	2.375	1,309	0.154	24,000	No Test	4,82%	N/N	Replacement
			13150	1967	2.375	2,025	0.154	35,000	No Test	3.30%	N/A	Downcate to distribution pressure
			20564-1	1972	4.5	219	0.156	24,000	225	9.01%	N/N	Replacement
			20564-2	1972	6.625	113	0.188	24,000	225	11.01%	N/N	Replacement
			20752	1972	4.5	63	0.153	35,000	100	5.13%	N/A	Replacement
1			21298	1973	4.5	12	0.188	35,000	No Test	5.13%	N/N	Replacement
			1461314	1957	8.625	57.437	0.188	24.000	No Test	36.32%	N/N	In situ test, isolate and pressure test
0	Central Whatcom Fransmission Une	280	40855 (Transition fittings)	1993	8.625	10.579	0.133	46.000	680	36.30%	N/A	In situ test fittings
4	South Lynden H.P. Line	250	Une 4-1	1961	4.5	35,441	0.156	24,000	No Test	15.02%	N/N	In situ test, in-service pressure test
			16C7000	1963	2.375	732	0.154	24,000	No Test	8.03%	N/N	In situ test, in-service pressure test
1	Nooksack H.P. Distribution System	250	20048	1972	2.375	737	0.154	35,000	300	5.51%	N/A	In-service pressure test
		100	20529	1972	2.375	490	0.154	35,000	300	5.51%	N/A	In-service pressure test
5	Lake Terrell Rd Transmission Line	380	18734-1	1965	8.625	10,314	0.188	24,000	695	36.32%	N/A	In situ test
0 16	" N. Whatcom Transmission Line	600	18794	1971	16	143.907	0.250	52,000	926	36.92%	Yes	Expose and verify or replace plugs in vault
2 4"	North Lynden H.P. Une	400	25773	1978	4.5	8,161	0.183	35,000	009	13.68%	Yes	Expose and verify or replace caps on Sav-a-Valves
16.	* Squalicum Transmission Segment	250	41508	1993	16	2,600	0.281	24,000	620	29.66%	N/N	In situ test
ten District												
8	Kitsap Line (Phase 1)	499	20C6308-3	1963	8.625	35,770	0.188	46,000	750	24.88%	Yes	Expose and verify or replace caps on Sav-a-Valves
4	McCleary H.P. Line	150	79C6323	1963	4.5	225	0,156	24,000	No Test	9.01%	N/N	Line retired as part of gate replacement project in 2015
4	Montesano H.P. Distribution System	135	77C6321	1964	4.5	1,645	0.188	35,000	No Test	4.62%	N/A	In-service pressure test
9 2"1	Elma Rendering Plant H.P. Line	150	78C7902+1	1964	2.375	5,280	0.154	35,000	No Test	3.30%	V/N	Isolate and pressure test, replace upstream section
1 10	Time to UN TUP Time	100	18C7902-2	1964	4.5	252	0.156	24,000	No Test	9.01%	N/N	Replacement
1 1	DIMA (K.H.D.) H.P. UNE	81	21/2	1978	2375	1,307	0.154	35,000	001	2.20%	N/A	LOWINGIE TO IP USE EXISTING 1UU PRI LESS
Thin District	Astrap n.r. Une	665	44000	5661	51.12	34,782	0.312	22,000	1090	13.0176	Sal	Expose and versy or replace caps on para-varies
- B-	6.12" Remerton Transmission Line	000	Bremertoni 2,1	1301	8 676	2 242	1 192	22.000	760	27 6945	N/A	lo stri fest
4	Olympic View H.P. Line	499	20387	1973	45	14 540	0.189	42,000	150	14.22%	Yes	Replace pluzs on next valve maintenance
			2006316	1964	8.625	4 510	0.188	46.000	No Test	7.18%	N/A	
-	Bremerton H.P. Line	144	18522	1251	8.625	2,263	0.189	35,000	No Test	9.44%	N/A	In-service pressure test
Vernon Dis	trict											
8-8	Anarottes Transmission Line	52	T-TIALW	1957	8.625	102,813	0.123	24,000	No Test	34.41%	Yes	In situ test 11 miles, replace 9 miles, isolate and pressure test 8 of 11 miles the in situ tested, kower pressure on last 2.25 miles, expose and verify line stopper
AL .												fittings at V-3 valve station
			18191	1972	8.625	80	0.188	35,000	No Test	23.59%	V/N	Replacement
			11C1144-1	1957	8.625	8,134	0.128	24,000	No Test			The disconception of the A.V. accorded tood an encount has enclosed accorded in
-8	March Point Transmission Line	360	1101124.3	1001	0 616	014	0.360	1000 01	Mo Tast	14.44.74	VIN	In situ test, isolate and pressure test between vis and most reprint investor of in the test factors and measure test.
-			11/76/28	1961	8 635	385	0.198	24 000	No Test	20 61%	NIA	Replacement
-			MTVL3-1	1956	6.625	5.102	0.128	24,000	No Test	7.71%	NIA	Replacement
į,			MTM3/2	1956	8625	2675	0.188	74/00	No Test	10.04%	N/A	Replacement
			1101491	1958	2.375		0.154	24,000	No Test	3.37%	N/A	Retire
0	「「「「「「「」」」		11(2330	1959	2.375	02	0.154	24.000	No Test	3.37%	N/N	Retre
2 An	acortes H.P. Distribution System	105	11C2626	1959	2.375	127	0.154	24,000	No Test	3.37%	N/A	Replacement
			10860	1966	2.375	112	0.154	24,000	No Test	3.37%	N/A	Replacement
			14373	1968	2.375	1	0.154	35,000	100	231%	N/N	Retre
-			15973	1973	2.375	25	0.154	35,000	100	2.31%	N/N	Replacement
1 4"	Mount Vernon H.P. Une	250	MTVI4-1	1957	45	23,760	0.156	24 000	400	15.02%	N/A	In stu test
3-6	Burlington H.P. Une	249	211220	1957	3.5	5.769	0.156	24,000	No Test	11.64%	N/N	Replacement
	Marth Tarter Bill M. S. Lan.	100	11C2775	1960	2.375	914	0.154	24,000	No Test	8.03%	N/A	Replacement
	aun rah nu sexai inine	no.	29320	1981	2.375	83	0.154	35,000	100	5.51%	N/N	Replacement
- V - V	Arlington H.P. Line	249	Fish 18C4272	1961	4.5	10,177	0,156	24,000	No Test	14.96%	N/A	Replacement
4.4	Sedro-Woolley H.P. Line	100	14788	1968	4.5	1,880	0.185	35,000	No Test	3.42%	N/A	In-service pressure test
2 6	North Dak Harbor H.P. Line	400	17206	1972	6.625	19,048	0.183	42,000	675	16.78%	Yes	Expose and verify fittings replace if needed
15	Fredonia Transmission Line	8	30636 (1) (Transition Fittings and Elbows)	1983	15	54,426	0.281	52,000	750	\$9.30%	N/A	Expose and in situ test
10	March Point Transmission Line	200	40000 (Transition Fittings and Elbows)	1992	16	43,344	0.281	52,000	190	305.95	NIA	Expose and In sith test

