

BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

**IN THE MATTER OF THE APPLICATION)
OF BLACK HILLS NEBRASKA GAS, LLC,)
BLACK HILLS ENERGY, RAPID CITY,) APPLICATION NO. NG-109
SOUTH DAKOTA, SEEKING APPROVAL)
OF A GENERAL RATE INCREASE)**

DIRECT TESTIMONY OF MARC I. LEWIS

DIRECTOR OF GAS PIPELINE AND SYSTEM INTEGRITY

ON BEHALF OF

BLACK HILLS NEBRASKA GAS, LLC

Date: June 1, 2020

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	STATEMENT OF QUALIFICATIONS	1
III.	PURPOSE OF TESTIMONY	2
IV.	PIPELINE SAFETY REGULATIONS	5
V.	CAPITAL SPEND PLAN PROJECT IDENTIFICATION PROCESS	14
VI.	THE COMPANY’S PROPOSED SSIR.....	22
VII.	OVERVIEW OF SSIR PROGRAMS	26
	A. At-Risk Meter Relocation Program (“ARMR”)	31
	B. Span and Exposed Pipe Replacement Program.	33
	C. Problematic Pipe Replacement Program	34
	D. Transmission Integrity Management Plan Program	35
	E. Data Infrastructure Improvement Program	36
VIII.	CONCLUSION	45

EXHIBITS

Exhibit No. MIL-1:	Educational & Professional Summary
Exhibit No. MIL-2:	LaHood to Regulators 03-28-11
Exhibit No. MIL-3:	DOT Call to Action News Release 41-11
Exhibit No. MIL-4:	LaHood's Call to Action
Exhibit No. MIL-5:	Senator to Columbia Gas of Massachusetts 10-04-18
Confidential Exhibit No. MIL-6:	Distribution Integrity Management Plan
Exhibit No. MIL-7:	AGA 2012 Commitment to Enhancing Safety
Exhibit No. MIL-8:	AGA 2014 and 2016 Commitments to Enhancing Safety
Exhibit No. MIL-9:	PHMSA to NARUC and White Paper
Exhibit No. MIL-10:	NARUC Resolution 07-24-13
Exhibit No. MIL-11:	AGA Special Recovery Mechanism
Exhibit No. MIL-12:	SSIR Project Development Process
Confidential Exhibit No. MIL-13:	Data Infrastructure Improvement Program
Confidential Exhibit No. MIL-14:	Transmission Integrity Management Plan
Confidential Exhibit No. MIL-15:	At-Risk Meter Evaluation Process

DIRECT TESTIMONY OF MARC I. LEWIS

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Marc I. Lewis. My business address is 7001 Mount Rushmore Road, Rapid City, South Dakota 57702.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Black Hills Service Company, LLC ("BHSC"), a wholly owned subsidiary of Black Hills Corporation ("BHC"). I am the Director of Gas Pipeline and System Integrity.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills Nebraska Gas, LLC ("BH Nebraska Gas" or "Company"). BH Nebraska Gas is the natural gas utility resulting from the recent consolidation of the Nebraska gas utility assets and operations of BHC's two former Nebraska gas utility distribution subsidiaries, Black Hills/Nebraska Gas Utility Company, LLC ("BH Gas Utility") and Black Hills Gas Distribution, LLC ("BH Gas Distribution").

II. STATEMENT OF QUALIFICATIONS

Q. WHAT ARE THE DUTIES AND RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I manage the natural gas distribution, transmission, and storage integrity departments and programs for BHC's natural gas utility subsidiaries.

1 **Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES RELATED TO BH**
2 **NEBRASKA GAS OPERATIONS.**

3 A. My responsibilities related to BH Nebraska Gas operations are to establish and
4 manage the integrity programs to be implemented and followed by BH Nebraska
5 Gas.

6 **Q. PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL**
7 **BACKGROUND.**

8 A. My education, employment history and professional experience is provided in
9 Exhibit No. MIL-1.

10 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

11 A. No.

12 **III. PURPOSE OF TESTIMONY**

13 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

14 A. The purpose of my testimony is to discuss and support the following areas:

15 (1) **Pipeline Safety Regulation:** Describe the federal and state regulations
16 governing pipeline safety;

17 (2) **BH Nebraska Capital Infrastructure Project Identification Process:**
18 Discuss the collaboration process used by the Company to identify, Integrity and
19 Reliability projects included in the Capital Spend Plan of BH Nebraska Gas;¹

20 (3) **BH Nebraska Gas DIMP and TIMP:** Discuss the federally-mandated
21 programs – Distribution Integrity Management Program (“DIMP”) and

¹ The Company has established “Growth,” “Integrity,” “Reliability,” and “General Plant” as the four different classes of projects included under its five-year gas infrastructure capital investment budget “Capital Spend Plan.” Integrity and Reliability projects focus on pipeline safety infrastructure projects.

1 Transmission Integrity Management Program (“TIMP”) developed by
2 BH Nebraska Gas;

3 (4) **Risk Ranking and Safety Infrastructure Investment:** Explain and support
4 the Company’s shift from reactive investment in safety infrastructure projects to a
5 data-driven ranking of the risk of the gas system facilities, and then applying a
6 programmatic investment approach to prudently manage pipeline safety;

7 (5) **SSIR Project Identification Process:** Discuss the BH Nebraska Gas integrity
8 projects, including those included under the BH Nebraska Gas System Safety and
9 Integrity Rider (“SSIR”). My testimony demonstrates that the Company’s
10 investment in pipeline safety is in the public interest and provides an overview of
11 the Company’s pipeline safety and integrity initiatives which are included in the
12 proposed SSIR. These initiatives include:

- 13 • At-Risk Meter Relocation;
- 14 • Span and Exposed Pipe Replacement Program;
- 15 • Problematic Pipe Replacement Program;
- 16 • TIMP Program;

17 (6) **Data Infrastructure Improvement Program:** Discuss the development of
18 the Data Infrastructure Improvement Program (“DIIP”) being developed by the
19 Company to improve its gas system data. My testimony also supports the
20 inclusion of the costs to develop DIIP through the SSIR Charge.

21 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

22 A. Yes. I am sponsoring the following Exhibit(s):

23 **Exhibit No. MIL–1** is a summary of my education, employment history and
24 professional experience.

1	Exhibit No. MIL-2	LaHood to Regulators 03-28-11
2	Exhibit No. MIL-3	DOT Call to Action News Release 41-11
3	Exhibit No. MIL-4	LaHood's Call to Action
4	Exhibit No. MIL-5	Senator to Columbia Gas of Massachusetts
5		10-04-18
6	Confidential Exhibit No. MIL-6	Distribution Integrity Management Plan
7	Exhibit No. MIL-7	AGA 2012 Commitment to
8		Enhancing Safety
9	Exhibit No. MIL-8	AGA 2014 and 2016 Commitments to
10		Enhancing Safety
11	Exhibit No. MIL-9	PHMSA to NARUC and White Paper
12	Exhibit No. MIL-10	NARUC Resolution 07-24-13
13	Exhibit No. MIL-11	AGA Special Recovery Mechanism
14	Exhibit No. MIL-12	SSIR Project Development Process
15	Confidential Exhibit No. MIL-13	Data Infrastructure Improvement Program
16	Confidential Exhibit No. MIL-14	Transmission Integrity Management Plan
17	Confidential Exhibit No. MIL-15	At-Risk Meter Evaluation Process

18 **Q. HAVE THE TESTIMONY AND EXHIBITS THAT YOU ARE**
19 **SPONSORING BEEN PREPARED BY YOU OR UNDER YOUR**
20 **SUPERVISION?**

