

Exhibit No. ___(RP-1T)
Docket No. UG-17___
Witness: Ryan Privratsky

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,
Complainant,

v.

CASCADE NATURAL GAS
CORPORATION,
Respondent.

DOCKET UG-17_____

**CASCADE NATURAL GAS CORPORATION
DIRECT TESTIMONY OF RYAN PRIVRATSKY**

July 31, 2017

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I. INTRODUCTION

1 **Q. Please state your name, business address, and present position with Cascade**
2 **Natural Gas Corporation (“Cascade” or the “Company”).**

3 A. My name is Ryan Privratsky and my business address is 8113 W. Grandridge Blvd.,
4 Kennewick, WA 99336. I am the Director of System Integrity for Cascade, a wholly-
5 owned subsidiary of Montana Dakota Utilities Resources Group, Inc. (“MDU
6 Resources”).

7 **Q. Would you briefly describe your duties?**

8 A. Yes. I am responsible for all aspects of engineering, design, and development of the
9 Company’s Transmission Integrity Management Program (“TIMP”) and Distribution
10 Integrity Management Program (“DIMP”). Additionally, I am responsible for directing,
11 coordinating, and exercising functional authority for planning, organization, control,
12 integration and completion of major projects needed to support all aspects of integrity
13 management including DIMP, TIMP, and MAOP validation.

14 **Q. Please briefly describe your educational background and professional experience.**

15 A. I have over ten years of experience working between engineering and operations in the
16 natural gas industry, with previous experience working as a Pipeline Engineer at WBI
17 Energy. I have a Bachelor of Science Degree in Civil Engineering from Montana State
18 University, and am a licensed Professional Engineer in the State of Washington.

19 **Q. Have you previously written or presented testimony before the Washington Utilities**
20 **and Transportation Commission (“Commission”) or any other commission?**

21 A. No.

22 **Q. What is the purpose of your testimony?**

23 A. The purpose of my testimony is to describe the work Cascade is undertaking to document
24 the basis of the maximum allowable operating pressure (“MAOP”) for all high pressure

1 and transmission pipeline segments, as set forth in the Settlement Agreement between
2 Cascade and the Commission’s Pipeline Safety Staff in Docket No. PG-150120 (“MAOP
3 Settlement Agreement”).¹ I will discuss the timelines for the work and the progress
4 Cascade has made toward compliance with the MAOP Settlement Agreement. Also, I
5 will provide a detailed summary of the third-party costs incurred to date, which Cascade
6 is deferring pursuant to the Accounting Petition in Docket No. UG-160787. The prefiled
7 direct testimony of Mr. Eric Martuscelli describes in more detail the events leading up to
8 execution of the MAOP Settlement Agreement and the benefits that result from the work
9 performed pursuant to the MAOP Settlement Agreement. The prefiled direct testimony
10 of Mr. Michael P. Parvinen addresses recovery of these costs.

II. STATUS OF WORK UNDER THE MAOP SETTLEMENT AGREEMENT

11 **Q. Would you please describe the work that is currently underway as part of the**
12 **MAOP Settlement Agreement?**

13 A. Yes. Work has been ongoing for approximately one year to document the basis for
14 MAOP validation for high-pressure and transmission pipeline segments operating above
15 60 psig, consistent with the MAOP Settlement Agreement, and to put in place risk
16 reduction measures while the MAOP validation takes place. The work can be grouped
17 into the following categories:

- 18
- 19 (1) Performing work to document the basis for validation of MAOP on the
20 116 segments Cascade identified as missing some critical information
21 necessary to document MAOP;
 - 22
 - 23 (2) Conducting records review of all remaining pipelines operating above 60
24 psig to determine if critical information is missing to validate MAOP on
25 those high pressure segments;
 - 26
 - 27 (3) Developing a plan to address validation of additional segments identified
28 in the records review;

¹ *Wash. Utils. & Transp. Comm’n v. Cascade Natural Gas Corp.*, Docket PG-150120, Settlement Agreement (Dec. 15, 2016) (hereinafter “MAOP Settlement Agreement”).

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- (4) Leak surveying unvalidated pipeline segments with specified minimum yield strength (“SMYS”) of 20 percent or greater four times annually;
- (5) Maintaining pressure reduction of 20 percent for all pipeline segments with low frequency seam welds or unknown seam types with preliminary SMYS calculations of over 30 percent; and
- (6) Incorporating line segments calculated at greater than 20 percent SMYS into Cascade’s TIMP.

Additionally, Cascade has agreed to certain commitments related to the American Petroleum Institute Recommended Practice 1173, Pipeline Safety Management Systems. That work is addressed in the prefiled direct testimony of Eric Martuscelli.

Q. Please describe the work that is taking place to validate the MAOP for the 116 identified segments lacking some critical information.

A. Cascade has identified 116 pipeline segments missing some critical information necessary for documenting the basis for validation of MAOP, and Cascade is working diligently to validate the MAOP of these pipelines. Cascade is currently using a variety of methods to validate the MAOP. The methods include non-destructive testing, pressure testing, and pipe replacement.

