City of
Enumclaw

DEPARTMENT OF PUBLIC WORKS

July 26, 1996

Washington Utilities & Transportation Commission
Steve McLellan, Executive Secretary
PO Box 47250
Olympia, WA 98504-7250

Subject: UG-960732 Waiver of MAOP requirements

Dear Mr. McLellan:

The City of Enumclaw respectfully requests a waiver of CFR 49 Part 192.619(a) from the Washington Utilities & Transportation Commission. Following is documentation in support of a waiver to the City of Enumclaw for the Maximum Allowable Operating Pressure (MAOP) requirements for both the high pressure distribution feeder and the towns intermediate pressure distribution system. The waiver for the regulations will be to establish MAOPs of 250 psig for the high pressure distribution main and 40 psig for the intermediate pressure systems.

The City of Enumclaw's high pressure distribution main runs from a tap off of Northwest Pipeline near Auburn, Washington to the White River bridge between Enumclaw and the City of Buckley (See map, Appendix A). The pipe is 14 miles in length, was installed in 1956 (See App C, page 2, I., A.), and operates at 12.6% Specified Minimum Yield Strength (SMYS). The pipe is 6 inches in diameter with a wall thickness of .188" and a yield strength of 35,000 psi. Since 1977, 13,000 feet of the pipeline has been replaced and the replaced pipe has an established MAOP of 350 psig. I believe the rest of the pipeline has an MAOP of 250 psig, however, documentation found to substantiate this MAOP has been insufficient. Appendix B, page 2, mentions a letter from Mr. Russell A. Matherne, which documents a test pressure of 400 psig, but this letter has not been found. Documentation for this test would set the MAOP at 266 psig. Records enclosed show that the pipeline has operated at 250 psig on May 1, 1975 (Appendix B, page 6), May 4, 1978 (Appendix C, page 1), and continually since October of 1977 when I began working for the City of Enumclaw.

The City of Enumclaw will continue to operate and maintain the pipeline as it has done for nearly 20 years at an operating pressure of 250 psig. Leak surveys have been conducted annually since 1978 and records for the past 3 years are included in Appendix D. The latest leak survey dated June, 1996 showed no leaks.

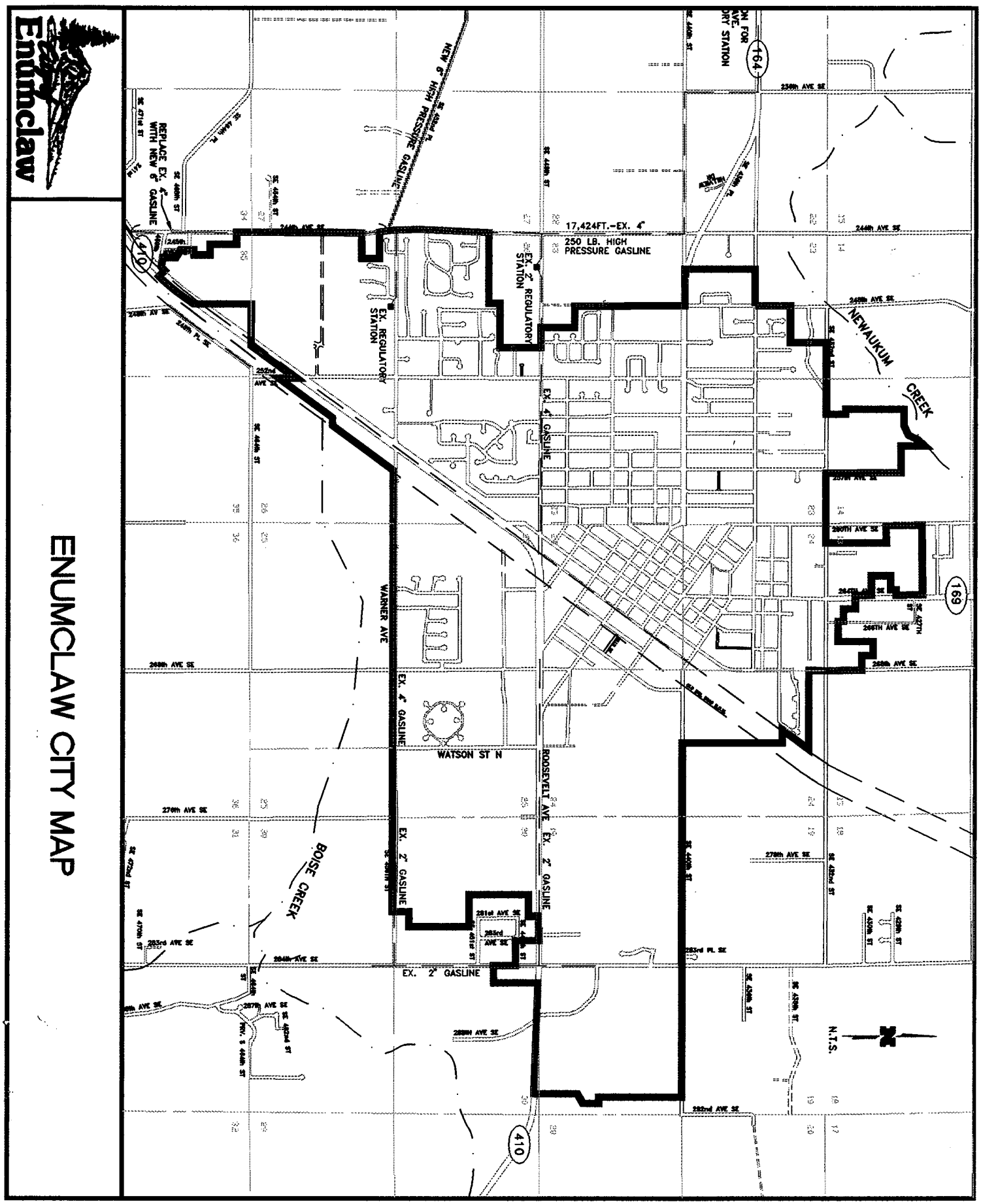
The 40 psig intermediate pressure distribution systems for the City of Enumclaw have operated at 40 psig ever since October of 1977. In the same manner, records are unavailable to document an MAOP of 40 psig. The entire system is being leak surveyed every 5 years with business districts being leak surveyed annually. Problems found are corrected promptly.

