

NORTHERN UTILITIES, INC.

DIRECT TESTIMONY OF

PHILIP SHER

New Hampshire Public Utilities Commission

Docket No. DG 15-121

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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Phillip Sher. My business address is 1204 Long Hill Road, Cheshire, CT
4 06410.

5

6 **Q. By whom are you employed and in what capacity?**

7 A. I am an independent pipeline consultant and operate my own business – Philip Sher
8 Pipeline Consultant. I have been engaged by Northern Utilities, Inc. to provide expert
9 opinion in the area of regulator station design regulations and related operation and
10 maintenance regulations.

11

12 **Q. Please summarize your professional and educational background.**

13 A. I have over 40 years of professional experience in the field of gas pipeline safety.
14 That experience includes 34 years as the head of the State of Connecticut, Department
15 of Public Utility Control, Gas Pipeline Safety Unit. My duties with the Gas Pipeline
16 Safety Unit are similar to those of the safety staff of the New Hampshire
17 Commission.

18

19 During those years, I have been extensively involved in the major issues affecting gas
20 pipeline safety. Part of my involvement has been in the form of:

21 (a) Z380 Gas Piping Technology Committee (GPTC) (1975 - present, 2nd Vice
22 Chairman 1989 – present) – which publishes a set of guidelines providing

1 how-to information for complying with the Minimum Federal Safety
2 Standards for Natural and Other Gas by Pipeline (49 C.F.R. Part 192),
3 petitions the United States Department of Transportation Office of Pipeline
4 Safety (OPS) for changes in the regulations and comments on OPS Notices of
5 Proposed Rulemaking;

6 (b) National Association of Pipeline Safety Representatives (NAPSR) (founding
7 member 1982, NAPSR National Chairperson (2006 - 2007), NAPSR National
8 Vice Chairman (2005 - 2006), NAPSR National Secretary (2004 - 2005),
9 NAPSR Board of Directors (2003 – 2008), Chairman NAPSR Eastern Region
10 (2004 - 2005) and Vice Chairman NAPSR Eastern Region (2003 – 2004)) a
11 non-profit organization of state pipeline safety regulatory personnel who serve
12 to promote pipeline safety in the United States;

13 (c) Integrity Management Activities

14 (1) Chairman NAPSR Integrity Management Program Committee (2003 –
15 2007)

16 (2) Chairman Risk Control Practices Group of the Pipeline and Hazardous
17 Materials Safety Administration (“PHMSA”) “Assuring the Integrity
18 of Gas Distribution Pipeline Systems” (DIMP) effort (2005 - 2006)

19 (3) Member NAPSR Distribution Integrity Government-Industry Team
20 (2003 - 2005)

- 1 (4) Member of the GPTC DI guidance TG (2006 - 2008) developing
- 2 guidelines for the Distribution integrity management federal safety
- 3 standards
- 4 (d) Member of the National Association of Regulatory Utility Commissioners
- 5 (NARUC) Staff Committee on Pipeline Safety (1986 - 2009);
- 6 (e) Instructor at the New England Pipeline Safety Representatives/US Department
- 7 of Transportation's Transportation Safety Institute Pipeline Safety Seminar
- 8 (1995 - 2008); and
- 9 (f) Instructor at the Northeast Gas Association Gas Operations School (1978 -
- 10 2015) on pipeline safety regulations.

11

12 My detailed CV is provided in Attachment A.

13

14 **Q. Have you previously testified before this Commission or other regulatory**

15 **agencies?**

16 A. Yes, I have previously filed testimony before this Commission in Docket No. DG 11–

17 196. I have testified in several pipeline safety proceedings before the Connecticut

18 Public Utilities Regulatory Authority. I have also testified at various proceedings

19 before the Pipeline and Hazardous Materials Safety Administration, particularly with

20 respect to Distribution Integrity Management. And I have testified at a National

21 Transportation Safety Board hearing involving a gas explosion in Connecticut.

22

1 **II. SUMMARY OF TESTIMONY**

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

3 A. My testimony generally covers three subjects. First, my testimony will address the
4 concepts of pressure within gas systems and the means used to control that pressure.
5 Second, I will describe the relevant regulations related to design and operation and
6 maintenance of district regulation stations and their applicability to the Portsmouth
7 Intermediate Pressure (“IP”) System; New Hampshire Avenue Gate Station.¹ Third, I
8 will generally describe the actions of Northern with regard to the Staff’s NOV, which
9 demonstrates compliance with the applicable regulations.