21 **A. Yes.**

1 **IV. PIPELINE SAFETY REGULATIONS**

2 **Q. ARE YOU GENERALLY FAMILIAR WITH FEDERAL AND STATE**
3 **REGULATIONS REGARDING PIPELINE SAFETY AND INTEGRITY?**

4 A. Yes.

5 **Q. PLEASE PROVIDE SOME BACKGROUND REGARDING PIPELINE**
6 **SAFETY REGULATIONS.**

7 A. Following several major natural gas explosions in 1999 and 2000, the Pipeline
8 Safety Improvement Act of 2002 was passed. In December 2003, the Department
9 of Transportation's ("DOT") Pipeline and Hazardous Materials Safety
10 Administration ("PHMSA") published the Gas Transmission Integrity
11 Management Rule, commonly referred to as the "TIMP Rule." The TIMP Rule
12 specifies how pipeline operators must identify, prioritize, assess, evaluate, repair
13 and validate the safety and integrity of gas transmission pipelines.²

14 In December 2006, Congress passed the Pipeline Inspection, Protection,
15 Enforcement and Safety Act ("PIPES Act"), which mandated that PHMSA
16 prescribe minimum standards for pipeline system safety and integrity
17 management programs for distribution pipelines to ensure fitness for service. The
18 law provides for PHMSA to require operators of distribution pipelines to:

- 19 • continually identify and assess risks on their distribution lines;
20 • remediate conditions that present a potential threat to pipeline system
21 safety and integrity; and
22 • monitor program effectiveness.

² 49 Code of Federal Regulations Part 192, Subpart O.

1 In December 2009, as mandated by the PIPES Act, PHMSA published the
2 Integrity Management Program for Gas Distribution Pipelines Rule, commonly
3 referred to as the “DIMP Rule.” The DIMP Rule requires each operator to
4 develop, write and implement a distribution pipeline system safety and integrity
5 management program.³ Federal regulations require that “operators identify risks
6 to their pipelines where an incident could cause serious consequences and focus
7 priority attention in those areas” and “implement a program to provide greater
8 assurance of the integrity of their pipeline.”⁴

9 **Q. DID SUBSEQUENT EVENTS TRIGGER FURTHER REGULATORY**
10 **ACTIVITY?**

11 A. Yes. Prior to the August 2, 2011 deadline for gas distribution operators to develop
12 their DIMPs, a series of high-profile natural gas pipeline failures occurred in 2010
13 and 2011.⁵ Shortly after the pipeline failure in Hanoverton, Ohio, DOT Secretary
14 Ray LaHood announced at the National Association of Regulatory Utility
15 Commissioners’ (“NARUC”) 2011 Winter Meeting that the DOT was convening
16 a series of meetings with state regulators, gas pipeline inspectors and other
17 interested parties to improve the safety and integrity of the nation’s gas pipeline
18 systems. Secretary LaHood underscored “the need to develop a comprehensive
19 solution that will prevent accidents like these from recurring” and encouraged the
20 states and state utility commissions “to accelerate pipeline repair, rehabilitation,

³ 49 Code of Federal Regulations Part 192, Subpart P.

⁴ Id.

⁵ San Bruno, California in September 2010; Wayne, Michigan in December 2010; Philadelphia, Pennsylvania in January 2011; Allentown, Pennsylvania in February 2011; and Hanoverton, Ohio in February 2011.

1 and replacement programs for systems whose integrity cannot be positively
2 confirmed.”⁶

3 In April 2011, Secretary LaHood issued a Call to Action launching a
4 national pipeline safety initiative to “address immediate concerns in pipeline
5 safety, such as ensuring pipeline operators know the age and condition of their
6 pipelines; proposing new regulations to strengthen reporting and inspection
7 requirements; and making information about pipelines and the safety record of
8 pipeline operators easily accessible to the public.”⁷ The Call to Action stated that
9 “[w]hile these measures may be costly, they are necessary to address the threat to
10 human life, property, and the environment” and explained that the “[i]nvestments
11 that are made now will ensure the safety of the American people and the integrity
12 of the pipeline infrastructure for future generations.”⁸

13 **Q. PLEASE DESCRIBE THE CURRENT REGULATORY ENVIRONMENT**
14 **REGARDING DISTRIBUTION PIPELINE SAFETY AND INTEGRITY.**

15 A. While utilities have begun implementing programs to identify and remediate
16 risks, including the development of DIMPs, natural gas pipeline failures still
17 represent a significant threat that continue to make national headlines and spur
18 government action. A very recent incident involving Columbia Gas of
19 Massachusetts (“CGM”), a subsidiary of NiSource, Inc. (“NiSource”), resulted in
20 the loss of life, injury to dozens of individuals, and damage to 131 structures. The
21 National Transportation Safety Board (“NTSB”) is investigating the incident,

⁶ See Exhibit No. MIL-2, Letter from Secretary Ray LaHood dated March 28, 2011.

⁷ See Exhibit No. MIL-3, DOT News Release dated April 4, 2011.

⁸ See Exhibit No. MIL-4, Secretary LaHood’s Call to Action.

1 members of the U.S. Congress have requested a hearing on the incident, and
2 hearings on pipeline safety reauthorization began in 2019.

3 U.S. Senators Edward J. Markey and Elizabeth Warren reviewed CGM's
4 DIMP, among other documents, and on October 4, 2018 sent a letter to CGM and
5 NiSource asking vital questions regarding the safety of the system and raising
6 concerns regarding the safety assurance to residents ("CGM Letter").⁹ Citing to
7 CGM's DIMP, the CGM Letter alleged that the "company underestimated the
8 possibility of an extremely serious incident, did not adequately build redundancies
9 into its operations or put in place key safety measures to prevent it, and was
10 utterly unprepared to respond to it."¹⁰ The CGM Letter described the purpose of a
11 DIMP and then proceeded to raise concerns with CGM's risk evaluation
12 calculation and the utility of the risk-ranking exercise.¹¹ The CGM Letter went on
13 to find that CGM "is likely to be unprepared for rare but significant failures"
14 reasoning that a DIMP that "evaluates risk only by looking at past events ...
15 cannot properly evaluate potential future risks."¹²

16 **Q. PLEASE SUMMARIZE THE PHMSA REGULATIONS APPLICABLE TO**
17 **BH NEBRASKA GAS.**

18 A. The PHMSA regulations applicable to BH Nebraska Gas are codified in the Code
19 of Federal Regulations ("C.F.R.") Title 49 (Transportation), Part 192
20 (Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal
21 Safety Standards). These regulations prescribe safety requirements for pipeline

⁹ See Exhibit No. MIL-5, Letter from U.S. Senators Markey and Warren to CGM and NiSource dated October 4, 2018.

¹⁰ *Id.*

¹¹ *Id.* at pages 2-3.

¹² *Id.* at p. 3

1 facilities and the transportation of gas (Section 192.1); define “pipeline facilities”
2 as “new and existing pipeline, rights-of-way, and any equipment, facility, or
3 building used in the transportation of gas...” (Section 192.3); define the
4 “transportation of gas” as “the gathering, transmission, or distribution of gas by
5 pipeline or the storage of gas, in or affecting interstate or foreign commerce
6 (Section 192.3); and define an “operator” as an entity that engages in the
7 transportation of gas” (Section 192.3).

8 **Q. IS BH NEBRASKA GAS SUBJECT TO PHMSA’S RULES AND**
9 **REGULATIONS REGARDING GAS DISTRIBUTION PIPELINE**
10 **SAFETY?**

11 A. Yes. As part of its regulation of natural gas facilities owned and operated by
12 Nebraska public utilities and its administration of its responsibilities under the
13 Nebraska Natural Gas Pipeline Safety Act of 1969,¹³ the Nebraska State Fire
14 Marshal (“NSFM”) has promulgated Gas Pipeline Safety Rules at Title 155,
15 Chapter 1, *et seq.* Pursuant to NSFM Rule Title 155, Chapter 1, 001, the NSFM
16 has adopted and has incorporated by reference Part 192 of the federal pipeline
17 safety regulations (49 C.F.R.) as they existed on April 1, 2019. BH Nebraska Gas
18 is an “operator” under Part 192 of PHMSA’s regulations, is subject to the DIMP
19 regulations, and is required to have a DIMP in place.