Insufficient Test Pressure Rec

Post Code Missing Pre-

	2. Sea excent of the second se		and the second se	and the second se	Iabid	10 Aumman of	The Distribution and Irac	saninger rupelines				1,000,000,000,000,000,000,000,000,000,0
HP Line	HP Line Name	(Siso) (Diale)	HP Line Segment/WO Number	Year installed	Diameter (in.)	Length (FL.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	SYMS %	Under Rated Fitting Present	Action Plan
angriew L	District		Pre-CNGC-L1-1	1957	12.75	23,205	0.250	24,000	400	26.56%	N/A	Replacement
	THE OWNER AND A WORKSTOCKED AND A		Pre-CNGC-L1-2	1957	4.5	4,964	0.156	24,000	392	15.02%	N/A	Operate assuming most stringent criteria
	Longview-Kelso Transmission Segments and H.P.	250	82C8335-2	1965	2.375	521	0.154	24,000	No Test	8.03%	N/A	Replacement
	Distribution Line		82C8335-3	1965	4.5	152	0.156	24,000	No Test	15.02%	N/N	Replacement
			28621	1980	12.75	990	0.250	52,000	No Test	12.26%	N/A	Isolate and pressure test
2	4 <sup>-</sup> Kalama H.P. Line	300	24676	1976	4.5	8,234	0.188	35,000	No Test	10.26%	N/A	Replacement
~	4" Dike Road H.P. Line (Longview)	80	82C8335	1965	4.5	6,463	0.156	24,000	No Test	4.81%	N/A	Replacement
1	12" South Longview H.P. Line	499	43600 (1) (Transition Fittings)	1995	12.75	18,373	0.312	24,000	1080	42.50%	N/A	In situ test
			51820(1)	1996	8.625	2,049	0.332	46,000	750	8.47%	N/A	In situ test
	2" Falama Transmission I has	300	51820 (2)	1997	8.625	6,577	0.188	24,000	750	28.67%	N/N	In situ test
0	2017 HORSHICHPT PLIPAN 0	~	51820 (3)	1997	8.625	550	0.250	24,000	750	21.56%	N/A	In situ test
			51820 (4)	1997	8.625	550	0.250	46,000	750	11.25%	N/N	In situ test
rakima (Su	mryside) District											
	and envelope	1000	Fish-L1-1	1956	3.5	4,494	0.156	24,000	No Test	3.35%	N/A	Replacement
-	3" Sunnyside H.P. Line	200	15420	1969	3.5	42	0.156	24,000	150	9.35%	N/N	Replacement
			21440	1973	4.5	58	0.188	35,000	No Test	6.84%	N/A	Replacement
2	2" South Sunnyside H.P. Line	200	42C2530	1959	2.375	4,018	0.154	24,000	No Test	6.43%	N/A	Replacement
3	4" Grandview H P. Line	250	Fish-L2-1	1956	4.5	4,736	0.156	24,000	No Test	15.02%	N/N	Replacement occurred in 2015
			VakimaL4-1	1956	3.5	5,832	0.156	24,000	No Test	11.69%	N/N	Extend tine #13 to gate and R-1, retire line
4	3" Prosser H.P. Line	80	47c8256	1964	4.5	309	0.188	35,000	No Test	8.55%	N/A	Extend Line #13 to gate and R-1, retire line
-	6" Tonoenich-Zillah Transmission Line	400	YakimaL5-1	1956	6.625	32,566	0.188	24,000	No Test	29.37%	N/N	In situ test, in-service pressure test
	2" 7llah H P Line	400	fish-t6-1	1956	3.5	873	0.156	24,000	No Test	18.70%	N/A	Replacement
	A" Woosto H D Line	10	fich-17-1	1956	4.5	33.284	0.156	24,000	No Test	9.13%	N/A	In situ test, in-service pressure test
	The County Tomosonich II Di Tion	341	[[ch-] 8.1	1956	3.5	6.161	0.156	24,000	No Test	8.18%	N/N	Redacement
	a south toppensminut, the	24.1	Ech 10.1	1956	35	21 227	0.156	24,000	No Test	R 18%	MA	Renjsrement
0	5 Granger H.F. Une	110	1.0.101	A		1000						
rakima Dis	1161		396 - 966	1956	R 675	1017	0.188	20,000	No Test	19.12%		Realizement
			26 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1	1956	2635	505	0.500	24,000	No Test	7 10%		Reniarement
	8" Yakima H.P. Line	200	ANCASE7	1961	2675	4 891	0.188	24 000	350	19.12%	N/A	In situ test
			20375	1973	8.625	1.585	0.250	46,000	No Test	7.50%		Retire or isolate and pressure test
Menatchee	<ul> <li>Obtic</li> </ul>											
			Went1-1	1957	6.625	605	0.188	24,000	No Test	13.35%		Replacement
			Went1.2	1957	8.625	15.956	0.188	24,000	No Test	23.89%		Replacement
1	6" & 8" Moses Lake H.P. Line	250	79378	1981	8.625	30	0.188	35,000	No Test	16.38%	NA	Replacement
			60190	1981	4.5	2.041	0.156	24,000	375	15.02%		In stu test
	Contractions	2000	Went 2.2	1962	2375	2375	0.154	24,000	No Test	8.03%	Yes	Replacement
~	2* Wheeler H.P. Line	250	SRC5745	1962	2375	179	0.154	24,000	No Test	8.03%		Replacement
1			59c7038	1963	4.5	62,441	0.189	25,000	390	19,15%		Replace 1.82 miles, isolate and pressure test remainder of line
	4* Othello Transmission Segment and HP Uno	400	18998	1791	5.625	191	0.188	35,000	531	20.14%	44	UT for Wall thickness; if .188 replace, if greater isolate and pressure test
9	4" South Moses Lake H.P. Line	250	14455	1968	4.5	2,927	0.188	35,000	No Test	8.55%	N/N	Isolate and pressure test
12	6" Wenatchee H.P. Line	225	2912 fish	1956	6.625	31,812	0.183	24,000	No Test	16.52%	N/A	In situ test, in-service pressure test
Cennewick	District											
			0104176	1958	8.625	78,449	0.183	24,000	No Test	28.67%	Yes	
			54C2565	1959	2.375	2	0.154	24,000	No Test	9.64%	N/A	
	The second sector secto		14375 (1)	1968	8.625	49	0.188	35,000	No Test	19.66%	Yes	In situ testing, add second gate to loop system, isolate and pressure test, expose and
-	<b>8</b> "Attalia Transmission Line	300	14375 (2)	1968	12.75	183	0.250	35,000	No Test	21.86%	N/N	verify fittings and replace fittings if needed
			14375 (3)	1968	12.75	42	0.375	35,000	No Test	14.57%	N/A	
			14375 (4)	1968	57.77	9	0.330	35,000	ISAI ON	10.50%	V/N	
			14375 (5)	1968	12.75	111	0.250	27,000	NO LEST	14./1%	N/N	
1	d" Fact Finley H P Line	250	12614	1967	4.5	2,498	0.188	35,000	No Test	8.55%	N/A	Isolate and pressure test
-	and the former of the second of	1000	16256	1969	2.375	365	0.154	24,000	No lest	8.03%	V/N	Keplacement
4	Pasco H.P. Distribution System	300	Kennl4-1	1960		CJR'OT	0110	24,000	Not the	10.0374	4/2	isat rus ui
5	4" Northwest Pasco H.P. Line	300	(1)/6011	1900	C*	1.041	01.00	000°21	NO LON	40,4079		Isolate and pressure test
9	4" Glade Road H.P. Line	150	11097 (2)	1900	40	7007	0.153	000'SS	NO LEN	2,137	4/2	Isoute and pressure test
-	2" Burbank H.P. Line	158	TOS71	130/	210	105 61	Date:	000/02	Ain Tare	2000	ALM.	In our test industry and assesses to test
85	4" Finley H.P. Line	200	55(2527	1939	0.4	100'71	0110	36 000	NO1 ON	12 0010	A/M	In situ test, toolete and pressure test.
H	4" Phymouth H.P. Line	400	28141,00069144,28330	1980	4.5	9,114	0.100	non'ee	000	10,0078	Cat	rxboxe and venty munits replace in needed
Walla Wa	la District	160	L CLUBS	1956	2675	4 595	0.188	24 000	No Test	14 34%	N/A	In still tech in-service pressure tect
-	5 Wata Wata H.P. Une	120	T-TRAM	1006	36	VLV C	0.156	24 000	No Test	70162	AIM.	Refere
~	3 <sup>-</sup> College Place H.P. Line	1001	T-71MM	0667	C*C	610/2	N.4.00	Non-tra	Vical AN	NAME	w/w	Verte
								Consequences	Restaura and a street	A DECEMBER OF		
							Critical Missing In	formation	Post Code Missing Pr	essure test		