10 **III. REGULATION OF PRESSURE IN GAS PIPELINE SYSTEMS.**

11 **Q. What is the purpose of a gate station or district regulation station?**

12 A Gas is transported from the source of gas to customers by the application of pressure.
13 Higher pressures, typically in the hundreds and thousands of psig,² are needed to
14 move larger volumes of gas over great distances – such as the interstate transmission
15 lines. Distribution pressures are substantially lower, typically less than 100 psig.
16 Some distribution systems operate as low as ¼ psig, the approximate pressure utilized
17 by residential appliances.

18

¹ It is my understanding that the New Hampshire Avenue Gate Station is also referred to as the Pease Gate Station.
² The term “psig” means “pounds per square inch gauge,” which is a measurement of pressure relative to atmospheric pressure.

1 In order to reduce the pressure from higher levels to lower levels, gas operators
2 employ gas pressure regulators – devices designed to automatically control the outlet
3 (downstream) pressure within close tolerances. Because excessive pressure could be
4 dangerous or even catastrophic, steps are taken to protect the lower pressure system in
5 the event of a failure of the primary means for pressure regulation. The most
6 common method to achieve this “overpressure protection” is to install a second
7 regulator designed to take over control of the outlet (downstream) pressure should the
8 first regulator fail to properly limit the pressure. This second regulator is typically
9 called a “monitor” regulator.

10
11 Regulators are installed at city gate stations, where the gas is transferred from an
12 interstate transmission system to a distribution system; and at a district regulator
13 station within a distribution system, which controls pressures from higher pressure
14 distribution systems to lower pressure distribution systems.

15
16 Distribution pipeline systems are intended to safely transport gas from a source of
17 supply to customers distributed throughout the service territory of a gas company,
18 such as Northern. Part of ensuring public safety is determining the maximum
19 pressure for that system. This is determined by design considerations: Subpart C -
20 Pipe Design (49 C.F.R. §§ 192.101 - 192.125) and Subpart D - Design of Pipeline
21 Components (49 C.F.R. §§ 192.141 - 192.203); as well as initial testing per Subpart J
22 - Test Requirements 49 C.F.R. §192.501 - 192.517).

1 These requirements culminate in a determination of the Maximum Allowable
2 Operating Pressure (“MAOP”), the maximum pressure to which a system may be
3 subjected during normal operations.³ This is covered by 49 C.F.R. § 192.619
4 (Maximum allowable operating pressure - Steel or plastic pipelines) and 49 C.F.R. §
5 192.621 (Maximum allowable operating pressure: High-Pressure distribution
6 systems).

7
8 **Q. Is public safety at risk if a distribution system is exposed to pressures slightly**
9 **greater than the MAOP?**

10 A. No. While excessive pressure could be catastrophic in some circumstances, a
11 pressure exceedance of even 10 percent over MAOP on a 56 psig system would not
12 typically be considered dangerous. This is because the federal regulations mandate
13 that the MAOP for the system be determined with a built-in safety factor. In other
14 words, the MAOP for a distribution system is not the maximum pressure to which the
15 distribution system may be exposed before a catastrophic event would be expected to
16 occur. Rather, the safety factor built into the establishment of MAOP provides a
17 cushion in the event that there were to be an accidental overpressuring of the system.
18 The safety factor is discussed in greater detail in the direct testimony of Messrs.
19 LeBlanc and Pfister.

³ “Maximum allowable operating pressure (MAOP) means the maximum pressure at which a pipeline or segment of a pipeline may be operated under this part.” 49 C.F.R. § 192.3.

1 **IV. PORTSMOUTH IP SYSTEM: NEW HAMPSHIRE AVENUE GATE**
2 **STATION**

3 **Q. Are you familiar with the Portsmouth IP System: New Hampshire Avenue Gate**
4 **Station?**

5 A. Yes. The Portsmouth IP System and New Hampshire Avenue Gate Station are
6 described in detail in the prefiled direct testimony of Messrs. LeBlanc and Pfister.