The first method, conducting non-destructive or in-situ testing, is a method where a pipe segment is excavated, pipeline coating is removed, and an in-situ test is performed to measure material properties of a pipe segment in place, without having to remove the pipe from service to perform destructive testing. Some key mechanical properties obtained from in-situ testing include yield strength, uniform ductility, ultimate strength, and fracture toughness. In-situ testing allows Cascade to obtain critical pipe information for MAOP without having to make assumptions to calculate the pipe design pressure. Testing also provides additional material properties for a pipe segment which are useful in determining fracture mechanics of the pipe. In some cases, in-situ testing is required to obtain pipe material information to determine if a pipeline segment can be pressure

1 tested safely. Cascade is utilizing ABI Services to perform the material testing, Das-Co
2 to perform the excavations, and Parametrix to perform overall project management and
3 data analysis. Cascade has been able to accelerate its MAOP validation work for the 116
4 pipeline segments from ten years to seven years due, in large part, to the use of in-situ
5 testing.

6 The second method used to validate MAOP is pressure testing. Pressure testing is
7 required to determine if the strength of the materials making up a pipe segment are strong
8 enough to be able to operate at a given MAOP and to discover any hazardous leaks that
9 may exist. Pressure testing is required to validate MAOP if a pipe segment is missing a
10 documented pressure test and the MAOP cannot be established through any other
11 methods. Pressure testing requires Cascade to remove the pipe segment from service and
12 conduct a pressure test, per the requirements outlined in 49 CFR Part 192.503 – 192.513.
13 If a pipe segment fails the strength test, the reason for the failed test is pinpointed and
14 remediated and the pressure test is performed again until a successful test is completed.
15 Pressure testing an existing pipe segment presents many different challenges, one of the
16 major challenges being able to maintain service to customers during the test. To maintain
17 service to customers, Cascade uses liquefied natural gas or compressed natural gas, and
18 in some cases service needs to be interrupted to be able to perform the test. Cascade uses
19 qualified pipeline contractors to perform pressure testing.

20 The third method used to validate MAOP is to replace the pipe segment. This
21 method is needed in some circumstances if a pipe segment cannot be taken out of service
22 for an extended period to perform a pressure test to validate MAOP and MAOP cannot be
23 established through any other means. Replacement may also be necessary to address
24 integrity concerns that may exist with a pipe segment. Cascade uses qualified pipeline
25 contractors to perform pipeline replacement work. In addition to methods previously

1 described, in some circumstances Cascade can excavate specific areas and expose a pipe
2 fitting or component to verify it has the proper pressure rating to operate at the MAOP of
3 the pipeline segment. Cascade has agreed to complete 50 percent of the validation by
4 December 31, 2018, and all validation of these 116 pipeline segments by December 31,
5 2023.

6 **Q. Can you quantify the progress made in documenting the MAOP validation for the**
7 **116 segments?**

8 A. Yes. Cascade has completed replacement of more than 0.90 miles of high pressure and
9 transmission line in 2015 and is on target to complete a total of 2.5 replacement miles by
10 the end of 2017. Cascade has completed approximately 300 in situ tests in 2016, which
11 validated approximately 24.43 miles of transmission and high pressure lines. Cascade is
12 on target to complete 455 in situ tests in 2017, which will validate a total of 3.96 miles.
13 The results that have been obtained from the in-situ testing has allowed Cascade to
14 continue to move forward with our plans to pressure test multiple pipeline segments.
15 Cascade also has been able to validate a total of 15.69 miles by performing excavations
16 and validating pressure ratings of pipe fittings and components. In addition to the
17 replacement, in-situ testing, and excavation work that has been completed, Cascade is in
18 the planning stages to pressure test 3.74 miles in 2017. Based on Cascade's progress to
19 date, Cascade is on schedule to complete 50 percent of the validation work by the end of
20 2018.

21 **Q. What is the status of the records review?**

22 A. Cascade hired a consultant, TRC Pipeline Services LLC ("TRC"), to review records for
23 all remaining high pressure pipelines. TRC completed its review of the records in the
24 first quarter of 2017. Cascade is in the process of reviewing TRC's findings. As
25 provided in the MAOP Settlement Agreement, Cascade will submit to Pipeline Safety

1 Staff an updated time line that includes the additional segments identified by TRC that
2 require additional documentation to validate the MAOP. Cascade will submit its
3 proposed timeline for validation of the additional segments by December 31, 2017, and
4 by March 31, 2018, Pipeline Safety Staff and Cascade will file an Amended Settlement
5 Agreement with the Commission that reflects a completion date by which Cascade will
6 document the basis for validation of all high pressure segments, including both the
7 original 116 segments and those additional segments identified by TRC.

8 **Q. Please explain the leak survey work.**

9 A. Cascade is conducting leak surveys a minimum of four times annually on all pipeline
10 segments that lack documentation to validate MAOP, and that have a preliminary SMYS
11 calculation of 20 percent or greater. Once information is available to substantiate SMYS
12 below 20 percent or to validate the MAOP of a pipeline segment, that pipeline segment
13 will return to leak survey intervals prescribed by code. Cascade will notify Pipeline
14 Safety Staff when a pipeline segment returns to code-based survey intervals.