The waiver is needed to establish MAOPs that can otherwise only be established by shutting down the entire city to conduct pressure tests. Safety will not be compromised as a result of the waiver. The nearly 20 year documented operating history shows that the system can operate safely at MAOPs of 250 psig for the high pressure distribution main and 40 psig for the remaining distribution systems.

I respectfully request consideration for this waiver.
Sincerely,

Don Mosley
Gas Manager

2041 Railroad Street, Enumclaw, Washington 98022 • 206-825-5541 • FAX 206-825-3252


Enumclaw
ENUMCLAW CITY MAP
17,424FT.-EX. 4"
250 LB. HIGH PRESSURE GASLINE
NEW 6" HIGH PRESSURE GASLINE
REPLACE EX. 4" WITH NEW 6" GASLINE
EX. 2" REGULATORY STATION
EX. REGULATORY STATION
EX. 4" GASLINE
EX. 2" GASLINE
WARNER AVE
WATSON ST N
ROOSEVELT AVE
NEWAUKUM CREEK
BOISE CREEK
N.T.S.
164
169
410

TO Mr. R. A. Allen. Copy to Don Mosley 3-8-94
East - 328 Augusta
Spokane, Wa. 99207

FRO CITY OF ENUMCLAW
FIRE DEPARTMENT
Enumclaw, Wash. 98022
Ole Kay

SUBJECT Upgrading Enumclaw H.P. Fredericks DATE Dec 7. 1972

MESSAGE Dear. Ray.

Enclosing copy of Upgrading plan. Would appreciate you looking it over & your Comments, Mr. Duke Mowbry made a field check and approved Heath people starting a heat survey to-day. The state school visit & fire test one boiler the 11th. Dec. 1972

SIGNED Sincerely Yours Ole

REPLY

See attached letter.

Ray.

4-16-93 FAX 206-825-3252 copy of this note to Don Mosley
3-7-94 Copy to Don

SIGNED

DATE 12/11/72

Rediforms 4S 472 SEND PARTS 1 AND 3 WITH CARBON INTACT - PART 3 WILL BE RETURNED WITH REPLY.

1972 Enumclaw [illegible]

APPENDIX B

CITY OF ENUMCLAW

Utilities

GAS DIVISION

Enumclaw, Washington

November 28, 1972

ENUMCLAW GAS SYSTEM
Uprating High Pressure Feeder From 175# to 350#

Recommended items for uprating the 14 miles 6" and 4" high pressure feeder.