7

8 **Q. When and how did the alleged violation occur?**

9 A. On June 25, 2014, the State of New Hampshire, Public Utilities Commission, Safety
10 Division Staff (“Staff”) performed an on-site inspection of the New Hampshire
11 Avenue Gate Station. The inspection is described in detail in the direct testimony of
12 Mr. Ahlin. As described in Mr. Ahlin’s testimony, Commission Staff directed that a
13 failure of the worker regulator be simulated to assess the operation of Northern's over
14 pressure protection. In this case, the over pressure protection was provided by a
15 monitor regulator.

16

17 **Q. What occurred during the simulated failure of the worker regulator that is the**
18 **subject of Staff’s NOV?**

19 A. As discussed in Mr. Ahlin’s testimony, the following was observed: the adjacent
20 downstream pressure gauge located inside the regulator station indicated a gradual
21 increase in pressure to a high of 57.2 psig for approximately one minute, after which

1 the pressure returned to, and remained at, the 55 psig set point of the monitor
2 regulator.

3

4 At no point during the simulation did the pressure rise above 57.2 psig. Northern
5 believes that the observed pressure increase to 57.2 psig for approximately one
6 minute resulted from the normal build-up pressure due to the mechanical operation of
7 the monitor regulator. Northern's assessment has been confirmed by the
8 manufacturer of the regulator.

9

10 During this simulated failure of the worker regulator, the SCADA⁴ pressure sensors at
11 two locations on the Portsmouth IP system did not register a pressure increase to 57.2
12 psig. As discussed in Mr. Ahlin's testimony, the SCADA pressure sensors registered
13 pressures in the 51 to 53 psig range during the afternoon of the simulation.

14

15 **Q. What are the regulations applicable to overpressure protection for a distribution**
16 **system?**

17 A. The first regulation that must be reviewed is the regulation dealing with the process
18 for establishing Maximum Allowable Operating Pressure for a pipeline, 49 C.F.R. §
19 192.619 (Maximum allowable operating pressure – Steel or plastic pipelines). A
20 complete copy of Section 192.619 is provided as Attachment C to the LeBlanc/Pfister

⁴ “Supervisory Control and Data Acquisition (SCADA) system means a computer-based system or systems used by a controller in a control room that collects and displays information about a pipeline facility and may have the ability to send commands back to the pipeline facility.” 49 C.F.R. § 192.3.

1 testimony. The portions of this regulation relevant to the issues in the proceeding are
2 as follows:

3 §192.619 Maximum allowable operating pressure - Steel or plastic pipelines
4

- 5 (a) No person may operate a segment of steel or plastic pipeline at a
6 pressure that exceeds a maximum allowable operating pressure
7 determined under paragraph (c) or (d) of this section, or the lowest of
8 the following:
9 (1) The design pressure of the weakest element in the segment,
10 determined in accordance with subparts C and D of this part. . .
11 .
12 (2) The pressure obtained by dividing the pressure to which the
13 segment was tested after construction as follows:
14 (i) For plastic pipe in all locations,⁵ the test pressure is
15 divided by a factor of 1.5. . . .
16 (3) The highest actual operating pressure to which the segment
17 was subjected during the 5 years preceding the applicable date
18 in the second column. . . .
19 (4) The pressure determined by the operator to be the maximum
20 safe pressure after considering the history of the segment,
21 particularly known corrosion and the actual operating pressure.
22 (b) No person may operate a segment to which paragraph (a)(4) of this
23 section is applicable, unless overpressure protective devices are
24 installed on the segment in a manner that will prevent the maximum
25 allowable operating pressure from being exceeded, in accordance with
26 §192.195. . . .
27

28 **Q. What is the MAOP of the Portsmouth IP System?**

29 A. Northern has established the MAOP of the Portsmouth IP System at 56 psig.
30

31 **Q. What other requirements of Part 192 are relevant to the Staff's NOV?**

⁵ For brevity, only the portion of Section 192.619 dealing with plastic pipe is quoted in my testimony. There are also provisions in Section 192.619(2) for steel piping that I have omitted, but can be reviewed in Attachment C to the LeBlanc/Pfister testimony.

1 A. Section 192.195(a) is also important because it addresses the requirement for
2 protection from accidental overpressuring:

3 §192.195 Protection against accidental overpressuring.

