

State of North Carolina
North Carolina Utilities Commission

Docket No. G-40, Sub 142

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION:

In the Matter of
Frontier Natural Gas Company – Violations of Title 49
Code of Federal Regulations,
Part 192, Subpart O

DIRECT TESTIMONY
OF
NARINDER (MICKEY) GREWAL

October 4, 2017

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Oct 04 2017

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

2 A. My name is Narinder Grewal, Mickey is my nickname. My business
3 address is 1 1st Avenue South, Great Falls, Montana 59401.

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

5 A. I have been employed by Gas Natural Incorporated (GNI) as its Director
6 of Engineering since July 31, 2015. Since joining GNI my effort has
7 been focused on providing assistance to GNI's utility companies on
8 implementing Geographic Information Systems (GIS), standardizing
9 engineering design, system planning (building Synergi™ models),
10 compliance with Title 49 Code of Federal Regulation Parts 192 and 193,
11 implementing Gas Supply forecasting (GasDay™ models), implementing
12 GasOps™ and assisted with implementation of SAP.

13 In summary, my role is to provide leadership and guidance to
14 implement proven and robust systems to improve transparency and
15 mitigate risk to all GNI utility companies in the system & supply
16 planning, engineering design, compliance, GIS, and document
17 management. Under new owners and new leadership the organization
18 structure has been aligned to provide active, but not intrusive, oversight to
19 GNI utility companies.

20 **Q. Please describe your educational and professional background.**

21 A. I have been working in the natural gas industry for over 25 years,
22 predominantly in gas distribution utilities. My educational background
23 includes a Bachelor of Engineering (Mechanical) from the Panjab

1 University, Chandigarh, Panjab, India and Masters of Applied Sciences,
2 (Mechanical) from the University of Windsor, Windsor, Ontario, Canada.

3 I have also completed thirty-week accelerated computer science program
4 from DePaul University, Chicago, Illinois and have completed
5 coursework at Northwestern University School of Professional Studies,
6 Evanston, IL.

7 **Q. Have you previously testified before the North Carolina Utilities**
8 **Commission or any other regulatory authority?**

9 A. No.

10 **Q. Do you hold any positions in professional or trade associations?**

11 A. I have a Professional Engineer license from PEO, Ontario, Canada. My
12 license expired after I moved to the US. I am an active member of an
13 Accredited Standards Committee (ASC) Z380, Gas Piping Technology
14 Committee (GPTC). GPTC develops and publishes ANSI Z380.1, Guide
15 for Gas Transmission, Distribution and Gathering Piping Systems.

16 **Q. What is the purpose of your testimony in this proceeding?**

17 A. The purpose of this testimony is to provide a current engineering
18 overview of Frontier's system and to discuss the current efforts of
19 Frontier Natural Gas to adhere to Title 49 Code of Federal Regulations,
20 Part 192, Subpart O to implement and maintain its Integrity Management
21 Program (IMP). I will also provide an overview of Frontier's System
22 operations.

1 **Q. Mr. Grewal, can you please provide an overview of Frontier's**
2 **existing transmission and distribution systems in North Carolina?**

3 A. Yes. Frontier Natural Gas's system is comprised of approximately 138
4 miles of transmission pipeline and approximately 370 miles of
5 distribution pipeline. The transmission system operating pressure at the
6 Appalachian City Gate Station ranges from 530 to 580 psig. Distribution
7 system operating pressures range from 48 to 50 psig pressure. There is a
8 short lateral that operates at 70 psig.

9 Exhibit MG-1 shows an overall diagram of Frontier's
10 transmission system and location of the Appalachian City Gate Station
11 (located at Kepley Rd & US HWY 70 near Salisbury in Rowan County,
12 NC).

13 **Q. How old are Frontier's transmission and distribution systems?**

14 A. Frontier's transmission system is approximately 20 years old and was
15 placed into service in August of 1999. The approximately 138 miles of
16 transmission pipelines were installed in 1999, 2000 and 2001. Some
17 small additional sections of transmission pipe, about 0.3 miles, were
18 installed after 2010.

19 Frontier's distribution system consists of approximately 32 miles
20 of steel pipe and 338 miles of plastic PE pipe. The age of the distribution
21 system is very new, 152 miles (41%) of main was installed between 1999
22 and 2007 and 217.4 miles (59%) of main was installed between 2008 and
23 2016.

1 Frontier began providing service to the first customers in 1999.
2 Between 1999 and 2007, Frontier installed 985 services and from 2008 to
3 2016 Frontier almost tripled the growth in an underserved community,
4 when it installed 2,724 additional services, for a total of 3,709 services.

5 **Q. Based on your knowledge of these systems do you have any concerns**
6 **with the materials of which they are made?**

7 A. No. The materials used for Frontier's transmission system were
8 manufactured by US companies during 1998, 1999 and 2000. The
9 material used in the distribution system is predominantly medium density
10 polyethylene (PE) and the majority of it was installed after 2007.

11 The steel and PE pipe materials used by Frontier meet stringent
12 industry standards and have been extensively tested and approved by
13 ASME, ANSI and ASTM International for natural gas systems. Based on
14 these facts, I do not have any concerns about the materials out of which
15 Frontier's system is constructed.