1. Make a new map or bring up to date the high pressure feeder drawing, sheet 2, to show all sectionalizing valves, tap valves ahead of district regulators and connected mains to the feeder. Distribution of intermediate pressure mains should be removed from this sheet.
2. Prepare a list of services connected to main feeder. This has been completed.
3. Prepare a list of district regulator stations and indicate uprating requirements at each.
4. List the odorizer and pressure rating.
5. Review adequacy of pipeling signs along the pipeline right-of-way.

Mr. Ray Allen, P. E. (consulting engineer) advises it will be necessary to increase the feeder line pressure to 350# in order to take care of our expected additional load in future years and to supply Rainier State School in Buckley, Washington with enough gas to handle its expected load requirements.

In order for Enumclaw to increase the MAOP for this system we shall be required to meet the requirements of Subpart K - uprating of CFR 49 part 192 of the federal regulations pertaining to gas pipeline safety. Attention is directed to Sections 192.551, 192.553 and 192.557 of Subpart K. Section 192.551 (c) requires a written plan.

192.553(c)

In view of the absence of reliable "as built" data, it was necessary to do some research.

HARBART CONSTRUCTION COMPANY was the contractor and PORTER, BARRY and ASSOCIATES were the consulting engineers. PORTER, BARRY and ASSOCIATES are now listed as SIMMONS J. BARRY and ASSOCIATES, P. O. Box 1708, Baton Rouge, Louisana 70821.

could be used to certify main at $\frac{400 psi}{1.5} = 266 psi$

A letter from Mr. Russell A. Matherne, associate of SIMMONS J. BARRY and ASSOCIATES, states the line was tested at 400# P.S.I. before acceptance. However, certain equipment such as the odorizer is rated at a lesser pressure. These would have to be changed to operate above 175#. This letter is filed with SIMMONS J. BARRY and ASSOCIATES in the office of Manager for the City of Enumclaw, Gas Division.

The odorizer: Serial #227, Model 4-B-500 psig. Purchased and built by King Tool Company, Longview, Texas. Hydrostatic tested 750 psig, inspected by Glenn D. Parker who is employed by Hartford Steam Boiler Inspection and Insurance Company of Hartford, Connecticut, Commissions National Board No. 4736. Data and information filed under Odorizer (Enumclaw Gas Department office). Installed and placed in operation on November 16, 1972 work order #118.

3. Prepare a list of district regulator stations and indicate uprating requirements at each.
4. List the odorizer and pressure rating.
5. Review adequacy of pipeling signs along the pipeline right-of-way.

(Uprating High Pressure Feeder Line) continued

As directed by Washington Utilities Transportation Commission, Sections of 4" and 6" high pressure line pipe were cut out and taken to Northwest Laboratories (applied industrial research) Staff Affiliations A.S.T.M. - A.C.S. - A.I.C.H.E. - A.C.I. - A.S.M. - A.O.C.S. - A.M.E. - N.S.P.E. 200 James Street, Seattle, Washington 98104. Telephone MA2-0680.

1. Identification: 6" High Pressure Main - welded. Hydrostatic Pressure Test - Lab #D6854. Maximum Load - 2500 psig. Nature of failure - small leak at edge of girth seam. Bend test of pipe material, bent flat on itself; no cracks. Pipe wall thickness - 6". - 0.188 - W.O. #075.

2. Identification: #305 - 4" Nordstrom Valve installed - W.O. #038. Section 4" High Pressure Gas Main - welding test procedure: Applied hydrostatic load 5,000 psi internal air pressure. Test results: Swelling - no failure.

3. All known service connections at main with saddle and threaded Mueller tap were removed and the pipe repaired with Smith and clamp and a steel cap welded in place and a new Mueller Punch Tee welded to main and retapped. W.O. #126.

4. Regulator stations to be connected to comply with MAOP (maximum allowable operating pressure) starting with Academy Station #1 coming to Enumclaw.

Description of work and work order numbers:

#1 Academy Station - W.O. #92
Highway Enumclaw to Auburn and Academy Drive. Build 6" manifold. Install 6 (six) #305 Nordstrom valves. Install 300# flanges. Install 1-461-57S - 2" 250# flanged 575# maximum working pressure. Install 1 - #8310 - 20 - 2" 250# 575# maximum working pressure as by-pass regulator. 2" - 257-S relief valve has sufficient capasity 210,000 C.F.H. per hour when set at 60#.

11/16" valve = 182 MCF single = 118
1" valve = 364 MCF single = 236 MCF

180,000 " - " @ 50
150,000 @ 40
120,000 @ 30

#2 Station
At Enumclaw Highway and 228th is o.k. 300# flanges, #305 valves, 620 fisher regs, 650 R relief.