15 **Q. What is the status of the pressure reduction work?**

16 A. For pipeline segments that lack documentation to validate MAOP, that have low
17 frequency seam welds or unknown seam types, and with preliminary SMYS calculations
18 over 30 percent, Cascade is maintaining these segments at a 20 percent pressure
19 reduction. Once Cascade determine that a segment is not low frequency ERW or the
20 SMYS is substantiated as below 30 percent, the pipeline segment will return to the
21 previous operating pressure, and Cascade will notify Pipeline Safety Staff. To date, one
22 such pipeline segment has returned to the previous operating pressure and Cascade has
23 notified Pipeline Safety Staff of the increase in pressure.

1 **Q. What progress has Cascade made with respect to the commitment to incorporate**
2 **pipeline segments preliminarily calculated at greater than 20 percent SMYS into**
3 **Cascade's TIMP?**

4 A. Pipeline segments preliminarily calculated at greater than 20 percent SMYS have been
5 incorporated into Cascade's TIMP. As provided in the MAOP Settlement Agreement,
6 baseline assessments for pipeline segments will be completed by December 31, 2020.
7 Upon completion of the MAOP validation, Cascade's TIMP and DIMP will be re-
8 evaluated and updated as required.

9 **Q. Have you quantified the costs that has been deferred pursuant to the Accounting**
10 **Order in Docket No. UG-160787?**

11 A. Yes. Attached as Exhibit No. __ (RP-2) is a detailed summary of costs for work
12 performed by outside vendors, contractors, and consultants through May 31, 2017, to
13 carry out the terms of the MAOP Settlement Agreement. Cascade will update the
14 deferred costs in its rebuttal testimony.

III. MITIGATION OF RISK AND WORK PRIORITIZATION

15 **Q. Is Cascade taking steps to mitigate risk during the multi-year process required to**
16 **validate MAOP on its high pressure lines?**

17 A. Yes. Cascade is taking steps to reduce risk during the multi-year process in which
18 Cascade is documenting the basis for the MAOP of its high pressure and transmission
19 lines. While Cascade believes its system is safe, and there have been no adverse
20 incidents related to the missing documentation, Cascade has agreed to take steps to
21 mitigate risk during this process. Several of the work categories I previously described
22 will mitigate risk while the MAOP validation process is underway. For example,
23 increased leak surveys and pressure reductions are two examples of risk mitigation that
24 Cascade is currently performing. Also, Cascade has incorporated all pipeline segments

1 assumed to be operating above 20 percent SMYS into its TIMP, and Cascade is applying
2 the most stringent criteria in its assumptions, when carrying out the MAOP validation.

3 **Q. What does it mean that Cascade is applying the most stringent criteria in its**
4 **assumptions?**

5 A. For purposes of compliance with the MAOP Settlement Agreement and 49 CFR Part
6 192.619, Cascade is calculating the percent SMYS and design pressure of a pipeline
7 using the most stringent design criteria, if there are unknowns. Cascade uses the most
8 conservative values for pipe grade and seam factor as allowed by 49 CFR Part 192.107
9 and 192.111 to calculate the design pressure when values are unknown. And Cascade
10 also uses the most conservative values in calculating the percent SMYS on branch
11 segments. Cascade has been able to validate 8.67 miles of pipeline by using the most
12 stringent design criteria to calculate MAOP.

13 **Q. What factors does Cascade use to prioritize the work?**

14 A. Cascade utilizes a risk matrix that assigns risk based on a weighting of several different
15 factors. Work is prioritized based on the following weighted factors:

- 16 • segment class location;
- 17 • location of high consequence areas;
- 18 • segment SMYS percentage, based on the most stringent criteria for missing pipe
19 characteristics;
- 20 • pipe vintage, with special consideration for pre-code pipe with unknown
21 characteristics;
- 22 • pipe material, installation characteristics, operating history or maintenance records
23 that indicate increased risk; and
- 24 • low frequency electric resistance welded (“ERW”) and unknown seam types when
25 SMYS is greater than 25 percent.

1 **Q. Can you elaborate on how Cascade is prioritizing the work?**

2 A. Yes. Cascade's work is focused on the pipelines with the highest risk potential. With
3 respect to the 116 identified pipeline segments requiring documentation to validate
4 MAOP, for transmission lines with SMYS of 20 percent or greater, Cascade's goal is to
5 complete validation of MAOP by 2021. For pipelines with a preliminary SMYS of 30
6 percent or greater, Cascade completed work on four of these in 2016 and anticipates
7 completing validation of three more in 2017, two more in 2018 and the remaining
8 pipeline segment in 2019. Through the in-situ testing that has been performed on the
9 pipeline segments that were preliminarily calculated to be operating at 30 percent SMYS
10 or greater, by assuming stringent design criteria, Cascade has been able to be reclassify
11 the pipeline segments to a SMYS of less than 30 percent. In-situ testing will be
12 completed on all pipeline segments operating at 30 percent or greater by the end of 2017.

IV. CONCLUSION

13 **Q. Does this conclude your testimony?**

14 A. Yes.