¹³ Neb. Rev. Stat. §§ 81-542 to 81-550 (2009).

1 **Q. PLEASE DESCRIBE THE BH NEBRASKA GAS DISTRIBUTION**
2 **INTEGRITY MANAGEMENT PROGRAM.**

3 A. BH Nebraska Gas maintains a DIMP, as required by PHMSA.¹⁴ The DIMP Rule
4 changed the traditional ways of addressing pipeline system safety and integrity.
5 The DIMP requires the utility to identify, assess, prioritize, and evaluate risks to
6 the integrity of distribution lines and associated facilities and the manner in which
7 those risks will be mitigated or eliminated. The integrity management approach
8 under the DIMP is “designed to promote continuous improvement in pipeline
9 safety by requiring operators to identify and invest in risk control measures
10 beyond core regulatory requirements.”¹⁵

11 **Q. IS DIMP THE COMPANY'S ONLY INTEGRITY MANAGEMENT**
12 **PROGRAM?**

13 A. No. The Company also maintains a TIMP, as required by PHMSA. The TIMP
14 Rule changed the traditional ways of addressing pipeline system safety and
15 integrity. The TIMP Rule encompasses both "covered segments" of transmission
16 pipeline within High Consequence Areas ("HCAs") and "non-covered segments"
17 that fall outside of HCAs.

18 **Q. WHAT ROLE DOES THE STATE PLAY WITH REGARD TO**
19 **DISTRIBUTION PIPELINE SAFETY?**

20 A. As stated above, the NSFM has adopted and incorporated by reference into its
21 rules many of the federal pipeline safety regulations from Title 49 of the C.F.R.

22 Additionally, the NSFM has oversight regarding the utility's pipeline

¹⁴ See Confidential Exhibit No. MIL-6 - Confidential Distribution Integrity Management Plan.

¹⁵ Pipeline Safety: Integrity Management Program for Gas Distribution Pipelines, 74 Fed. Reg. 63906 at 63906 (Dec. 4, 2009).

1 safety measures. BH Nebraska Gas annually submits Operations and Maintenance
2 Procedures, Emergency Plans, and Damage Prevention Plans, as required by
3 PHMSA and NSFM's rules.¹⁶ Additionally, BH Nebraska Gas submits operation
4 maps for distribution and transmission systems every five (5) years or as
5 requested.¹⁷ PHMSA noted the importance of oversight performed directly by the
6 states stating:

7 States must implement the minimum standards established by
8 PHMSA but have a variety of ways in which they can oversee
9 distribution pipeline safety. They can simply mirror the Federal
10 pipeline safety program; they can impose additional requirements,
11 beyond the Federal minimum; they can engage in special oversight
12 programs with individual operators or groups of operators; or
13 finally, they can provide incentives for safety improvements, often
14 through their rate-setting authority.

15
16 It is appropriate that the principal actions for regulating
17 distribution pipeline safety rest with the States. States need to
18 balance safety and affordability. They need to ensure that the
19 particular needs of their citizenry are fulfilled ...¹⁸
20

21 **Q. WHY IS THERE AN INCREASED FOCUS ON DISTRIBUTION SYSTEM**
22 **SAFETY AND INTEGRITY?**

23 A. As described previously, the industry continues to see incidents involving natural
24 gas pipeline failures across the country resulting in a continued focus on
25 minimizing risk through infrastructure replacement and mitigating system threats.
26 Table MIL-1 below provides information for 2015-2019 reported through
27 PHMSA's Pipeline Significant Incident 20 Year Trend for all system types.¹⁹

¹⁶ Title 155, Chapter 1, Section 006.01

¹⁷ Title 155, Chapter 1, Section 006.02

¹⁸ Notice of Proposed Rulemaking, 73 Fed. Reg. 36015 at 36017.

¹⁹ See <https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages>. The numbers reflected on the table reflect all system types and all states.

TABLE MIL-1				
PIPELINE SIGNIFICANT INCIDENTS 2015-2019				
Calendar	# of Incidents	# of Fatalities	# of Injuries	Total Cost (Current Year Dollars)
2015	712	11	48	\$349,959,166
2016	633	16	87	\$326,372,397
2017	650	20	35	\$272,487,138
2018	636	8	90	\$1,098,073,090
2019	631	13	37	\$294,187,823

1 What is even more disconcerting is the number of fatalities and injuries
2 that are specifically associated with incidents for gas distribution systems as
3 shown in Table MIL-2.²⁰

TABLE MIL-2				
DISTRIBUTION PIPELINE SIGNIFICANT INCIDENTS 2015-2019				
Calendar Year	# of Incidents	# of Fatalities	# of Injuries	Total Cost (Current Year Dollars)
2015	66	2	32	\$31,663,251
2016	74	10	74	\$57,086,865
2017	63	3	26	\$74,247,080
2018	75	6	81	\$1,663,667,541
2019	88	12	26	\$58,760,158

4
5 When comparing the data from the above tables, what becomes clear is the
6 higher percentage of fatalities and injuries associated with distribution pipeline
7 incidents. As an example, in 2019 distribution pipelines only accounted for 13.9%
8 of the total significant incidents,²¹ but distribution pipeline significant incidents
9 were responsible for 92.3% of the total fatalities²² and 70.3% of the total injuries

²⁰ See <https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages>. The numbers reflected on the table reflect gas distribution system types and all states.

²¹ $88/631 = 0.139$.

²² $12/13 = 0.923$.

1 from significant incidents.²³ Significant incidents on distribution pipelines are
2 responsible for a disproportionately higher percentage of fatalities and injuries.
3 This is due to the fact that, as compared to transmission pipelines, there are many
4 more miles of distribution pipelines and most distribution lines are located
5 predominantly in higher density population areas near homes, commercial
6 businesses and other human activities.²⁴

7 **Q. DO PIPELINE SAFETY REGULATIONS SPECIFY THE FULL EXTENT**
8 **OF ACTIONS A PRUDENT OPERATOR IS EXPECTED TO UTILIZE?**

9 A. No, it is really a set of guidelines in determining what actions need to be taken.
10 Sections 192.1005 and 192.1007 require gas utilities to develop and implement a
11 DIMP containing the following elements: (a) knowing their systems;
12 (b) identifying threats; (c) measuring performance, monitoring results, and
13 evaluating effectiveness; (d) periodic evaluation and improvement; and
14 (e) reporting results. The pipeline safety regulations were never meant to be all
15 inclusive. Inherent in the pipeline safety regulations is the requirement that
16 pipeline operators do what is reasonably necessary for the public good. As
17 demonstrated by the CGM failure, it is vital for pipeline operators to evaluate
18 potential future risks and be prepared for rare but potentially significant failures.

19 **Q. WHAT HAS BEEN THE NATURAL GAS INDUSTRY'S REACTION TO**
20 **THE CONTINUED INCIDENTS?**

21 A. The American Gas Association ("AGA"), along with its members, proactively
22 collaborate with federal and state regulators as well as other key stakeholders to

²³ 26/37 = 0.703.

²⁴ PHMSA noted this fact in its Notice of Proposed Rulemaking, 73 Fed. Reg. 36015 at 36017.

1 improve the industry's safety record. AGA and its members initially issued a
2 commitment to enhancing safety in 2012, which includes voluntary actions by the
3 organization as well as individual operators to ensure safe and reliable pipeline
4 operation (*See* Exhibit No. MIL-7). The AGA and its members provided an
5 updated Commitment to Enhancing Safety in 2014 and again in 2016 (*See*
6 Exhibit No. MIL-8), further solidifying the industry's acknowledgment of the
7 need for continued and enhanced effort towards pipeline safety and its support for
8 mechanisms that make that possible.