Insufficient Test Pr

#### Table 2 - Pipeline Segments Reclassified as Transmission

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Wall Thickness (in.)	Yield Strength (psi)	% SMYS
Bellingham Di	strict		1	1				
1	8" Bellingham Transmission Line	380	Line 1-1	1956	8.625	0.188	24,000	36.32%
2	8" Control Milateom Transmission Line	280	14c1314	1957	8.625	0.188	24,000	36.32%
3	8 Central Whatcom Transmission Line	380	40855 (Transition fittings)	1972	4.5	0.156	24,000	36.32%
21	16" Squalicum Transmission Segment	250	41508	1993	16	0.281	24,000	29.66%
Mount Vernor	n District				V. Starting		and the second second	
1 35	8" Appender HP Line	200	MTVL1-1	1957	8.625	0.188	24,000	34.4%
1	a Anacortes HP Line	360	18191	1972	8.625	0.188	35,000	23.6%
			11C1144	1957	8.625	0.188	24,000	34.4%
2	8" March Point H.P. Line	360	11C1144	1957	8.625	0.25	24,000	25.9%
			11C56.28	1963	8.625	0.188	24,000	34.4%
Longview Dist	rict	and the second second		and the second		and the second second		
1	Longview-Kelso H.P. Distribution Line	250	Pre-CNGC-L1-1	1957	12.75	0.25	24,000	26.6%
			51820(1)	1996	8.625	0.322	46,000	8.5%
0	8" Kalama H.D. Line	200	51820(2)	1997	8.625	0.188	24,000	28.7%
0	o Kalama H.P. Line	300	51820(3)	1997	8.625	0.25	24,000	21.6%
6 m	a second as a second	Call Sound Street	51820(4)	1997	8.625	0.25	46,000	11.3%
Yakima Distric	t (Sunnyside)	ALL STREET, ST			Stable 1	the state of the s	1	
5	6" Toppenish-Zillah H.P. Line	400	YakimaL5-1	1956	6.625	0.188	24,000	29.4%
Wenatchee Di	strict					and the second states	Carl Charles and	N
			WenL1-1	1957	6.625	0.188	24,000	18.4%
1	6" & 8" Moses Lake H.P. Line	250	WenL1-2	1957	8.625	0.188	24,000	23.9%
	the second s		60390	1981	4.5	0.156	24,000	15.0%
3	4" Othello Transmission Line	400	18998	1971	6.625	0.188	35,000	20.1%
Kennewick							and the second second	
			01C4776	1958	8.625	0.188	24,000	28.7%
			14375 (1)	1968	8.625	0.188	35,000	19.7%
1	R"Attalia H.B. Lina	200	14375 (2)	1968	12.75	0.25	35,000	21.9%
1	o Audia A.P. Line	300	14375 (3)	1968	12.75	0.375	35,000	14.6%
			14375 (4)	1968	12.75	0.33	35,000	16.6%
			14375 (5)	1968	12.75	0.25	52,000	14.7%

**Critical Missing Information** 

#### Table 3 - Branch Lines with Insufficient Data

HD Line #	HP Line Name	MAOR (pola)	B	ranch Segments
nr une ff		WIAOP (psig)	# HP Invalidated	# Transmission Invalidated
ellingham Di	strict			
5	4" South Everson H.P. Line	250	6	0
6	4" Ferndale H.P. Line	380	2	0
10	16" N. Whatcom Transmission Line	600	24	4
11	8" Kickerville Transmission Line	600	1	1
14	4"Blaine H:P. Line	250	4	0
15	4" South Sumas H.P. Line	170	1	0
17	10" Squalicum H.P. Line	380	1	0
18	20" Ferndale Transmission Line	600	2	0
19	20" Sumas Transmission Line	780	4	0
20	8" South Kickerville Transmission Line	380	1	0
22	4" & 6" Bay Road H.P. Line	150	3	0
23	4" West Ferndale H.P. Line	250	1	0
erdeen Dis	trict		•	
1	8" Kitsap Line	366/499	15	0
2	8" Grays Harbor H.P. Line	305	5	0
4	4" Elma H.P. Line	150	4	0
5	4" Shelton H.P. Line	155	10	0
6	6" Aberdeen H.P. Line	150	6	0
7	4" Montesano H.P. Line	305	2	0
10	4" South Elma H.P. Line	150	2	0
11	2" North Shelton H.P. Line	125	8	0
14	4" North Shelton H.P. Line	250	5	0
15	12" Kitsap HP Line	499	3	0
16	4" Satsop H.P. Line	305	1	0
emerton Di	strict			••••••••••••••••••••••••••••••••••••••
1	8" Kitsap Line	365/499	10	0
3	8" West Bremerton H.P. Line	250	10	0
4	4" Port Orchard H.P. Line	170	11	0
5	2" Belfair H.P. Line	499	1	0
6	4" Olympic View H.P. Line	499	3	0
7	8" North Kitsap H.P. Line	250	133	0
8	6" Port Orchard H.P. Loop Line	170	2	0
9	6" Bangor H.P. Line	250	1	0
12	6" North Bremerton H.P. Line	250	1	0