4
5 (a) General requirements. Except as provided in §192.197,^[6] each pipeline that
6 is connected to a gas source so that the maximum allowable operating
7 pressure could be exceeded as the result of pressure control failure or of
8 some other type of failure, ***must have pressure relieving or pressure***
9 ***limiting devices that meet the requirements of §192.199 and §192.201.***^[7]
10

11 A copy of Section 192.195 is provided as Attachment E to the LeBlanc/Pfister
12 testimony.

13
14 **Q. Are there maintenance requirements that apply to regulator stations that are**
15 **relevant to this proceeding?**

16 A. Yes. Section 192.739 establishes the periodic testing that operators are required to
17 perform on regulator stations:

18 §192.739 Pressure limiting and regulating stations: Inspection and testing.

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

23 (1) In good mechanical condition;

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

⁶ Section 192.197 deals with the type of regulators installed at the meter bar providing service to the customer and is not relevant to this proceeding.

⁷ Throughout this testimony, all bold, underlined and italicized emphasis has been added by the author.

- 1 (3) Except as provided in paragraph (b)^[8] of this section, ***set to***
2 ***control*** or relieve ***at the correct pressure consistent with the***
3 ***pressure limits of §192.201(a);*** and
4 (4) Properly installed and protected from dirt, liquids, or other
5 conditions that might prevent proper operation.
6

7 **Q. What is the significance of the words in Sections 192.195 and 192.739 that you**
8 **have emphasized?**

9 A. That language is significant because it demonstrates that a pressure relieving device
10 must have sufficient capacity to dissipate excess pressure to protect the downstream
11 piping within the pressure limits established in Section 192.201(a).⁹ Section
12 192.201(a) states, in part:

13 §192.201 Required capacity of pressure relieving and limiting stations

- 14 (a) Each pressure relief station or pressure limiting station or group of
15 those stations installed to protect a pipeline must have enough
16 capacity, and must be set to operate, to ***insure*** the following:
17 (1) In a low pressure distribution system, the pressure may not
18 cause the unsafe operation of any connected and properly
19 adjusted gas utilization equipment.
20 (2) In pipelines other than a low pressure distribution system:
21 (i) If the maximum allowable operating pressure is 60
22 p.s.i. (414 kPa) gage or more, the pressure may not
23 exceed the maximum allowable operating pressure plus
24 10 percent or the pressure that produces a hoop stress of
25 75 percent of SMYS, whichever is lower;
26 (ii) If the maximum allowable operating pressure is ***12***
27 ***p.s.i.*** (83 kPa) gage ***or more, but less than 60 p.s.i.*** (414
28 kPa) gage, the ***pressure may not exceed the maximum***
29 ***allowable operating pressure plus 6 p.s.i.*** (41 kPa)
30 gage; or
31 (iii) If the maximum allowable operating pressure is less
32 than 12 p.s.i. (83 kPa) gage, the pressure may not

⁸ Section 192.739(b) is not applicable in this situation because it applies to pipelines whose MAOP is determined based on the highest pressure in effect during the five years prior to July 1, 1970.

⁹ A copy of Section 192.201 is provided as Attachment H to the LeBlanc/Pfister testimony.

1 exceed the maximum allowable operating pressure plus
2 50 percent.
3

4 **Q. But Section 192.201(a) provides specific pressure limits, not flow specifications.**
5 **Please explain why Section 192.201 is written in units of pressure and not flow.**

6 A. The pressure limits imposed by Section 192.201(a) require the operator to ensure that
7 the pressure relief devices selected for their pipeline have sufficient capacity to
8 maintain system pressure within the pressures stated in Section 192.201(a). For
9 example, for a system with a 56 psig MAOP, Section 192.201(a)(2)(ii) requires that
10 the pressure relief device have sufficient capacity such that the downstream pressure
11 on the system will not exceed 62 psig (56 psig + 6 psig).