#3 Roosevelt Gate Station - W.O. #131
Installed upstream of present regulators, 2 Fisher 2" type 99 with 250 Fi-Ci body. 7/8" 10-65# psi pilot operated regulators having the flowing characteristics:
O.K. Flow= 188,000 CFH at P1=350, P2=45 psi. Max flow=255,000 CFH at P1=350, P2=65 psi.
Max. flow for outlet press. 1/2# to 10# is 188,000 CFH
Install 3" Fisher type 63FV - 6315 pilot operated 125# O.K. flange CI relief valve to pass 372,000 CFH, p1 of 65 psi.
W.O. #132 Station #3 - Install 1-3" Nordstrom Valve under 3" Fisher type 63 FV - 6315 pilot operated relief valve.

#4 Regulator Station Southwood School Has a 1"-150# union.
Installed Rockwell 2" #461-57S with V-parts. 2" 257-S relief valve currently in service have sufficient capacity - 210000 C.F.H. when set at 60#.

(Uprating High Pressure Feeder From 175# to 350#) continued

SUBPART K - UPRATING REQUIREMENT (O.P.S.)

192.553 - General Requirements:

(a) Pressure increases.
Whenever the requirements of this subpart require that an increase in operating pressure be made in increments, the pressure must be increased gradually, at a rate that can be controlled and in accordance with the following:

(1) At the end of each incremental increase, the pressure must be held constant while the entire segment of pipeline that is affected is checked for leaks.

(2) Each leak detected must be repaired before a further pressure increase is made, except that a leak determined not to be potentially hazardous need not be repaired if it is monitored during the pressure increase and it does not become potentially hazardous.

(b) Records.
Each operator who uprates a segment of pipeline shall retain for the life of the segment a record of each investigation required by this subpart, of all work performed, and of each pressure test conducted in connection with the uprating.

(c) Written plan.
Each operator who uprates a segment of pipeline shall establish a written procedure that will insure that each applicable requirement of this subpart is complied with.

TEST PROCEDURE

HEATH CONSULTANTS, INCORPORATED, 100 Tosoa Drive, Stoughton, Mass. 02072 have been contracted to run the leak survey at the end of each increment. Four (4) increases in pressure of 43.3 # p.s.i. per increment will be necessary to increase the pressure from 175# psi to 350# psi. Gas uprating data sheets will be filled in at the end of each increase. Records of leaks and the repairs shall be on file in the office of the Superintendent of Gas Division, City of Enumclaw.

43.6

D. W. Gray
Superintendent, Gas Division
Enumclaw, Washington 98022

APPENDIX B

CITY OF ENUMCLAW

Utilities

GAS DIVISION

Enumclaw, Washington

December 15, 1972

Mr. George Peppin
Salt Lake Dispatch
315 East Second So.
Salt Lake City, Utah

Dear Sir:

Please be advised we wish to increase H. P. line pressure to 350#. Three hundred and fifty pounds was recommended by Mr. Ray Allen, P. E. of Washington Water Power. Mr. Allen did the engineering work for the town of Buckley.

Mr. Allen recommended this amount to take care of the State School and the additional load we could expect to have for some time. However, I feel for the present time it would be best to increase only the amount sufficient to handle the additional load. I feel we should wait until next summer before increasing the pressure to 350#.

Buckley plans to fire the second boiler next week sometime.

Thank you, George, and I wish you and your family a Merry Christmas and Happy Holidays.

Sincerely yours,

Dale W. Gray

DALE W. GRAY
Superintendent, Gas Division
City of Enumclaw

DWG/sc

CITY OF ENUMCLAW

Utilities

GAS DIVISION

Enumclaw, Washington

May 1, 1975

Mr. George Peppin
P.O. Box 1526
Salt Lake City, UT 84110

Dear George:

This is to request reducing the pressure at the Enumclaw Gate to read from 250 psi to 200 psi.

I hope this finds you enjoying the best of health. If you get up this way stop in and see us.

Sincerely,

Dale W. Gray

Dale W. Gray, Manager
Enumclaw Gas Division

DWG:re

5/5/75 Notified Cecil Jones of Telephone, requested that he handle it from this Pint

Notified C M. Turner, he had no objections

APPENDIX C

RTHWEST PIPELINE CORPORATIC

Memorandum

6240-78-47

To: J. L. Martin **Date:** May 4, 1978

From: R. F. Dickinson

Subject: Enumclaw Sales Meter Station

The maximum allowable operating pressure at the Enumclaw Meter Station is 175# psig. The delivery pressure is 250# psig.