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#### Table 3 - Branch Lines with Insufficient Data

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	ND Line Name		B	ranch Segments
HP Line #	HP Line Name	MAOP (psig)	# HP Invalidated	# Transmission Invalidated
Mount Verno	n District			
9	4" La Conner H.P. Line	151	4	1. 1. <b>0</b> 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
11	6" Whidbey Island H.P. Line	400	17	0
15	6" Mount Vernon H.P. Line	250	1	0
16	16" March Point Transmission Line	500	1	0
19	4" South Anacortes H.P. Line	250	4	0
20	6" North Anacortes H.P. Line	105	2	0
21	6" South Mount Vernon H.P. Line	250	2	0
22	12" Anacortes H.P. Line (Phase 1)	500	7	0
23	4" South Texas Rd H.P. Line	500	2	0
Longview Dist	rict			
9	6" South Kalama H.P. Line	300	6	0
10	4" Woodland H.P. Line	150	5	0
Yakima (Sunn	yside) District			
10	2" Sunnyside H.P. Line	200	3	0
11	4" West Sunnyside H.P. Line	200	3	0
12	4" East Toppenish H.P. Line	400	1	алан алан алан айтаа
14	Sunnyside H.P. Distribution System	200	1	0
15	4" Sunnyside H.P. Line	200	3	0
Yakima Distri	t			A
2	4" Selah H.P. Line	250	3	0
3	4" Moxee H.P. Line	250	2	0
Wenatchee D	istrict			
4	6" Quincy H.P. Line	250	4	0
5	6" South Moses Lake H.P. Line	250	2	0
7	4" Wheeler H.P. Loop Line	250	7	0
8	Wheeler H.P. Distribution System	250	1	0
14	6"North Moses Lake H:P. Line	250	3	0
16	4" N Wheeler HP Line	250	1	0
Kenneiwck Di	strict		•	
	6"&8" Richland H.P. Line	250	13	0
12	4" Paterson H.P. Line	300	1	0
15	4" East Port of Pasco H.P. Line	300	3	0
17	6"& 8" North Richland H.P. Line	250	4	0
18	6" West Richland H.P. Line	250	2	0

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Table 4 - Pre-Code Pipelin	nes with Pressure Test
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HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig)
Bellinghan	n District										
9	8" Lake Terrell Rd Transmission Line	380	18734-1	1965	8.625	10,314	0.188	24,000	569	36.32%	419
Bremerto	n District										
2	8" & 12" Bremerton Transmission Line	499	BremertonL2-1	1963	8.625	2,843	0.188	24,000	750	47.69%	419
Mount Ve	rnon District										
4	4" Mount Vernon H.P. Line	250	MTVL4-1	1957	4.5	23,760	0.156	24,000	400	15.02%	399
Longview	District						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			-	
	Longview-Kelso Transmission Segments and H.P.	250	Pre-CNGC-L1-1	1957	12.75	23,205	0.250	24,000	400	26.56%	301
1	Distribution Line	250	Pre-CNGC-L1-2	1957	4.5	4,964	0.156	24,000	392	15.02%	499
Yakima Di	strict									-	
1	8" Yakima H.P. Line	200	40C4357	1961	8.625	4,891	0.188	24,000	350	19.12%	419
Kennewic	k District								2		
4	Pasco H.P. Distribution System	300	KennL4-1	1960	4.5	10.125	0.156	24,000	450	18.03%	499

Critical Missing Information

#### Table 5 - Pre-Code Pipelines without Pressure Test

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig)
Bellingham	District										
1	8" Bellingham Transmission Line	380	Line 1-1	1956	8.625	15,086	0.188	24,000	No Test	36.32%	419
			fish-1	1956	8.625	16,475	0.188	24,000	No Test	14.34%	335
			fish-2	1956	10.75	15,630	0.188	24,000	No Test	17.87%	269
			10c1315	1958	4.5	927	0.156	24,000	No Test	9.01%	399
		1000	10c1559	1958	4.5	520	0.156	24,000	No Test	9.01%	399
2	Bellingham H.P. Distribution System	150	10c3298	1960	4.5	1,448	0.156	24,000	No Test	9.01%	399
			10c4799	1962	2.375	221	0.154	24,000	No Test	4.82%	747
			10c5321	1963	2.375	1,505	0.154	24,000	No Test	4.82%	747
			10c9831	1966	2.375	1,309	0.154	24,000	No Test	4.82%	747
3	8" Central Whatcom Transmission Line	380	14c1314	1957	8.625	57,437	0.188	24,000	No Test	36.32%	419
4	4" South Lynden H.P. Line	250	Line 4-1	1961	4.5	35,441	0.156	24,000	No Test	15.02%	499
8	2" Nooksack H.P. Distribution System	250	16C7000	1963	2.375	732	0.154	24,000	No Test	8.03%	934
Aberdeen I	District	1									
		1992	79C6323	1963	4.5	225	0,156	24,000	No Test	9.01%	499
3	4" McCleary H.P. Line	150	78C7902-2	1964	4.5	252	0.156	24.000	No Test	9.01%	499
Mount Ver	non District										
1	8" Anacortes Transmission Line	360	MTVL1-1	1957	8.625	102.813	0.188	24,000	No Test	34.41%	419
			11C1144-1	1957	8.625	8,134	0.188	24,000	No Test	34.41%	419
2	8" March Point Transmission Line	360	11C1144-2	1957	8.625	814	0.250	24,000	No Test	25.88%	557
1925	n and the state of the second state of the sec		11C5628	1963	8.625	285	0.188	24,000	No Test	34.41%	419
			MTVI 3-1	1956	6.625	5 102	0.188	24.000	No Test	7.71%	545
			MTVL3-2	1956	8.625	4.675	0.188	24,000	No Test	10.04%	419
		1	11C1491	1958	2 375	3	0.154	24,000	No Test	3.37%	934
3	Anacortes H.P. Distribution System	105	11(2330	1959	2 375	70	0.154	24,000	No Test	3.37%	934
			11C2626	1959	2 375	127	0.154	24,000	No Test	3.37%	934
			09801	1966	2 375	112	0.154	24,000	No Test	3.37%	934
5	3" Burlington H.P. Line	249	211220	1957	3.5	5 769	0.156	24,000	No Test	11.64%	642
7	4" North Texas Rd H P. Line	250	1102775	1960	2 375	914	0.154	24,000	No Test	8.03%	934
8	4" Arlington H.P. Line	249	Fish 18C4272	1961	4.5	10 177	0.156	24 000	No Test	14.96%	499
Longview D	istrict		1.01 100 1212	1 1001		10,117	0.1250	2.1,000	1		
	Longview-Kelso Transmission Segments and H.P.	1	8208335-2	1965	2 375	521	0.154	24 000	No Test	8.03%	934
1	Distribution Line	250	82(8335-3	1965	45	152	0.156	24,000	No Test	15.02%	499
3	4" Dike Boad H P. Line (Longview)	80	82(8335	1965	4.5	6.453	0.156	24,000	No Test	4.81%	499
Yakima (Su	nyside) District	00	0200333	1505	4.5	0,405	0.150	24,000	No rest		
Tuking (bu	inforce protect	1	Fish-11-1	1956	3.5	4 494	0.156	24.000	No Test	9 35%	642
1	3" Sunnyside H.P. Line	200	15420	1950	3.5	4,434	0.156	24,000	150	9.35%	642
2	2" South Suppyside H.P. Line	200	4303530	1969	3.3	42	0.150	24,000	No Tert	5.33%	934
3	A" Grandview H.P. Line	250	4202330	1959	2.373	4,018	0.154	24,000	No Test	15 02%	499
4	3" Prosser H P Line	250	Vakimal 4.1	1950	4.5	4,/30	0.156	24,000	No Test	11 69%	642
5	6" Topponish-Zillah Transmission Line	250	Vakimat 5 1	1956	3.5	3,832	0,150	24,000	No Test	20 37%	545
6	3" Zillah H.D. Lino	400	fich IC 1	1956	0.025	32,500	0.188	24,000	No Test	19 700/	642
7	A" Wanata H D Line	400	1511-L0-1 C-L 17-4	1956	3.5	8/3	0.156	24,000	No Test	0 129/	100
0	4 wapato H.P. Line	152	1150-L/-1	1956	4.5	33,284	0.156	24,000	NO Test	9.13%	499
0	2" Cranges U.B. Line	1/5	1150-L0-1	1956	3.5	6,161	0.156	24,000	NO Test	0.18%	642
9	5 Granger H.P. Line	1/5	IISN-L9-1	1956	3.5	31,347	0.156	24,000	No lest	8.18%	642