9 The industry has continued to put more emphasis on pipeline integrity.
10 Continuing high-profile pipeline incidents, as well as advanced pipeline
11 inspection technology, compel the industry to improve safety. This, along with
12 partnerships with regulators to implement important cost-recovery mechanisms,
13 such as the SSIR being proposed by BH Nebraska Gas in this proceeding,
14 facilitates efforts by utilities to proactively address system safety and integrity
15 requirements on an accelerated basis.

16 **V. CAPITAL SPEND PLAN PROJECT IDENTIFICATION PROCESS**

17 **Q. HOW HAS BH NEBRASKA GAS HISTORICALLY PRIORITIZED THE**
18 **WORK THAT MUST BE COMPLETED ON ITS SYSTEM?**

19 A. In the ordinary course of business, highest priority is given to reactive projects
20 necessary to eliminate an immediate hazardous threat to public safety and
21 customer reliability. An example of this is a Grade 1 leak, as defined by the
22 AGA's Gas Piping Technology Committee. A Grade 1 leak is a leak that
23 represents an existing or probable hazard to persons or property that requires

1 immediate repair or continuous action until the conditions are no longer
2 hazardous.

3 Projects that are required to comply with federal, state, and local
4 regulations and BH Nebraska Gas procedures are the second highest priority. An
5 example is a repair project for a Grade 2 leak, which requires monitoring for the
6 time limits specified by regulations.

7 The third level of priority has been the reliance on feedback from subject
8 matter experts (“SME”) to determine the scope and priority of infrastructure
9 projects. SMEs include Operations, Engineering Department, and Compliance
10 personnel who have broad, in-depth knowledge of BHC’s systems, design and
11 operating practices, and regulations that are applicable to BHC’s facilities and
12 work activities.

13 **Q. HOW DOES BH NEBRASKA GAS NOW PRIORITIZE THE PROJECTS**
14 **FOR THE PIPELINE REPLACEMENT PROGRAMS?**

15 A. The Company has implemented a prioritization approach that involves the
16 coordination of SMEs from the Engineering Department, Business Development,
17 Regulatory & Finance, and Operations teams.

18 The approach includes the gathering of specific data for the BH Nebraska
19 Gas natural gas system, inputting the data into the risk model, subsequently taking
20 those outputs and applying the risk core to pipeline segments.

21 Once all the data for the BH Nebraska Gas system has been gathered, the
22 Engineering Department, Business Development, Regulatory & Finance and
23 Operations Department teams meet to study the analysis. These meetings occur on

1 an annual basis and focus on the specific risks and concerns associated with the
2 BH Nebraska Gas system.

3 While Engineering Department SMEs are essential to the modeling of
4 known risk, Operations SMEs provide vital input based on first-hand knowledge
5 that is necessary to accurately evaluate risk results. The Regulatory & Finance
6 SMEs provide input on the Capital Spend Plan and regulatory limitations. The
7 outcome of this approach is to jointly determine the appropriate ranking of risk on
8 the BH Nebraska Gas system. The safety and integrity projects identified through
9 this analysis then are reviewed along with other Gas Infrastructure projects
10 (i.e., Growth and General Plant projects) are then added to the Company's Five-
11 year Capital Spend Plan.

12 For example, during the most recent annual meetings, a project list
13 ranking higher risk pipelines was developed. Thereafter, the SSIR Integrity
14 projects proposed to be undertaken in 2021 and beyond include the higher risk
15 pipelines jointly determined by the SMEs. Collaboration will continue during the
16 course of the SSIR and the annual evaluations of the programs will permit
17 BH Nebraska Gas to accelerate individual projects based on then-current
18 knowledge.

19 **Q. HOW HAVE THE FEDERAL AND STATE PIPELINE SAFETY**
20 **CHANGES IMPACTED BH NEBRASKA GAS?**

21 A. BH Nebraska Gas has developed a DIMP and TIMP in compliance with federal
22 pipeline regulations. With the regularity of high-profile gas pipeline incidents
23 occurring, simply evaluating risks by looking at past events, is not sufficient. In
24 an effort to be prepared for rare but significant failures, BH Nebraska Gas

1 reevaluated its DIMP program, has taken steps to determine the higher risk pipe
2 types on the system and is ready to proceed with a proactive accelerated approach
3 to mitigating risks on the system.

4 **Q. IS THE BH NEBRASKA GAS PIPELINE SYSTEM CURRENTLY SAFE?**

5 A. Yes, but the Company still has work to do to ensure the future sustained safety of
6 the system. While BH Nebraska Gas cannot guarantee there will never be an
7 incident, it regularly monitors and inspects its system, identifies risks, and
8 implements remedies as appropriate. BH Nebraska Gas is driven to be more
9 proactive in identifying and mitigating risks. The Company has assessed its
10 pipeline system and identified several higher risk pipe types. The longer these
11 pipe types remain in the system, the greater the likelihood of failure occurring.

12 Additionally, the CGM Letter suggests that a system integrity approach
13 based solely on after-failure review is inadequate. Where BH Nebraska Gas has
14 identified higher risk pipes on its system, it is important that the Company address
15 these risks through programmatic remediation efforts, including accelerating the
16 replacement of those pipes where appropriate.

17 **Q. WHAT HAS THE COMPANY ALREADY DONE TO ADDRESS RULE**
18 **CHANGES AND PROACTIVELY MITIGATE SYSTEM RISK?**

19 A. BH Nebraska Gas has taken substantial steps to mitigate system risk, including
20 creating DIMP and TIMP initiatives to programmatically mitigate the highest risk
21 issues, the development of additional engineering processes to effectively
22 implement DIMP and TIMP initiatives, and the continual improvement of the
23 BH Nebraska Gas system data knowledge base. Additionally, in an effort to
24 decrease third-party damage, which has been identified as our top threat in

1 Nebraska, BH Nebraska Gas hired a damage prevention coordinator for the State
2 of Nebraska.

3 **Q. WHAT ENGINEERING PROCESSES HAVE BEEN DEVELOPED AND**
4 **WHAT ROLE DO THEY PLAY WITH RESPECT TO MITIGATING**
5 **SYSTEM RISK?**

6 A. The Engineering Group has taken steps to proactively evaluate risk across the
7 Nebraska distribution system and prioritize those risks on a statewide basis. The
8 Engineering Group has developed a detailed risk model that allows BH Nebraska
9 Gas to evaluate and remediate the highest risk pipelines. Additionally, the
10 Engineering Group will continue to monitor the projects completed and will
11 update its risk analysis on an annual basis.

12 **Q. WHAT ROLE DOES ACCURATE AND COMPLETE SYSTEM DATA**
13 **PLAY WITH RESPECT TO MITIGATING SYSTEM RISK?**

14 A. Knowledge of the pipeline system, including pipe location and composition, is
15 vital for a utility to comply with PHMSA and the State of Nebraska requirements
16 to identify and assess risks and is a necessary first step to improving pipeline
17 integrity. Knowledge is key to the proactive approach of keeping everyone safe
18 around pipeline facilities.

19 **Q. IS BH NEBRASKA GAS AWARE OF THE CURRENT LOCATION AND**
20 **COMPOSITION OF ALL PIPES ON ITS SYSTEM?**

21 A. No. While great efforts were undertaken in recent years to evaluate and improve
22 the data records for the pipeline system, the majority of the pipeline system was
23 installed prior to computers, scanners, geo-coding, and most forms of digital data.