12

13 **Q. Did Northern's New Hampshire Avenue Gate Station meet the requirements of**
14 **Sections 192.195, 192.739 and 192.201?**

15 A. Yes, it did. The monitor regulator demonstrated that it had sufficient capacity and
16 was properly adjusted to prevent the pressure at that station from exceeding the 62
17 psig limitation imposed by Section 192.201(a)(2)(ii). As discussed above, the
18 pressure on the system did not exceed 57.2 psig after the worker regulator was failed
19 at Staff's request. Moreover, after the build-up pressure had dissipated, the monitor
20 regulator returned pressure at the station below the 56 psig MAOP to the monitor
21 regulator's 55 psig set point. The monitor regulator performed its overpressure
22 protection function properly and within Code mandates. Moreover, Mr. Ahlin
23 describes in his testimony how the Company performs maintenance on its regulator

1 stations to establish set points in compliance with Section 192.739 without exceeding
2 MAOP while doing so. The Company's maintenance procedure is exemplary.

3

4 **Q. Are there other considerations that support your conclusion that the New**
5 **Hampshire Avenue Gate Station did not violate Section 192.195 ?**

6 A. Yes. It is important to recognize that there are two basic operating conditions with
7 respect to distribution regulator stations: (1) normal operation, and (2) operation in
8 the event of a failure of the worker regulator. I described this in detail in NUNH-
9 Staff 1-9, a copy of which is provided in Attachment B to my testimony. During
10 normal operation, the MAOP, as determined by Section 192.619, is the maximum
11 pressure that the system is allowed to experience. However, when the worker
12 regulator fails, the overpressure protection regulation of Section 192.201(a)(2)(ii) is
13 the governing requirement. It specifically authorizes pressure on a 56 psig MAOP
14 system to rise to a maximum of 62 psig when the worker regulator fails.

15

16 Any other interpretation of Section 192.201 would mean that, during normal
17 operation of the system, the set point of the worker regulator would need to be
18 adjusted significantly lower than the MAOP, such that MAOP would not be exceeded
19 in case of a failure of the worker regulator. If that interpretation had any validity, 49
20 C.F.R. § 192.201(a)(2)(ii) would serve no purpose and have no meaning. In
21 interpreting regulations, it is normally presumed that a regulation was written for a
22 purpose and to accomplish some safety goal. An incorrect interpretation of Section

1 192.739 and 192.195, such as that which Staff has adopted here, means that Section
2 192.201 has no purpose.

3

4 **Q. In your experience, is Northern's practice of setting monitor regulators below**
5 **the system MAOP a common industry practice?**

6 A. No. Northern's practice is actually more conservative than those commonly followed
7 by other pipeline system operators. In my experience, most operators set their
8 monitors at or above MAOP, to take advantage of the maximum pressure allowed by
9 Section 192.201(a). As demonstrated here, Northern's practice of setting its monitors
10 at 55 psig resulted in a maximum pressure of only 57.2 psig. Northern could set its
11 monitor regulators 2 to 3 psig higher (as other operators commonly do) and still
12 remain comfortably within the 62 psig limit imposed by Section 192.201(a)(2)(ii) in
13 the event of a failure of the worker regulator.

14

15 **Q. Section 192.201 was amended in 1972 to its current version. Are you aware of**
16 **interpretations of the previous version of Section 192.201 which are pertinent to**
17 **these issues?**

18 A. Yes. Before Section 192.201(a) was amended to its current version, it provided as
19 follows:

20 §192.201 Required capacity of pressure relieving and limiting stations.

21 (a) Each pressure relief station or pressure limiting station or group of
22 those stations installed to protect a pipeline must have enough
23 capacity, and must be set to operate, to prevent -

- 1 (1) The pressure from exceeding the maximum allowable
2 operating pressure ***plus 10 percent*** or the pressure that
3 produces a hoop stress of 75 percent of SMYS, whichever is
4 lower; or
5 (2) In a low-pressure distribution system, a pressure that would
6 cause the unsafe operation of any connected and properly
7 adjusted gas utilization equipment.
8

9 In Interpretation 192.201 7 dated May 27, 1971 (see Attachment C), PHMSA was
10 asked to address the following issue under the former version of Section 192.201:

11 When the maximum allowable operating pressure is “at 15 to 20 psi and when
12 coupled with Paragraph 192.201, it means that the relief valve must be set to
13 keep the pressure from exceeding 10 per cent above the maximum allowable
14 operating pressure. For systems such as previously described, this means that
15 the relief valve setting must be set within 1 to 2 lbs of the actual operating
16 pressure. ***It is not possible to set relief valves this close*** to the operation
17 pressure without frequent operation of the relief valve and considerable loss of
18 gas.”
19