Critical Missing Information

Insufficient Test Pressure Recorded

#### Table 5 - Pre-Code Pipelines without Pressure Test

HP Line #	HP Line Name	MAOP (psig)	HP Line Segment/WO Number	Year Installed	Diameter (in.)	Length (Ft.)	Wall Thickness (in.)	Yield Strength (psi)	Test Pressure (psig)	% SMYS	Design Pressure (psig)
Yakima Dist	trict		0		- A						
	Of Velime II O Line	200	Fish_968	1956	8.625	3,032	0,188	24,000	No Test	19.12%	419
1	8 Yakima H.P. Line	200	FISH_968_Lat_26	1956	8.625	695	0.500	24,000	No Test	7.19%	1113
Wenatchee	District										
	CH & ON Mason Lake U.D. Line	350	WenL1-1	1957	6.625	509	0.188	24,000	No Test	18.35%	545
1	6 & 8 Moses Lake H.P. Line	230	WenL1-2	1957	8.625	15,956	0.188	24,000	No Test	23.89%	419
-	all Wessler H. D. Han	350	WenL2-2	1962	2.375	2,375	0.154	24,000	No Test	8.03%	934
2	2 wheeler H.P. Line	250	58C5745	1962	2.375	179	0.154	24,000	No Test	8.03%	934
12	6" Wenatchee H.P. Line	225	2912 fish	1956	6.625	31,812	0.188	24,000	No Test	16.52%	545
Kennewick	District			2			and the second sec				
		200	01C4776	1958	8.625	78,449	0.188	24,000	No Test	28.67%	419
1	8 Attalia Transmission Line	300	54C2565	1959	2.375	2	0.154	24,000	No Test	9.64%	934
3	4" East Finley H.P. Line		16256	1969	2.375	365	0.154	24,000	No Test	8.03%	934
8	4" Finley H.P. Line	200	53C2527	1959	4.5	12,391	0.156	24,000	No Test	12.02%	499
Walla Walla	a District							the state of the s			
1	8" Walla Walla H.P. Line	150	WWL1-1	1956	8.625	4,595	0.188	24,000	No Test	14.34%	419
2	3" College Place H.P. Line	150	WWL2-1	1956	3.5	2,474	0.156	24,000	No Test	7.01%	642