1 To the extent historical records were maintained, minimal and imprecise
2 information was often recorded.

3 **Q. WHAT TOOLS DO COMPANY PERSONNEL HAVE TO HELP**
4 **DETERMINE PIPE LOCATION WHILE IN THE FIELD?**

5 A. BH Nebraska Gas uses industry specific software to improve its data records,
6 including Customer Information Systems™ (“CIS”), CIS+™, Click™,
7 ClickMobile™, GTViewer™, and Geographical Information System™ (“GIS”).²⁵
8 CIS+ syncs data to GIS on a weekly basis so that meter locations and information
9 can be seen by mobile technicians in the GIS™ maps as compared to other gas
10 assets. All of the gas GIS data, including the CIS+ meters, is synced to
11 GTViewer™ on a weekly basis so that it can be viewed by the mobile technician
12 on an Apple, Inc.’s Operating System (“iOS”) device in the field, even when
13 disconnected from the network. There is also a link from the ClickMobile IOS™
14 interface to open GTViewer™ to view a map of the specific work location for a
15 mobile technician. These systems are only useful when accurate data is already in
16 the systems.

17 **Q. WHAT EFFORTS WERE UNDERTAKEN TO IMPROVE THE**
18 **KNOWLEDGE OF THE BH NEBRASKA GAS PIPELINE SYSTEM?**

19 A. BH Nebraska Gas’ predecessor companies, BH Gas Utility and BH Gas
20 Distribution, completed several data projects in order to have a better

²⁵ CIS is a generic name used as customer meter database. CIS+ is the specific customer meter database utilized by BH Nebraska Gas. Click™ is software used to schedule and dispatch the mobile workforce to Operation Department Service Technicians to complete work assignments. ClickMobile™ is the mobile portion of Click™ used by BH Nebraska Gas Service Technicians to receive and track their work. GTViewer™ is a mobile map viewing software that allows BH Nebraska Gas personnel to view gas assets on a map when either connected to or disconnected from the network.

1 understanding of their assets. The Company has implemented automated forms
2 for recording leaks, damages, and buried pipe inspections throughout the service
3 territories. The data automatically updates the records system and is spatially
4 reflected in the GIS. These automated forms step technicians through required
5 fields in order to assure the quality of data entered. The automated forms are
6 completed within the Company's scheduling and dispatch software,
7 ClickMobile™, and are required to be populated prior to order completion.

8 In 2012, BH Gas Distribution's predecessor, SourceGas
9 Distribution, LLC, completed a Block Card Conversion Project and Asset
10 Conflation/Realignment Project. The Block Card Conversion Project compiled
11 old paper block cards and scanned those into the GIS to update missing data, such
12 as information on fittings. The Asset Conflation/Realignment Project realigned
13 assets in GIS to aerial imagery and parcel data to more accurately reflect their true
14 ground location. Because these assets were originally drawn in without the benefit
15 of satellite location reference information, they were up to 100 feet off in many
16 locations.

17 After the 2016 SourceGas acquisition, BH Gas Distribution began moving
18 equipment records and inspection records from legacy databases to CIS+, which
19 allowed those records to be automatically created in CIS and dispatched by Click.
20 This eliminated the requirement to complete orders on paper and then manually
21 enter results into the database. All the related records are now automatically
22 transferred from Click to CIS.

23 BH Gas Utility implemented the following projects to improve system
24 knowledge. In 2013, the GIS group visited field offices to assess and scan paper

1 records to true-up the GIS data. Around 2014, the Landbase Data Project was
2 initiated which was intended to accurately plot land-based data and then shift all
3 gas main data to the appropriate location. Landbase data is data that can be used
4 as a reference to plan or design the construction of pipe assets, such as parcel
5 boundaries, rights-of-way ("ROW"), curbs, etc. The Online Gas Service Card
6 Project was also initiated in 2014 in order to scan in all service cards so that they
7 can be available electronically in the field via FileNet™ and GTViewer™.²⁶ In
8 addition to these specific projects, BH Nebraska Gas recently completed a
9 Class 3, Class 4, and High Consequence Area records audit, and move the
10 relevant data to its Esri™ system.

11 **Q. HAVE THOSE EFFORTS IMPROVED BH NEBRASKA GAS'**
12 **KNOWLEDGE OF ITS SYSTEM?**

13 A. Yes. However, gaps continue to be found in data for the pipeline system, which
14 requires BH Nebraska Gas to take steps to develop a better understanding of its
15 assets and system. One of the initial projects BH Nebraska Gas proposes is to
16 focus on integrating and improving the data for the gas pipeline system.

17 **Q. WHAT ADDITIONAL CHANGES DOES BH NEBRASKA GAS PLAN ON**
18 **IMPLEMENTING TO IMPROVE ITS INTEGRITY PROGRAMS?**

19 A. BH Nebraska Gas uses a risk model to evaluate and rank risk by threat and to
20 prioritize action for threats posing the highest risk to the system. In light of the
21 recent natural gas failures on other systems and the issues raised in the
22 Exhibit No. MIL-5, Gas Engineering is currently building an analytical and more

²⁶ FileNet is a software program used internally by BH Nebraska Gas to store legal and regulatory documents.

1 predictive TIMP risk model that is integrated with all of BHC's natural gas
2 distribution Transmission assets and will be able to accept more data. The intent
3 of these efforts is to improve the TIMP on BH Nebraska Gas. The same process
4 was completed last year for the DIMP risk model, aligning our goals of
5 continuous improvement.

6 **VI. THE COMPANY'S PROPOSED SSIR**

7 **Q. PLEASE SUMMARIZE THE PROJECTS TO BE INCLUDED IN THE**
8 **COMPANY'S PROPOSED SSIR.**

9 A. The Company is proposing to develop a better understanding of its assets and
10 accelerate the replacement of higher risk pipeline. The Company is seeking to
11 continue the SSIR that was previously approved by the Commission and expand it
12 into the former BH Gas Utility territory so that there is uniformity in its
13 implementation for BH Nebraska Gas. As explained in the testimony of
14 Mr. Bennett, BH Nebraska Gas is filing an Application for a new SSIR ("2021
15 SSIR Application"), with projects to begin in 2021. As explained in the 2021
16 SSIR Application, SSIR eligible projects must meet one of the following criteria:
17 (1) complying with TIMP; (2) complying with DIMP; (3) complying with
18 PHMSA regulations; or (4) facility relocations over \$20,000. In addition, the
19 SSIR Application will be broken down into eleven (11) well-defined categories,
20 which include:

- 21 • Bare Steel Distribution;
- 22 • Transmission pipelines;
- 23 • Barricades;
- 24 • Cathodic Prevention and Corrosion Prevention;

- Town Border Stations;
- Top-of-Ground, Shallow and Exposed pipe;
- At-Risk and Inside Meter Relocations;
- Obsolete Infrastructure;
- Facility Relocations;
- Data Infrastructure Improvement Program; and
- Reliability

Q. IS BH NEBRASKA GAS PROPOSING TO ADD ANY NEW CRITERIA TO THE SSIR TARIFF?

A. Yes, as explained further in the testimonies of Mr. Bennett and Mr. Jarosz, BH Nebraska Gas is proposing to expand the SSIR tariff to include “Reliability” projects.

Q. IS BH NEBRASKA GAS PROPOSING ANY NEW CATEGORIES OR PROPOSING TO UPDATE ANY OF THE NINE CATEGORIES FROM PREVIOUS SSIR APPLICATIONS?

A. Yes, as explained further in the testimonies of Mr. Bennett and Mr. Jarosz, BH Nebraska Gas is proposing to add two new categories to the SSIR Application to cover DIIP projects and Reliability projects. In addition, BH Nebraska Gas is proposing to expand the following SSIR Application categories: 1) The TOG category was expanded to include shallow pipes; 2) The Meter Relocate category was expanded to include inside meter relocations; and 3) The PVC pipe category was expanded to include all obsolete infrastructure.