20 PHMSA responded to the issue as follows:

21 [T]his problem has been encountered before by the office of pipeline safety
22 and we are now in the process of drafting a notice of proposed rulemaking in
23 order to solve it. It will be published in the Federal Register soon.
24

25 PHMSA developed and issued Amendment 192-9 (Docket OPS-13) and changed the
26 tolerances in Section 192.201(a) from 10% to its current pressure limits.
27

28 **Q. Did PHMSA (or the agency under prior organizational names) comment on the
29 problem of tolerance in regulators?**

30 A. Yes. On November 4, 1972, when PHMSA issued Amendment 192-9 (Docket OPS-
31 13) (see Attachment D) and changed the tolerances in Section 192.201, it stated that
32 “when the MAOP of a system is below 60 p.s.i.g. that ***present-day regulating***

1 ***equipment cannot accurately limit accidental overpressure*** to the present 10 percent
2 of MAOP standard, it is in the best interest of overall safety that the proposed
3 amendment allowing an ***increase in the limits for accidental overpressure*** be
4 restricted to systems with MAOP's of 60 p.s.i.g. or less.” Even today, present-day
5 regulating equipment is restricted in its ability to accurately limit pressure. That is
6 why operators normally set “worker” regulators to regulate to a pressure less than the
7 MAOP.

8

9 **Q. What other sections of the regulations are significant to these issues?**

10 A. 49 C.F.R. § 192.743(a) (see Attachment E) is also important because it establishes the
11 parameters for the capacity of pressure relief devices (an alternative method of
12 overpressure protection at pressure regulating stations) by referencing 49 C.F.R. §
13 192.201(a):

14 §192.743 Pressure limiting and regulating stations: Capacity of relief devices

15 (a) Pressure relief devices at pressure limiting stations and pressure
16 regulating stations must have sufficient capacity to protect the facilities to
17 which they are connected. Except as provided in §192.739(b),^[10] the
18 capacity ***must be consistent with the pressure limits of §192.201(a)***.
19 This capacity must be determined at intervals not exceeding 15 months,
20 but at least once each calendar year, by testing the devices in place or by
21 review and calculations. . . .

22

23 **Q. What is the significance of the words in Section 192.743 that you have**
24 **emphasized?**

¹⁰ For systems where the MAOP is determined by 49 C.F.R. §192.619(c), which does not apply here.

1 A. It shows that the requirements for relief devices (the primary alternative to a monitor
2 regulator) can be traced back to the same “consistent with the pressure limits of
3 §192.201(a)” standard that applies to monitor regulators.

4

5 **Q. Has PHMSA issued interpretations regarding the pressure allowances for**
6 **overpressure protection?**

7 A. Yes. The first interpretation I will discuss was issued by PHMSA in 1982, and later
8 amended when PHMSA concluded that its interpretation used imprecise language.
9 The 1982 interpretation is Interpretation 192.201 13, dated February 1, 1982 (see
10 Attachment F), which states:

11 “The plain language of paragraphs (a), (b), and (c) makes it clear that the
12 ***purpose of §192.743 is to assure that relief devices at pressure limiting and***
13 ***regulating stations have sufficient capacity*** to limit downstream pressure to
14 the ***“desired maximum pressure.”*** It follows that the term “required capacity”
15 in paragraph (b) refers to the capacity of relief devices that is needed to
16 achieve this purpose, and not to a capacity required by §192.201(a). ...

17

18 PHMSA further stated:

19 Section 192.201(a) prescribes capacities that apply to the design of pressure
20 relief and limiting stations. The purpose of this rule is to assure that stations
21 are installed with sufficient capacity to prevent accidental overpressure in
22 connected facilities, based on specified safe pressure limits known at the time
23 of design. As operating conditions change, these limits may exceed the
24 “desired maximum pressure” of the facilities so that additional capacity would
25 be required to meet §192.743. Therefore, the capacity requirements of
26 §192.201(a) should not be used to determine the capacity of relief devices
27 needed to meet §192.743.”

28

1 It should be noted that the requirements for the desired maximum pressure allowed by
2 a monitor regulator would be no different than the desired maximum pressure for a
3 relief device.