**Critical Missing Information** 

Insufficient Test Pressure Recorded

HP Five #	HP Line Name	MAOP (psig	HP Line Segment/WO Number	Length (FL)	Action Plan Year.	ir Action Plan Begins	Year Action Plan Completed
lingham Di	strict						
-	18" Bellingham Transmission Une	380	Line 1-1	15,086	In situ test, isolate and pressure teit, replace section on James St.	2015	2017
			[fish-1	16,475	Replacement	2019	2022
			fish-2	15,630	Replacement	2019	2022
			10c1315	927	Replacement	2019	2022
		_	10c1559	\$20	Renlacement	2019	2022
			10-1298	1 448	Barlaroment	2010	CEUC
			0014101	145			
			1006231	1 COL	Deptember 1	6102	2202
			100001	and t		107	4044
			1002/41	2,350	Isolate and pressure test	2022	2022
4	beilingham H.P. Distribution System	150	10c9683	988	Replacement	2019	2022
			11480-1	1,577	Replacement	2019	2022
			11480-2	396	Replacement	2019	2022
			10c9831	1.309	Replacement	2019	2022
			13150	2026	Downrate to distribution reacture	2017	2012
			The car	110		Antes -	1000
					Le branchisetti	6407	2022
			7-19(07	113	Replacement	2019	2022
			20752	63	Replacement	2019	2022
			21298	12	Replacement	2019	2022
	at the second state and the second se	~~~~	14c1314	57,437	In situ test, isolate and pressure test	2017	2018
	<ol> <li>Central Whatcom Iransmission Une</li> </ol>	380	40855 (Transition fittines)	10.579	In situ test fittines	2018	2018
	14" South Lundan H P Lina	350	The A.1	35 441	In which there is consider another that	ALOF.	16.06
		3	167 2000	Test		1020	1202
	T Montrack U.O. Distribution Sustant	1004	2001000	101		1011	1007
		-	10010	131		5002	6207
			61502	490	in-service pressure test	2023	2023
-	81 Lake Terrell Kd Transmission Line	380	18/34-1	10,314	in situ test	2018	2018
10	16" N. Whatcom Transmission Line	600	18794	143,907	Expose and verify or replace plugs in vault	2016	2015
12	4" North Lynden H.P. Line	400	25773	8,161	Expose and verify or replace caps on Sav-a-Valves	2016	2015
21	16 <sup>e</sup> Squalicum Transmission Segment	250	41508	2,600	In stutest	2022	2022
deen Dist	vict						
-	8* Kitsap Line (Phase 1)	565	DOCE308-3	35 770	Frences and verify or renlace cane on Gauda Values	2016	2016
-	4" McCleany H.P. Line	150	7906333	225	I has retried as nort of externationant project in 2015.	3016	3015
	4" Montection H P. Distribution Settem	135	776431	1 645	Interview we pass of gave representation project in a set	1010	2019
			TAPATA -	Carly Carly		2007	1103
6	2* Elma Rendering Plant H.P. Line	150	1801207-1	097'0	Isolate and pressure test, replace upstream section	2020	0707
	20 10 10 10 10 10 10 10 10 10 10 10 10 10		180.1902-2	252	Replacement	2020	0702
71	17 DIMA (K.H.JU, H.P. UNP	BI	010	1,307	Downrate to IP use existing 100 psi test	2018	2013
15	12 <sup>-</sup> Kitsap H.P. Une	499	44000	34,782	Expose and verify or replace caps on Sav-a-Valves	2016	2016
ierton Dis	strict						
2	8" & 12" Bremerton Transmission Line	499	Bremerton12-1	2,843	in situ test	2016	2016
9	4" Olympic View H.P. Line	499	20387	14,540	Replace plugs on next valve maintenance	2016	2016
	Of Gramerton M D Tina		2006316	4,510	the interdest materials have	2024	2024
	O. DECIDENTIAL COLOR PROCESSION	ļ	18522	2,863	IL-MELACE DLESSING (ESY	2024	2024
ht Vernor	1 District						
					In situ test 11 miles, replace 9 miles, isolate and pressure test 8 of 11 miles that were		
	8" Ensempted Transmissions Line	360	I-TIVITM	102,813	In situ tested, lower pressure on last 2.25 miles, expose and verify line stopper		
		~			fittings at V-3 valve station	2016	2018
			18191	80	Replacement	2017	2017
			1101144-1	8,134	In situ test, isolate and pressure test between V-4 and R-89, replace north of R-89.	2016	2017
1	8 March Point Transmission Line	360	11C112A.2	214	In situ test indute and execute test	3016	1100
			11/06/39	200	Bank to represent which processes with	2012	1104
			trunna-1	C 101	Representation	1010	0000
				2/4/6	(representation)	ator	0202
		100	MINU-2	4,575	Replacement	2016	2020
			1101491	5	Ketire	2016	0707
•	Anacortes H.P. Distribution System	105	11C2330	20	Retire	2016	2020
			11C2626	127	Replacement	2016	2020
			09801	112	Replacement	2016	2020
		-	14373	-	Retire	2016	2020
			15974	36	Rentariant	2016	0202
4	4" Mount Vernon H P. Line	250	WTWA-1	32.760	inclusion of the fact	1000	LEUC
	The models account number	200	1-sources	13,180	10 2421 (254	1707	1707
~	3 punington M.P., Line	647	077117	5,769	Replacement	2016	2010
1	4" North Texas Rd H P. Line	250	11C2775	914	Replacement	2024	2024
		3	29320	83	Replacement	2024	2024
80	4" Arlington H.P. Line	249	Fish 18C4272	10.177	Renlacement	2021	2021
10	d" Cadon Woollau H B Lina	- WIL	117200	1 000	In samples associated tools	2010	2015
		3	100	1,004		5003	6202
-	6 NOTIN CAS MATURE M.P. LINE	400	17/06	17,040	Expose and verify fittings reprace in needed	107	/10/
14	16" Fredonia Transmission Line	200	30636 (1) (Transition Fittings and Elbows)	64,426	Expose and in situ test	2016	2016
16	16" March Point Transmission Line	500	40000 (Transition Fittings and Elbows)	43,344	Expose and in situ test	2016	2016