1 **Q. DOES YOUR TEAM EVALUATE RISK AND SYSTEM SAFETY**
2 **PRIORITIZATION AT THE CORPORATE LEVEL DIFFERENTLY**
3 **FROM THE ELEVEN CATEGORIES IN THE SSIR?**

4 A. Yes, my team uses an evaluation system that allows BHC to evaluate risk and
5 system safety across all of our states by using a standardized process. At the
6 corporate level, BHC focuses on the following five well-defined integrity
7 management programs:

- 8 • At-Risk Meter Relocations (“ARMR”);
- 9 • Span and Exposed Pipe Replacement Program;
- 10 • Problematic Pipe Replacement Program;
- 11 • TIMP Program; and
- 12 • DIIP

13 As noted above, the DIIP is a newly proposed category to the SSIR
14 Application and is necessary to enhance the Company’s hardware and software
15 infrastructure for collecting and maintaining vital system data, while the other
16 four involve the evaluation and accelerated replacement of certain natural gas
17 pipelines that present higher risk on the Company’s distribution and transmission
18 systems. BHC can take the Company-wide standard evaluation and fit it within
19 each state’s specific safety recovery mechanism, such as the BH Nebraska SSIR
20 mechanism. The DIIP projects stand-alone under the new category as described
21 above, while the remaining four Company-wide integrity programs all fit within
22 the SSIR’s remaining ten defined categories. For example, PVC pipe would be
23 evaluated and risk-ranked under the Company-wide model under the
24 “Problematic Pipe Replacement Program” category. However, when a specific

1 PVC pipe project is included in the SSIR, it would be included in the “Obsolete
2 Infrastructure” category in the SSIR Application. The risk-ranking and evaluation
3 does not change in this process, as it is simply a process of reorganizing
4 Company-wide models to match each state’s specific filing requirements.

5 **Q. HOW WILL BH NEBRASKA GAS DETERMINE THE PROJECTS TO BE**
6 **DEVELOPED AND PURSUED UNDER THE PROGRAMS INCLUDED IN**
7 **THE SSIR?**

8 A. The SSIR projects are identified through a collaboration between the Company’s
9 Pipeline System Integrity Engineers, BH Nebraska Operations, and Regulatory
10 and Finance teams.²⁷ Using historical records in conjunction with previous years’
11 data, risk analysis and scoring is performed using the Company’s new risk
12 models. From the results of this initial analysis, pipeline segments are scored and
13 at-risk meter scoring are developed through GIS. These results are then validated
14 and reviewed through state-level SME meetings. Projects are then developed and
15 run through a segmentation process to address the highest consequence first. A
16 flowchart describing the SSIR planning process is included as Exhibit No. MIL-
17 12.

18 It is through these steps that the Pipeline System Integrity team works with
19 Operations to identify and develop SSIR Projects. The results of the process are
20 reviewed through SME meetings annually. As more data is collected and
21 knowledge gained, the teams will further develop and prioritize SSIR Projects.

²⁷ As discussed below, a similar collaboration between these Company teams along with representatives from the Business Development team is used to identify other capital infrastructure projects falling under the “Growth,” “Reliability,” or “General Plant” project types.

1 **Q. PLEASE DESCRIBE THE TEAMS RESPONSIBLE FOR THE SSIR**
2 **PROCESS.**

3 A. The BHSC Engineering Department partners with the BH Nebraska Gas
4 Operations team, whose knowledge of the system is essential to the overall
5 process. Separately, the Pipeline System Integrity team, which works closely with
6 the Company's Pipeline Safety and Compliance team (both of which are in the
7 Engineering Department), has expertise in PHMSA rules and regulations. The
8 teams work together in the planning, development and execution of pipeline
9 integrity field work, including the projects proposed to be included in the SSIR.

10 **VII. OVERVIEW OF SSIR PROGRAMS**

11 **Q. PLEASE PROVIDE AN OVERVIEW OF THE SSIR PROGRAMS.**

12 A. BH Nebraska Gas proposes threat mitigation initiatives to be included in its SSIR.
13 Threat mitigation is a vital component of integrity management and allows the
14 Company to proactively implement a plan to mitigate known risks. Through the
15 SSIR, BH Nebraska Gas is proposing to accelerate the pace of these integrity
16 management initiatives. The SSIR programs would work in concert so that as
17 high-risk threats are identified, an analysis ranking the risks would occur, and
18 ultimately threat mitigation would be implemented utilizing the outcome of that
19 analysis.

20 **Q. WHAT SPECIFIC PROGRAMS ARE THE COMPANY PROPOSING TO**
21 **INCLUDE IN THE SSIR THAT FOCUS ON THREAT MITIGATION?**

22 A. For purposes of accelerated threat mitigation based on the risk analysis, the
23 Company is proposing to include the following programs in the SSIR. Again,

1 these programs are explained using a standardized Company-wide evaluation, but
2 all these programs fit within the SSIR's eleven categories.

3 The At-Risk Meter Relocation ("ARMR") Program will allow
4 BH Nebraska Gas to reduce risk by moving the meters located at the customers'
5 property lines to the customers' premises and replacing customer-owned yard
6 lines. In addition, this program will cover inside meter relocations.²⁸

7 The Span and Exposed Pipe Replacement Program will reduce risk by
8 eliminating high-risk pipe segments that degrade over time as a result of exposure
9 to various factors, including atmospheric corrosion.

10 The Problematic Pipe Replacement Program evaluates and eliminates
11 specific pipe types based on the Company's risk analysis, including vintage
12 materials such as bare and poorly coated steel, Polyvinyl Chloride pipe ("PVC"),
13 and steel tubing.

14 The TIMP Program will reduce risk by eliminating high-risk pipe
15 segments on BH Nebraska Gas' transmission systems.

16 **Q. PLEASE DESCRIBE THE PROJECTS UNDERTAKEN IN 2019 AS A**
17 **RESULT OF THE RISK PRIORITIZATION MEETING.**

18 A. As a result of the risk prioritization meeting in 2019, the Company identified
19 third-party damage as the top threat in Nebraska. As stated previously, the
20 Company created a damage prevention department and hired a damage prevention
21 coordinator and is planning to hire additional coordinators to facilitate and
22 manage a continuous improvement process addressing our top threat. Mr. Jarosz

²⁸ The Covid-19 Pandemic may temporarily slow the process of relocating inside meters where customer are concerned about others entering the Customer's premises.

1 explains the need to expand the employee resources in that area to lower the risk
2 of third-party damages even more for BH Nebraska Gas.

3 **Q. PLEASE DESCRIBE THE RISK MODEL CALCULATIONS.**

4 A. As described previously, the outcome of the risk model calculations is one input
5 when prioritizing projects. Confidential Exhibit No. MIL-14 provides the
6 overview of the TIMP Risk Model and Confidential Exhibit No. MIL-6 shows the
7 DIMP Risk Model. It is important to note that we are developing a new TIMP
8 Risk Model through our continuous improvement process. The updated model
9 will be completed in late 2020. The new TIMP model will look similar to the
10 DIMP model and still be aligned with PHMSA's required transmission threats.
11 The DIMP equation is currently used by BH Nebraska Gas to calculate risk using
12 more than 70 different threats. Pipelines segments are scored in both the TIMP
13 and DIMP risk model providing analysis of various threats and consequences to
14 determine the overall pipeline segment risk score.

15 **Q. HOW IS RISK CALCUALTED?**

16 A. Risk = LOF x COF

17 Where:

18 LOF =Likelihood of Failure

19 COF = Consequence of Failure

20 **Q. WHAT IS LIKELIHOOD?**

21 A. The likelihood of a particular threat is assigned a relative score on a 10-point scale
22 with 10 being the highest likelihood, 1 being the lowest likelihood, and 0 being
23 not applicable to the system. Several sub-threats include responses for mitigative
24 measures that BHE has implemented. These measures help to reduce the relative

1 risk for the given segment which is represented by negative index scores that are
2 associated with those measures.

3 For each sub-threat, likelihood scores are assigned based on the responses
4 to the questions included in the Threat Matrix contained in Confidential Exhibit
5 No. MIL-6. These responses come from SME input, operator data such as leak
6 and damage history, or GIS layers such as flood plains and earthquake zones.