16 **Q. Are Frontier's transmission and distribution systems currently safe**
17 **to operate and have they been safe to operate since you joined GNI?**

18 A. Yes, I believe that Frontier's system is safe to operate. Based on
19 discussions with Josh Wagoner, Operations Supervisor and Fred Steele,
20 President/General Manager of Frontier Natural Gas, it is my
21 understanding that Frontier's transmission pipeline has never incurred
22 any leaks since installation, as reported on form PHMSA F 7100.2-1.

1 Also, based on available data, Frontier's transmission system
2 operating pressures at the Appalachian City Gate (the gas supply source
3 into the system, see Exhibit MG-1) have ranged from 530 to 580 psig
4 since the installation of a Pressure Control Valve in April of 2000. This
5 pressure range is slightly over half the transmission system's Maximum
6 Allowable Operating Pressure (MAOP) of 1000 psig. In compliance with
7 Title 49, Code of Federal Regulation, Part 192, the transmission system
8 was hydrostatically tested at pressures of 1500 psig. Frontier's actual
9 operating pressure exerted hoop stress levels ranging from 13.1% to
10 29.5% of SMYS just downstream of the Appalachian City Gate.

11 MAOP and SMYS are defined in the Title 49 Code of Federal Regulation
12 Part 192 as:

13 *Maximum allowable operating pressure (MAOP)* means the maximum
14 pressure at which a pipeline or segment of a pipeline may be operated
15 under this part.

16 SMYS means specified minimum yield strength is:

17 (1) For steel pipe manufactured in accordance with a listed
18 specification, the yield strength specified as a minimum in that
19 specification; or

20 (2) For steel pipe manufactured in accordance with an unknown or
21 unlisted specification, the yield strength determined in accordance with
22 §192.107(b).

23 As the gas flows from the Appalachian City Gate towards the six (6)
24 counties Frontier serves, it loses energy due to flow friction in the pipe.
25 This energy loss lowers gas pressures and results in even lower hoop
26 stress at locations farther down from the source.

1 So, based on Frontier's relatively new system with no
2 transmission leak history and low levels of operating pressure, I believe
3 that Frontier's system is safe to operate.

4 **Q. Can you describe Frontier's incident and leak history over the last 10**
5 **years?**

6 A. Yes, Frontier's transmission system has not in experienced any leaks
7 since installation in 1999.

8 **Q. Is the Company experiencing unusual or dangerous levels of leaks?**

9 A. No

10 **Q. What are the primary cause of leaks on the Frontier transmission**
11 **and distribution systems currently?**

12 A. As mentioned above Frontier's transmission system has never incurred
13 any leaks.

14 The primary cause of leaks in Frontier's distribution system (i.e.
15 including mains & services) is third party damage. Over past 10 years
16 the number of leaks in any given year has been ranged from a minimum
17 of 1/yr. to a maximum of 12/yr.

18 **Q. What actions have you and the others working for GNI and Frontier**
19 **taken in the last five years to monitor Frontier's system and ensure**
20 **that Frontier's system is safe from an operational perspective?**

21 A. Frontier personnel regularly patrol and leak survey its system. Frontier
22 has a very low incidence of leaks in the distribution system and most of
23 the leaks are fixed relatively quickly.

1 I and others at GNI have provided support to Frontier regarding
2 system safety whenever it needed such help. I have also been leading the
3 effort with Frontier personnel to implement best practices and latest
4 technologies such as Synergi™, GasOps™, GasDay™ and ArcGIS™ to
5 allow for a traceable, trackable and verifiable system of record and
6 integrity.

7 **Q. Are you familiar with the deficiencies Frontier has been cited for**
8 **relating to compliance with its IMP and PHMSA regulations?**

9 A. Yes.

10 **Q. In your opinion, did these deficiencies make Frontier's system**
11 **operationally less safe during the period they were in effect?**

12 A. As discussed in my responses previously, it's my opinion that the
13 deficiencies, while regrettable, do not (and did not) make Frontier's
14 system inherently less safe.

15 **Q. Why not?**

16 A. The system is regularly patrolled and leak surveyed and as discussed
17 above, Frontier's system is new, it has no leaks, and operates at relatively
18 low hoop stress.

19 **Q. Are you aware of any plan or intention by GNI or Frontier to**
20 **maximize revenues through intentional non-compliance with**
21 **PHMSA regulations or Frontier's IMP?**

22 A. No.

1 **Q. Have you seen any evidence of such a plan since you have been**
2 **working for GNI?**

3 A. No.

4 **Q. Could you describe the relative priority you and Mr. Degenstein**
5 **place on system safety within the GNI natural gas public utilities.**

6 A. Mr. Degenstein and I place highest priority on safety and compliance
7 within all GNI utility companies. We are adopting leading practices in
8 the industry through oversight, technology, training and the hiring of the
9 right employees.

10 Going forward we plan to implement procedures and new
11 technologies to make our systems more transparent (i.e. trackable,
12 traceable, verifiable and complete). And, we are embracing best practices
13 such as API Recommended Practice 1173.

14 **Q. Is that priority supported by GNI management?**

15 A. Yes.

16 **Q. Does this conclude your direct testimony?**

17 A. Yes it does.
18

Exhibit MG-1

FRONTIER NATURAL GAS COMPANY TRANSMISSION SYSTEM