Federal and company regulations prohibit any facility to operate at a pressure higher than the established MAOP. To comply with these regulations the delivery pressure must be lowered not to exceed 175# psig or the station must be uprated.

kbk:pp

file: 537
Reading file

Ron.

Take care of this. Call Jim Smith or Don Jenks, get uprating procedure started

Jim

Called Jim Smith 5-10 sent copy to him 5-11.

Ron

UPRATING STUDY FOR ENUMCLAW SALES METER STATION

By: J. W. Smith
Codes and Standards

PURPOSE

To comply with company and Federal regulations, this study has been undertaken to determine the requirements with respect to uprating as set forth in Title 49 CFR Part 192 and to establish a written uprating study and procedure for the Enumclaw Meter Station.

SCOPE

This study encompasses NWP piping and components carrying customer gas downstream of the 2" valves on the inlet side of the pressure reducing regulators. This study does not include appurtenances to the meter station such as pilot control regulators, control lines, pneumatic controllers or telemetry equipment. Also, this study does not include design considerations affected by upgrading, such as relief valve or regulator capacity or meter rangibility.

CONCLUSION

A review of the station components reveals that it was designed and tested for an MAOP of 720 psig. However, it can only be uprated to less than 618 psig (30% SMYS) without retesting, provided the customer does likewise. It is recognized that the current delivery pressure exceeds that of the M.A.O.P. and is therefore not in compliance with Federal Regulations. To preclude continued situations of non-compliance, the M.A.O.P. of this facility should be increased to that of the customers facilities but must be increased to 250 psig.

Increased M.A.O.P. can be established by implementing incremental increases in accordance with the provisions of Federal Regulations Part 192 Section 553 and 557. The requirements of these sections include:

1. A written review of the design, operating and maintenance history of the facility prior to uprating.

2. A written procedure to ensure compliance with uprating requirements prior to uprating.

A written review and procedure is as follows:

I. Review of Design, Operating and Maintenance History.

A. General

This station was placed in service for delivery to the City of Enumclaw in 1956. It was rebuilt from single to dual 3" orifice meter runs in 1965 and to dual 4" meter runs with a new sound reducing header in 1972.

B. Class Location

This facility is a Class 1 location with a design factor (f) of F = 0.50.

C. Piping and Components

1. The major pressure limiting components are Class 300 ANSI - rated fittings.

2. The station is composed of 1", 2", 4", 8", and 12" nominal piping. The highest stress after uprating would be in the 12" noise reduction header. This header would operate at 12% of SMYS at 250 psig and 618 psig would produce a hoop stress of 30% SMYS.

D. Testing

On June 6, 1972 the station piping was tested with nitrogen from the 2" plug valves downstream of the regulators to the 4" plug valve on the station outlet. Test pressure was 1093 psig for a duration of 8 hours. As this test did not include the piping between the regulator valves nor the piping immediately downstream of the station outlet valve to the customer, it can not be considered complete or valid.

E. Failure

In February 1972 a crack developed in a weld saddle at the branch connection between the first meter run and the 8-inch header as a result of a construction defect. The header and meter runs were replaced.

F. Corrosion History

The piping downstream of the regulators is above ground. No corrosion problems are recorded for this station.

G. Pressure

The MAOP for this facility downstream of the pressure reducing regulators is 175 psig established under Federal Regulations CFR Section 192.619(c) on Jan. 9, 1970. The current delivery pressure is 250 psig and the contract pressure is 150 psig.

II. Uprating Procedure

A. Prior to Making Any Pressure Increase

1. Review the design and pressure ratings of appurtenances to the meter station such as pilot regulators, telemetry equipment and control tubing.

2. Review and determine regulator and relief capacity under the uprated pressure conditions.

3. If the facility has not been leak surveyed within the past year, a leak survey will be required.

4. Visually inspect the aboveground piping for damages or deterioration. Repair or replace all damaged or deteriorated components.

5. Review with City of Enumclaw Gas Division the procedures prepared by City of Enumclaw and NWP for the uprating. Coordinate all uprating work with City of Enumclaw, Gas Division.

6. During the course of the work, prepare a written log giving time and a complete description of all action taken in carrying out each step of the above procedures.

B. Increasing Pressure

1. The pressure increase must be made in increments that are equal to 10 psig or 25 percent of the total pressure increase, whichever produces fewer number of increments.