7 As an additional proactive measure to identify segments that are indicative
8 of potential future failure, pipe profiles were developed based on leak and damage
9 history. This approach is discussed in the following subsections.

10 **Q. HOW DO YOU DEFINE CONSEQUENCE?**

11
12 A. Consequence scores are an additive combination of Threat consequence and Asset
13 consequence.

14 Threat consequence is the severity of the impact of a failure or situation
15 caused by each individual threat. Threat consequence scores are assigned based
16 on total failure, partial failure, or minimal/temporary failure of the segment.

17 Asset consequence is the consequence of an event due to the
18 characteristics or location of the given segment. Asset consequence consideration
19 includes pressure, material type, pipe diameter, population density, ability to
20 isolate the segment, and proximity to infrastructure.

21 **Q. IS SEGMENTATION PERFORMED BY THIS RISK MODEL?**

22
23 A. Yes, the system is segmented based on the applicable threats to different areas. In
24 the ArcMap system, various GIS and spatial layers are overlaid to evaluate the
25 relative risk. At every point where there is a change in applicable threats, a new
26 segment is identified. A minimum segment length of ten (10) feet was identified.

1 **Q. HOW ARE THE RISK RESULTS PRESENTED?**

2

3 A. The results can be presented in a variety of ways. The results can be viewed in a
4 large table or on a GIS map. We have found it to be convenient to use both. The
5 tables allow us to create tiers that can be color coded on a map.

6 **Q. HOW ARE THE TIERS DETERMINED?**

7

8 A. Risk scores were divided into four (4) statistically determined tiers with Tier 1
9 including the highest risk scores and Tier 4 including the lowest risk scores. Tiers
10 are determined based on P90 risk scores such that Tier 1 includes the top 5%
11 highest risk segments, Tier 2 includes the next highest 20% of segments, Tier 3
12 includes 25% of the segments, Tier 4 includes the lowest 50% of the segments.
13 Thus Tiers 1 and 2 are considered high risk, Tier 3 is medium risk, and Tier 4 is
14 low risk.

15 **Q. DO ALL FACTORS RECEIVE EQUAL CONSIDERATION?**

16 A. No. Each factor is weighted to reflect its influence on the safety and reliability of
17 the natural gas distribution system. This weight is added and adjusted through an
18 SME review.

19 **Q. WHAT ADDITIONAL FACTORS WILL BE UTILIZED BY**
20 **BH NEBRASKA GAS TO PRIORITIZE THE GAS INFRASTRUCTURE**
21 **PROJECTS?**

22 A. The risk model is only one component in the prioritization of higher risk pipe
23 replacement. BH Nebraska Gas also utilizes advanced technology, industry alerts,
24 advisory bulletins, and input from SMEs. Heat maps are utilized to demonstrate
25 the potential impact to affected customers and determine the potential
26 consequence to the public when a failure occurs.

1 Taking the outcome of the risk model calculation, SMEs provide
2 additional input as they consider whether there are road or other utility
3 infrastructure work scheduled in the area that will negatively impact the ability of
4 BH Nebraska Gas to operate, maintain, or replace facilities in the future.

5 **Q. WHAT OUTSIDE FACTORS COULD CAUSE A LOWER RISK**
6 **PROJECT TO BE COMPLETED BEFORE A HIGHER RISK PROJECT?**

7 A. There are a number of outside factors that may impact the prioritization of SSIR
8 projects. Projects could be moved up if it is discovered that a particular segment
9 needs to be replaced within a particular timeframe due to regulatory requirements
10 or mandates, if assets must be relocated because of a scheduled DOT, city, or
11 county infrastructure improvement project, or even if a construction moratorium
12 period is imposed by a city after a road has been resurfaced. Additionally, project
13 prioritization may be modified as a result of evaluations of unknowns through the
14 annual risk prioritization meetings discussed previously and the feasibility to
15 handle multiple programs minimizing multiple risks to ensure the most value for
16 the dollar is being spent.

17 A. **At-Risk Meter Relocation Program (“ARMR”)**

18 **Q. PLEASE DESCRIBE THE ARMR PROGRAM.**

19 A. The ARMR Program is intended to mitigate risks associated with meter location,
20 ownership of the connecting pipe, and ultimately responsibility to maintain the
21 service line. At-risk meters are located inside the customers’ home, at the
22 customer’s property line, some distance from the building structure found on the
23 property, and are often placed along roadways, which increases the risk of

1 vehicular damage to the meter. Additionally, the at-risk meter is connected to the
2 customer structure by an underground gas line known as a yard line. All facilities
3 downstream of the meter are generally the responsibility of the customer. As such,
4 customers are responsible for the safety of that pipeline, including maintenance,
5 leak tests, and line locates. BH Nebraska Gas is proposing to relocate at-risk
6 meters from inside the home or from the property line to the premise and replace
7 yard lines using appropriate materials.

8 **Q. DID BH NEBRASKA GAS EVALUATE ALTERNATIVES TO**
9 **REPLACING EACH YARD LINE?**

10 A. Yes. BH Nebraska Gas considered testing individual yard lines to determine their
11 risk prior to replacing the yard lines. However, even after testing or evaluating
12 each yard line individually, BH Nebraska Gas would not be able to sign off on the
13 materials, on the quality of construction, or construction practices at the time it
14 was installed.

15 **Q. PLEASE BRIEFLY DESCRIBE THE PRIORITIZATION OF PROJECTS**
16 **UNDER THE ARMR PROGRAM.**

17 A. Confidential Exhibit No. MIL-15 is a flow chart that presents a high-level
18 depiction of BH Nebraska Gas' prioritization of at-risk meters. However, these
19 projects are always reviewed by SMEs.

20 **Q. HOW DO ARMR PROGRAM PROJECTS FIT WITHIN THE SSIR?**

21 A. All projects identified through the ARMR Program fit within the DIMP criteria of
22 the SSIR. These projects will be placed under either the "At-Risk Meter
23 Relocations and Inside Meter Relocations" category or "Barricades" category of
24 the SSIR Application as explained in the testimony of Mr. Jarosz.

1 **B. Span and Exposed Pipe Replacement Program.**

2
3 **Q. PLEASE DESCRIBE THE SPAN AND EXPOSED PIPE REPLACEMENT**
4 **PROGRAM.**

5 A. The Span and Exposed Pipe Replacement Program is intended to replace high-
6 risk segments of pipeline that cross a known obstacle, such as a river or drainage,
7 or are exposed due to time dependent factors, such as erosion. Top of ground pipe
8 is also considered exposed pipe.

9 **Q. PLEASE BRIEFLY DESCRIBE THE PRIORITIZATION OF THE SPAN**
10 **AND EXPOSED PIPE REPLACEMENT PROGRAM.**

11 A. BH Nebraska Gas has developed a current list of high-risk spans and exposed
12 pipe on its system. Because these pipelines are constantly impacted by time
13 dependent factors, such as erosion, this list will change. However, BH Nebraska
14 Gas has developed a list of high-risk span and exposed pipe projects to be
15 included in the SSIR beginning in 2021.

16 **Q. HOW DO SPAN AND EXPOSED PIPE REPLACEMENT PROGRAM**
17 **PROJECTS FIT WITHIN THE SSIR?**

18 A. All projects identified through the Span and Exposed Pipe Replacement Program
19 fit within either the TIMP or DIMP criteria of the SSIR. These projects will be
20 placed under either the “Transmission Pipelines” category or the “Top of Ground,
21 Shallow, and Exposed Pipe” category of the SSIR Application as explained in the
22 testimony of Mr. Jarosz.

1 **C. Problematic Pipe Replacement Program**

2
3 **Q. PLEASE DESCRIBE THE PROBLEMATIC PIPE REPLACEMENT**
4 **PROGRAM.**

5 A. The Problematic Pipe Replacement Program is intended to mitigate risk
6 associated with vintage materials that are known to no longer be suitable for
7 natural gas pipelines, including bare and poorly coated steel, PVC, and steel
8 tubing pipe.