4 **Q. Does that indicate that your interpretation is incorrect?**

5 A. It might, except that the following year PHMSA was asked to reconsider that
6 interpretation, and it do so in Interpretation 192.201 15 dated March 31, 1983 (see
7 Attachment G):

8 Upon reconsideration, we confirm the *merits of the interpretation* as it relates
9 to *applying §192.201 to judging the capacities required by §192.743*.
10 However, we believe that the stated relationship between "desired maximum
11 pressures" and MAOP could be misconstrued and result in a conflict with
12 §192.201 and an unjustified burden for operators of existing relief valves.

13
14 We believe the problem you have identified with Interpretation 82-9 [a/k/a
15 Interpretation 102.201 13] would be resolved if the "*desired maximum*
16 *pressure" under §192.743* were interpreted to *include a safe amount of*
17 *pressure build-up above the MAOP. For valves subject to §192.201, the safe*
18 *amount would be that set forth in §192.201, and the capacities required by*
19 *§§192.201 and 192.743 would be the same* until allowable operating pressure
20 limits change. For pre-existing relief valves that do not conform with the
21 criteria of §192.201, the safe amount would be that which a prudent operator
22 would have established when the valve was installed.

23
24 Accordingly, a *footnote has been added to Interpretation 82-9* to correct the
25 problem, and the interpretation is reissued. A copy of the reissued
26 interpretation is enclosed.

27
28 The footnote that PHMSA added to Interpretation 82-9 states:

29 1/ for purposes of *pressure relief capacity, operating pressure limits* may be
30 exceeded by a safe amount. *Section 192.201 specifies the amounts for relief*
31 *devices subject to that section*. The allowable amount for other relief devices
32 installed before Section 192.201 became effective would be that which a
33 prudent operator would have established under similar circumstances.
34
35

1 **Q. Does PHMSA’s amended version of Interpretation 192.201 13 support your**
2 **analysis concerning Section 192.201?**

3 A. Yes, it does.

4

5 **Q. Are there any more recent PHMSA interpretations that address the issues in**
6 **Staff’s NOV?**

7 A. Yes. By letter dated September 5, 2014, Northern requested an interpretation from
8 PHMSA addressing the specific overpressure protection settings for the New
9 Hampshire Avenue Gate Station. By reply dated April 21, 2015 (see Attachment N to
10 LeBlanc/Pfister testimony), PHMSA confirmed that system pressure is allowed to
11 rise to 62 psig for a 56 psig MAOP system during a failure of the worker regulator.
12 Unitil’s question, and PHMSA’s answer are provided below:

13 Q. (2) During a system emergency, such as a failed worker regulator, on a
14 high pressure distribution system with a properly established MAOP
15 of 56 psig, does the operator violate 49 C.F.R. § 192.201(a) if the
16 system pressure does not exceed 62 psig?

17 A. No, ***the operator does not violate § 192.201(a)*** as long as the MAOP
18 limits are met during a system emergency and the pipeline meets the
19 Subpart D - Design of Pipeline Components requirements. In this
20 case, ***the emergency operating limit is 62 psi (56 + 6 psi)***. Emergency
21 operating overpressure conditions are only allowed for the time
22 required to activate the overpressure protection device and are not
23 meant for long term or frequently occurring normal operating or
24 periodic maintenance conditions and, therefore, require immediate
25 response by the operator either to shut down or reduce the operating
26 pressure to the normal operating conditions.
27

28 There is no dispute that the pressure at the New Hampshire Avenue Gate Station
29 peaked at 57.2 psig during the simulated failure of the worker regulator, which is less

1 than the 62 psig allowed by Section 192.201(a)(2)(ii). PHMSA confirmed that there
2 was no Code violation, notwithstanding that pressure within the station exceeded
3 MAOP.

4

5 **Q. Were there any issues raised by PHMSA regarding the testing of the**
6 **overpressure protection that occurred on June 25, 2014, when Commission Staff**
7 **directed that a failure of the worker regulator be simulated to assess the**
8 **operation of Northern's over pressure protection?**

9 A. Yes. PHMSA seems to disapprove of the practice of testing overpressure protection
10 through a simulation of a failure of the worker regulator while those components are
11 actively controlling system pressure: “[a] simulated test on a pressure limiting or
12 regulator station that is not isolated from the system does not constitute a system
13 emergency. It is a normal operation subject to the limitations described above. The
14 pressure limiting or regulator station should be isolated from the system prior to any
15 testing of buildup and set points.”