2. Each incremental increase shall be made at a gradual and controlled rate.

3. At the end of each incremental increase, the facility shall be surveyed for leaks using leak detector equipment while the pressure remains constant.

4. Each leak discovered during the uprating must be repaired before further pressure increases are made unless it is determined that the leak is not potentially hazardous.

5. Each leak not repaired during uprating must be monitored during subsequent pressure increases to determine that it does not become potentially hazardous.

6. A chronological log covered all action and events of the uprating shall be prepared.

7. A copy of all uprating records shall be transmitted to the Codes and Standards section where they shall be retained for the life of the facility in the Engineering Facility File.

APPENDIX C

NORTHWEST PIPELINE CORPORATION

MEMORANDUM

Date: May 28,1980 No.:

To: D. Opheikens
Dept.: Methods & Procedures
Mail Stop. SBA04

From: F. Meininger
Dept.: Redmond
Mail Stop: RED
Phone:

Subject: Raise Delivery Pressure of Enumclaw Meter Station

Concerning the raising of the delivery pressure at our Enumclaw Meter Station from 175 # to 250 #

The pressure was raised at 15 lbs. incruments and a soap test was done at that time, as well as checking the piping from our station to our customers regulater station. This same procedure was followed untill we reached the 250 lb. delivery pressure.

FM:dh

File

APPENDIX D

Leak Surveys

CITY OF E LAW

GAS DEPARTMENT

Surface Sampling Program

Sheet No. ____ of ____ Sheets (for one survey day only)

☐ Leak Plotter Survey ☒ "Detecto-Pak" Survey ☐ Leak Plotter Patrol

6, 12-13-17-18-96
Date

14 miles of H.P. line
Daily footage and miles surveyed

Consultant-in-Charge

Greg Whilton, Terry Frye, Bill Strichartz
Technician

Emmaus
Name of Gas Co.

Emmaus
City or Town

District

NO.	ADDRESS	PRESS. H I L	CLASSIFICATION	COVER S or P	Location and Remarks	Date of Repair
	from Auburn TAP station to White River bridge				no leaks found	

2814-A-71-68008

CITY OF E. LAW

GAS DEPARTMENT

Surface Sampling Program

Sheet No. 1 of ____ Sheets (for one survey day only)

☐ Leak Plotter Survey ☒ "Detecto-Pak" Survey ☐ Leak Plotter Patrol

Aug 23, 1995 — Date

Daily footage and miles surveyed

Consultant-in-Charge

City of Enumclaw — Name of Gas Co.

Enumclaw — City or Town

District

Technician

NU	ADDRESS	PRESS. H I L	CLASSIFICATION	COVER S or P	Location and Remarks	Date of Repair
1	20613 - 436 ½		2		Nipple to Reg at Farm Tap. New Nipple & Union	8-23-95
2	21207 436	I	3		Loose union @ F/T	9-7-95
3	39406 432	I	3		Loose union @ F/T	9-7-95
4	38924 Anb. Enum. Hwy	I	3		Loose union @ F/T	9-7-95
5	38334 Anb. Enum Hwy	I	3		Loose union @ F/T	9-7-95
6	21416 SE 436 ST	I&H	3		Loose union Valve, Coup. Nip @ F/T	9-7-95
7	46919 244th	H	2		Gasket leaking in 4" HP Valve, Hired Pipline Co to Remove	9-20-95

2014-4-71-60005

CITY OF E. LAW

GAS DEPARTMENT

Surface Sampling Program

Sheet No. ____ of ____ Sheets (for one survey day only) ☐ Leak Plotter Survey ☐ "Detecto-Pak" Survey ☐ Leak Plotter Patrol

High pressure Walked March 15, 16, 17, 18 1994
Date — Daily footage and miles surveyed

Enumclaw
Name of Gas Co.

Enumclaw
City or Town

District

Jeff Craig
Technician — Consultant-in-Charge

NO.	ADDRESS	PRESS. H I L	CLASSI-FICATION	COVER S or P	Location and Remarks	Date of Repair
1	45712 244th	H	3		Union leaking on farm Tap	3-15-94
2	46618 244th	H	2	P	Butt weld leak at slag Pocket of 4" HP GAS MAIN 8' North from 46618 244th TAP	4-20-94
3	228' North of 45317 ~~farm Tap~~ 244th farm tap	H	2	P	Butt weld leaking on top of 6" HP GAS MAIN	5-26-94