International         Internat	HP Une #	HP Line Name	MAOP (psig.	) HP Line Segment/WO Number	Length (FL)	Action Plan	Year Action Plan Begins	Year Action Pl
1         Decode(1) (above)         Macrosof(1) (above)         130 (above)         Macrosof(1) (above)         130 (above)         Macrosof(1) (above)         130 (above)         13	Lanman De							
1         Newskie/Amerikanie/Ameri	TOURSNEW DE	1000		Pre-CMGC-L1-1	23.205	Reclacement	2017	202
Index (AP)         Under (AP)					1000	Province more marked and and and and a set and a	2101	1000
1         Inductor         20         Control of the control	100	Longview-Kelto Transmission Segments and H.P.	100	PTE-LNUC-LL-2	4,304	Operate assumptions most subgent criteria	groz	9107
monoment	4	Pittells along time	8	8208335-2	275	Replacement	1102	1202
i         i		and the second s		82C8335-3	152	Replacement	2017	2021
				29621	065	itolate and pressure text	2021	1606
1         Contrasting lengent         0         Display lengent         0         Display lengent         Display lengen<		At Polynes M D 1 least	200	34676	A2C 9	Red transit	VCUC	VEUE
1         Valuation (note)         0         Control (note)         0         Control (note)         0         Control (note)         0         Control (note)         Contro (notro)         Contro (not (not (not (not (not (not (		at Pile Band D B The Descripted	00	01/0235	640	Dedicament	3000	3010
1         0		A DIAR FORD FLY, LINE (LUDISVERS)	400	ASCINITI (Trunciano Cistone)	1010	In contrast	2014	T101
1         1	-	12 South Longview N.P. Line	425	(country points and the second of the second	10,3/3	In sturiest	1102	107
Image: constraint of the				51820(1)	2,049	In situ test	2021	2021
i         cumulation          cumulation	•	OF Malance Tenenativelous Lines	300	(51820 (2)	6,577	In situ test	2021	2021
Interfact         Interfact <t< td=""><td>0</td><td>SUBTRICT THE STATE STATE</td><td>3</td><td>51820 (3)</td><td>550</td><td>In situ test</td><td>2021</td><td>2021</td></t<>	0	SUBTRICT THE STATE	3	51820 (3)	550	In situ test	2021	2021
Tuber letter i for the second of th				51820 (4)	550	In situ test	2021	2021
1         F <sup>1</sup> F <sup></sup>	Yakima (Suni	myside) District	1				10.	
1         1         1         1         1         0				Rebuild	4,494	Replacement	2023	2023
i         i		2* Connectide H D 1 Ine	200	UCEDI	63	Rentwarrant	2023	1000
1         Provincement less         000         0000	-	man ' and anteknine e		21111	101	hep-sector with	6949	6303
3         7         7         7         7         7         7         7         7         7         1				2.144U	00	heptacement	2013	5707
	2	2" South Sunnyside H.P. Line	200	42C2530	4,018	Replacement	2024	2024
6         7 Priority Luk         30         Conduction         20	E	4 <sup>-</sup> Grandview H.P. Une	250	Fish-L2-1	4,735	Replacement occurred in 2015	2015	2015
5         F values/interfactor         200         Fundamentalism         2001         Constrained         2001         Cons	V	2" Protest M D Line	250	YakimaL4-1	5,832	Extend Line #13 to gate and R-1, retire line	2022	2022
5         F (Transmonlate)         60         Dimensional (1)         200         Dimens		3 - 10380 Ure The	~~~~	47c8256	309	Extend line #13 to gate and R-1, retire line	2022	2022
F         F	5	6" Toppenish-Zillah Transmission Line	400	Yakimat5-1	32,566	In situ test, in-tervice pressure test	2019	2020
I         F	9	3" Zillah H.P. Line	400	fish-t6-1	873	Replacement	2021	2021
Image:	7	4" Wagato H.P. Line	152	fish-U7-1	33.284	In situ test. In-service pressure test	2023	2024
0         Production         133         Independent         133         Reference         201         Section         201         201         201           Arrow Internet         130         Find weat         133         Section         133         Reference         201         Section         201         201         Section         201         Section         201         Section         201         201         Section         201         Section         201         Section         201         Section         201         Section         201         201         Section         201		2ª Couch Tonomatch H D 1 act	175	6ub.12.1	1913	Berlitzenunt	VEUE	ACOC
Match Jusch         Constrained         Constrained <thconstrained< th=""> <thconstrained< th=""></thconstrained<></thconstrained<>		2ª Crosset & Tica	175	Behrlo.1	1327	Renjacement	9006	2020
International Internatinternational International International International		D DISTRIPTION TO DEST	617	There is a second s	incite .	Dispresentation,	604.0	6707
1         Projection (L), (L)         200         Representation (L)         201         2014         <	Taxima Distr	1		Pit ara	1001	0	a tran	1101
1         Frakmehrte         200         Construction         400         Construction         201				F30, 700	3/136		1202	4303
Image: control of the contro	F	8" Yakima H.P. Line	200	13H 300 LHL 20		NEPORTINGIA.	1202	1707
Interface         1.23				40C4357	4,891	in situ test	2021	2021
Mentatione Direct         Mental 1         529         Represent         521				20375	1,585	Retire or isolate and pressure test	2021	2021
1         1         0.00<	Wenatchee L	District						
1         F & F & Wonet Lute Hr, Lue         20         Num, Lot         1.9.56         Reducement         20.01         0.016 <th< td=""><td></td><td></td><td></td><td>Wentl-1</td><td>202</td><td>Replacement</td><td>2018</td><td>2018</td></th<>				Wentl-1	202	Replacement	2018	2018
1         6 4.5 Voter Late I/ Late         29         Between Early Late         201         Between Early Late         201         Between Early Late         201         Between Early Late         201	1 20	A REALT OF THE PARTY OF	1775	Went1-2	15.956	Replacement	2018	2015
i         i	-	6" & 8" Moses Late H.P. Line	22	124278	30	Rechtement	2018	2016
2         2.Very Netler U/L Use         2.00         0.00/12         0.00				60150	2041	lo stutest	0000	2020
2         1         Vindent N, Lue         20         Number A         100         Number A					1 110	burber and the second se	2020	2010
3         C 00000 Transmission Signature and ref tole         0.001         0.0010 Transmission Signature and ref tole         0.0010 Transmission Signater and ref tole         <	2	2" Wheeler H.P. Line	250	7-27UBAA	61677	replacement	5002	6707
3         C Onloady Transmission Segment and IPU (Inc. 1)         2001         200				58(2/45	513	Replacement	\$202	2025
		4" Othello Transmission Segment and HP Une	400	59c7038	62,441	Replace 1.82 miles, isolate and pressure test remainder of line	2023	2024
II         E. Sonni Monie Late M.F. Life         321         Distance and treatment entity         321         231         2				18993	161	UT for Wall thickness; If .165 replace, if greater isolate and pressure test	5707	2024
12         ("Wentcher U. Lue         23         532 (not methode in cher we presame test)         223 <th< td=""><td>9</td><td>4<sup>-</sup> South Moses Lake H.P. Line</td><td>250</td><td>14455</td><td>2,927</td><td>Isolate and pressure test</td><td>2017</td><td>2017</td></th<>	9	4 <sup>-</sup> South Moses Lake H.P. Line	250	14455	2,927	Isolate and pressure test	2017	2017
threaded District         District <thdistrict< th="">         District         District</thdistrict<>	12	6" Wenatchee H.P. Line	225	2912 fish	31,812	In situ test, in-service pressure test	2021	2022
I         Partial Transion Lie         Total Transion         Tatal Transion         Total Transion	Kennewick D	District			-			
Image: second				0104776	78,449		2018	2023
I         Foldual Transmittion Use         10         12/15/11         13         0.0000 Monthly and pricing and product and pricing relation and pressure test, reports and relation and relation and relation and relation and relation and relation and pressure test, response and relation and relat				54C2565	2		2018	2023
1         FARIAI Transmission Like         300         3137 (12)         313         213			1.245	14375 (1)	65	- In situ testine, add second gate to loop system, isolate and pressure test, expose and	2018	2023
i         Image: Second Field Process and Field Proc	1	8"Attalia Transmission Line	300	14375 (2)	183	-verify fittines and replace fittines if needed	2018	2023
Image: state				14375 (3)	42		2018	2023
3         F (a kThrhy IV, Like         243         Dotte and presume text         2018				14375 (4)	25		2018	2023
3         C fat/fink/11/e         250         1314         3 458         Joids and performances         2023				14375 (5)	111		2018	2023
v         Procession         Constraint		d' Fact Enter H. P. Line	250	12614	2,498	Isolate and pressure test	2023	2023
4         Prescherk/EnchendonSteine         300         Instruction         2.313         Instruction         2.323         Instruction         2.333		Same start & Sample &	1	16256	365	Replacement	2023	2023
5         4         Consent Naco IF, Lee         300         1317         2317         Consent Naco IF, Lee         300         3017         2011         2017         2011         2017         2011         2017         2011         2017         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         2011         <	4	Pasco H P., Distribution System	300	Kennt4-1	10,125	In situ test	2023	2023
6         F (adder hould FLue)         130         1207         1201         2017         2017           7         F (adder hould FLue)         130         1300         13.00         13.00         13.00         13.01	5	4" Northwest Pasco H.P. Line	300	11097 (1)	2,847	Isolate and pressure test	2017	2017
7         7	9	4" Glade Road H.P. Line	150	(11097 (2)	2,052	isolate and pressure test	2017	2017
Image: Critery H7 Line         200         33.213         Instantiate and pressure fresh         203         37.223         2033           11         P (Finery H7 Line         200         33.233         3.233         3033         3033           11         P (Finery H7 Line         200         33.233         3.233         3033         3033           11         P (Finery H7 Line         200         33.233         3.233         3033         3033           11         P (Finery H7 Line         300         3.233         3.233         3.033         3.033           11         P (Wint) H1 Line         3.03         3.033	1	2" Burbank H.P. Line	158	12301	3,520	In-service pressure test	2017	2017
11         FF Pinnouth RJ. Lue         400         28341,00003144, 28330         4.112         Expose and work fittings replace if needed         2017         2017         2017           Main Main Mark         Line         130         MM1-13         4.335         In true test, n-service pressure test         2020         2021 <td< td=""><td>83</td><td>4" Finley H.P. Line</td><td>200</td><td>53C2527</td><td>12,391</td><td>in situ test, isolate and pressure test</td><td>2022</td><td>2023</td></td<>	83	4" Finley H.P. Line	200	53C2527	12,391	in situ test, isolate and pressure test	2022	2023
Wate with 0 better         130         WM1-1         4.335         In true with memory of the mem	11	4" Plymouth H.P. Line	400	28141,00069144,28330	4,112	Expose and verify fittings replace if needed	2017	2017
1         18* Walla Walla Walla Malla HP, Line         150         IWW1-1         4,535         In star test, in-service pressure test         2020         2021	Walla Walla	District						
	1	8" Walla Walla H.P. Line	150	T-DWW	4,595	In situ test, in-service pressure test	2020	2021