16

17 Although I cannot whole-heartedly support that position (especially with properly
18 trained pressure mechanics on site to ensure the safety of the system), if such a
19 simulation does constitute a violation of Section 192.619, it was a violation that
20 resulted from Northern’s compliance with the directives of Commission Staff.

21

1 **Q. What is your understanding of the procedures used by the Company to test their**
2 **overpressure protection?**

3 A. As discussed in Mr. Ahlin's testimony, Northern does not simulate the failure of the
4 worker regulator during its required annual regulator station inspection. Instead, it
5 follows O&M Procedure 2-L when testing regulators and adjusting their set points to
6 ensure that MAOP is not exceeded at the station or downstream of the station.

7

8 **Q. Would you please summarize your conclusions with regard to Staff's allegations**
9 **in the NOV that Northern violated Section 192.195 and 192.619 during Staff's**
10 **inspection of the New Hampshire Avenue Gate Station on June 25, 2014?**

11 A. Contrary to the allegations in the NOV, there was no violation of either Section
12 192.195 or 192.619. Section 192.195(a) expressly requires that pressure limiting
13 devices meet the requirements of Section 192.201. The monitor regulator at the New
14 Hampshire Avenue Gate Station assumed control of system pressure after the
15 simulated failure of the worker regulator. The monitor regulator was providing
16 overpressure protection, and Section 192.201(a)(2)(ii) requires the monitor regulator
17 to have sufficient capacity to maintain system pressure at or below 62 psig. The
18 pressure at the regulator station during the simulated failure peaked at 57.2 psig,
19 which is only 1.2 psig above MAOP, and 4.8 psig below the 62 psig limit. There was
20 no violation of Section 192.195 as alleged in the NOV.

21

1 As for Section 192.619, although the pressure at the regulator station exceeded the 56
2 psig MAOP, that exceedance occurred during a simulated emergency that resulted
3 from the failure of the worker regulator. As discussed above in detail and in NUNH-
4 Staff 1-9 (Attachment B), Section 192.619 applies to “normal” operation when all
5 equipment is functioning normally. Section 192.619 does not apply when equipment
6 malfunctions, such as when a worker regulator fails. Again, pressure at the regulator
7 station was well below the 62 psig limit allowed by Section 192.201(a)(2)(ii).
8 Moreover, the Company simulated the failure of the worker regulator at the direction
9 of Commission Staff, and the Company’s normal procedures for establishing the set
10 points for its worker and monitor regulators ensure that MAOP is never exceeded
11 during that maintenance procedure. In other words, the alleged violation of Section
12 192.619 occurred solely as a result of the test that the Commission Staff instructed the
13 Company to perform during the Staff’s inspection of the regulator station.

14
15 Finally, it is important to recognize that there was no danger to public safety during
16 the testing that Staff directed the Company to perform. The distribution system in
17 general, and the regulator station specifically, are designed and constructed to
18 withstand far more pressure than the 1.2 psig exceedance of MAOP that was
19 measured on the steel piping within the regulator station. As demonstrated by
20 pressure recording devices, the system pressure downstream of the regulator station
21 was measured at between 51 to 53 psig, which is 3 to 5 psig below the 56 psig system
22 MAOP. (See Attachments A and B to Mr. Ahlin’s testimony.)

1

2 **Q. Does the State of New Hampshire have the authority to adopt regulations under**
3 **State law that are more stringent than the minimum Federal Safety Standards?**

4 A. Yes. 49 U.S.C. § 60104(c) provides that “[a] State authority that has submitted a
5 current certification under section 60105(a) of this title may adopt additional or more
6 stringent safety standards for intrastate pipeline facilities and intrastate pipeline
7 transportation only if those standards are compatible with the minimum standards
8 prescribed under this chapter.”

9

10 The Commission’s Staff cannot, however, impose more stringent requirements by
11 wrongly interpreting Part 192 and issuing a Notice of Violation where no violation
12 exists under the federal Code as interpreted by PHMSA.

13 **VI. CONCLUSION**

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

15 A. Yes, it does.