## **APPENDIX N**

From: Ogden, Jeremy [mailto:Jeremy.Ogden@cngc.com]
Sent: Monday, June 06, 2016 11:36 AM
To: Ritter, Dennis (UTC) <<u>dritter@utc.wa.gov</u>>; Eutsey, Mike <<u>Mike.Eutsey@cngc.com</u>>
Cc: Sorensen, Renie <<u>Renie.Sorensen@cngc.com</u>>; Subsits, Joe (UTC) <<u>jsubsits@utc.wa.gov</u>>
Subject: RE: MAOP Validation HP Washington Pipelines-Data Request

Dennis:

Following is a table showing per district the total unvalidated mileage and total mileage of all pipelines operating at over 60 psig.

District	Total Unvalidated Mileage	Total Mileage
Aberdeen	15.01	85.14
Bellingham	62.73	105.51
Bremerton	4.69	65.58
Kennewick	22.12	53.34
Longview	13.75	24.67
Mt. Vernon	55.24	103.87
Walla Walla	1.34	2.28
Wenatchee	22.43	68.76
Yakima	25.37	50.52
Total	222.68	559.67

In the Bellingham, Longview, and Mt. Vernon districts, we are including the entire length of some pipelines, even though only a small portion ( $\approx$  100 ft) needs to be tested at fittings. Please let me know if you need anything else.

Jeremy

Jeremy Ogden, P.E. | Director, Engineering Services

Cascade Natural Gas Corporation A Subsidiary of MDU Resources Group, Inc. 8113 Grandridge Blvd, Kennewick, WA 99336 [office] 509.734.4509 [cell] 509.845.5485 [email] jeremy.ogden@cngc.com

## **APPENDIX O**

#### 49 C.F.R. § 192.619 – Maximum allowable operating pressure: Steel or plastic pipelines.

(Available at <a href="http://www.ecfr.gov/cgi-bin/text-idx?SID=83b75887d4585650101d7f09b0a91bfa&mc=true&node=se49.3.192\_1619&rgn=div8">http://www.ecfr.gov/cgi-bin/text-idx?SID=83b75887d4585650101d7f09b0a91bfa&mc=true&node=se49.3.192\_1619&rgn=div8</a>)

(a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following:

(1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part. However, for steel pipe in pipelines being converted under §192.14 or uprated under subpart K of this part, if any variable necessary to determine the design pressure under the design formula (§192.105) is unknown, one of the following pressures is to be used as design pressure:

(i) Eighty percent of the first test pressure that produces yield under section N5 of Appendix N of ASME B31.8 (incorporated by reference, see §192.7), reduced by the appropriate factor in paragraph (a)(2)(ii) of this section; or

- (ii) If the pipe is 12¼ inches (324 mm) or less in outside diameter and is not tested to yield under this paragraph, 200 p.s.i. (1379 kPa).
  - (2) The pressure obtained by dividing the pressure to which the segment was tested after construction as follows:
    - (i) For plastic pipe in all locations, the test pressure is divided by a factor of 1.5.

(ii) For steel pipe operated at 100 p.s.i. (689 kPa) gage or more, the test pressure is divided by a factor determined in accordance with the following table:

		Factors <sup>1</sup> , segment—	
Class location	Installed before (Nov. 12, 1970)	Installed after (Nov. 11, 1970)	Converted under §192.14
1	1.1	1.1	1.25
2	1.25	1.25	1.25
3	1.4	1.5	1.5
4	1.4	1.5	1.5

<sup>1</sup>For offshore segments installed, uprated or converted after July 31, 1977, that are not located on an offshore platform, the factor is 1.25. For segments installed, uprated or converted after July 31, 1977, that are located on an offshore platform or on a platform in inland navigable waters, including a pipe riser, the factor is 1.5.

(3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. This pressure restriction applies unless the segment was tested according to the requirements in paragraph (a)(2) of this section after the applicable date in the third column or the segment was uprated according to the requirements in subpart K of this part:

Pipeline segment	Pressure date	Test date
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—Onshore gathering line that first became subject to this part (other than §192.612) after April 13, 2006	March 15, 2006, or date line becomes subject to this part, whichever is later	5 years preceding applicable date in second column.
—Onshore transmission line that was a gathering line not subject to this part before March 15, 2006		
Offshore gathering lines	July 1, 1976	July 1, 1971.
All other pipelines	July 1, 1970	July 1, 1965.

(4) The pressure determined by the operator to be the maximum safe pressure after considering the history of the segment, particularly known corrosion and the actual operating pressure.

(b) No person may operate a segment to which paragraph (a)(4) of this section is applicable, unless over-pressure protective devices are installed on the segment in a manner that will prevent the maximum allowable operating pressure from being exceeded, in accordance with §192.195.

(c) The requirements on pressure restrictions in this section do not apply in the following instance. An operator may operate a segment of pipeline found to be in satisfactory condition, considering its operating and maintenance history, at the highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column of the table in paragraph (a)(3) of this section. An operator must still comply with §192.611.

(d) The operator of a pipeline segment of steel pipeline meeting the conditions prescribed in §192.620(b) may elect to operate the segment at a maximum allowable operating pressure determined under §192.620(a).

[35 FR 13257, Aug. 19, 1970]