9 **Q. PLEASE BRIEFLY DESCRIBE THE PRIORITIZATION OF THE**
10 **PROBLEMATIC PIPE REPLACEMENT PROGRAM.**

11 A. Projects included in the Problematic Pipe Replacement Program were prioritized
12 based on the risk ranking process described above. SMEs from the Engineering
13 Department and Operations groups provided input in 2019 and again in 2020 to
14 finalize the project prioritization. Additionally, the SMEs provide input regarding
15 the Company's ability to handle multiple programs minimizing multiple risks to
16 improve efficiency. The risk ranking and the project list are reviewed and
17 reprioritized annually to ensure the highest threats are being addressed first.

18 **Q. HOW DO PROBLEMATIC PIPE PROGRAM PROJECTS FIT WITHIN**
19 **THE SSIR?**

20 A. All projects identified through the Problematic Pipe Program fit within either the
21 TIMP or DIMP criteria of the SSIR. These projects will be placed under the
22 "Transmission Pipelines" category, "Bare Steel Distribution" category, "Cathodic
23 Protection and Corrosion Prevention" category, or the "Obsolete Infrastructure"
24 category of the SSIR Application as explained in the testimony of Mr. Jarosz.

1 **D. Transmission Integrity Management Plan Program**

2 **Q. DOES BH NEBRASKA GAS OPERATE ANY TRANSMISSION**
3 **PIPELINES IN NEBRASKA?**

4 A. Yes. BH Nebraska Gas owns and operates over 1,311 miles of transmission
5 pipeline in the State of Nebraska that are subject to the TIMP rules.

6 **Q. BRIEFLY DESCRIBE TRANSMISSION PIPELINE PROJECTS FOR**
7 **BH NEBRASKA GAS.**

8 A. BH Nebraska Gas has taken steps to reduce risk on its transmission pipelines,
9 including adding transmission assets to the risk model, adding transmission assets
10 to the gas HCA analysis, and ensuring employees in the field are evaluating pipe
11 on a continual basis.

12 BH Nebraska Gas is proposing to include transmission related projects in
13 the SSIR through the TIMP Program. These projects are designed to: (1) replace
14 at-risk pipe and aging infrastructure, (2) evaluate specific segments of the
15 transmission pipeline to improve data, (3) lower pipeline pressure where
16 appropriate to improve safety and reliability, (4) evaluate and eliminate issues in
17 HCAs where necessary, and (5) develop a corrosion mitigation initiative to
18 mitigate areas of corrosion risk on the transmission pipeline.

19 **Q. HOW DO TRANSMISSION PIPELINE PROGRAM PROJECTS FIT**
20 **WITHIN THE SSIR?**

21 A. All projects identified through the Transmission Pipeline Program fit within the
22 TIMP criteria of the SSIR. These projects will be placed under either the
23 “Transmission Pipelines” category or the “Town Border Stations” category of the
24 SSIR Application as explained in the testimony of Mr. Jarosz.

E. Data Infrastructure Improvement Program

Q. WHAT IS BH NEBRASKA GAS DOING TO IMPROVE THREAT IDENTIFICATION?

A. Threat identification is a vital component of integrity management and allows BH Nebraska Gas to proactively identify and mitigate pipes where the risk of leaks developing is unacceptably high. BH Nebraska Gas is planning to take substantial steps to improve its data so that it can identify at-risk portions of its system.

Q. WHAT SPECIFIC PROGRAM IS THE COMPANY PROPOSING TO IMPLEMENT THAT FOCUSES ON THREAT IDENTIFICATION?

A. In order to continuously improve pipeline risk rankings for purposes of prioritizing accelerated threat mitigation efforts, it is vital for the Company to be able to identify risks, understand the consequences of those risks, develop GIS tools, close known data gaps, and continuously improve system knowledge. The Company proposes to implement a DIIP to close known data gaps, develop and improve GIS tools, and verify current data for accuracy.

Q. WHAT DOES THE DIIP ENTAIL?

A. The DIIP will sync the various Company databases to evaluate information that is missing with respect to main and service line locations, materials, diameter, cathodic protection, air test Maximum Allowable Operating Pressure ("MAOP"), and condition. There is also a detailed description of the projects to be completed in Confidential Exhibit No. MIL-13. As part of this program, BH Nebraska Gas has implemented a new As-Built-Data Initiative that will require technicians in the field to develop records with specific inputs for pipe replaced through the

1 accelerated pipeline replacement programs that will be automatically uploaded to
2 the BH Nebraska Gas mapping software.

3 **Q. DOES BH NEBRASKA GAS NEED TO COMPLETE THE DIIP BEFORE**
4 **UNDERTAKING THE ACCELERATED THREAT MITIGATION**
5 **PROGRAMS?**

6 A. No. BH Nebraska Gas will prioritize its efforts on both known and as-yet
7 unknown risks through the SSIR Project development process discussed above.
8 For the DIIP, BH Nebraska Gas will first focus on the unknowns for assets
9 located in more populated areas to improve records. However, initiating the
10 accelerated threat mitigation programs allows the Company to immediately begin
11 work where currently know risks exist. As this process evolves every year, annual
12 reviews and continuous improvement to records results in prioritization and
13 completion of additional projects.

14 **Q. PLEASE DESCRIBE BH NEBRASKA GAS' DIIP.**

15 A. The DIIP is intended to improve the knowledge of the BH Nebraska Gas pipeline
16 system to provide BH Nebraska Gas with the ability to positively confirm the
17 integrity of the pipeline system. There continues to be knowledge gaps with
18 respect to the pipeline system. The DIIP will implement specific initiatives to
19 improve system data, including data gap elimination, GIS updates, programmatic
20 improvements, and the continued roll-out of Digital As-Built Technology in
21 Nebraska.

1 **Q. PLEASE DESCRIBE THE DATA GAP ELIMINATION INITIATIVE**
2 **PROPOSED UNDER THE DIHP.**

3 A. BH Nebraska Gas is missing information with respect to both transmission, main
4 and service lines, including material, diameter, and damage records. While much
5 of the data will be obtained utilizing the Digital As-Built Technology,
6 BH Nebraska Gas has taken the following steps to remedy additional data gaps.
7 BH Nebraska Gas has performed an analysis to determine the locations that have
8 missing pipe information and then determine the best approach to obtain the
9 information for each particular area. This could include pipe locating, survey of
10 assets, document research, verification digs, and historic Computer Aided Design
11 (“CAD”) data evaluation.

12 BH Nebraska Gas will also seek to spatially correct inactive meter service
13 points. Service points were previously used by BH Gas Utility to identify service
14 line locations. Inactive meter service points are inaccurately mapped in
15 GT Viewer. While active meter service points were previously corrected, inactive
16 meter service points did not undergo the same process.

17 **Q. WHAT IS THE DIGITAL AS-BUILT TECHNOLOGY INITIATIVE?**

18 A. With the proposal to accelerate pipe replacement for higher risk pipe,
19 BH Nebraska Gas took steps to ensure that detailed data is obtained for each
20 project going forward. Currently, field employees draw an “as built” and submit it
21 to GIS for digitization.

22 The Digital As-Built (“DAB”) developed by LocusView Mobile™
23 (“LocusView™”) allows BH Nebraska Gas technicians to digitally capture data
24 related to installation or retirement of pipe. LocusView™ developed a user

1 friendly, intuitive mobile interface as an iOS based and automated as-built
2 solution. The data captured utilizing the DAB includes comprehensive traceability
3 for materials, joints, pressure test, bar code scanning, and any other information
4 required during the installation or retirement process. It allows a technician to
5 create geospatially correct as-built drawings directly on the Environmental
6 Systems Research Institute™ (“Esri”) Map using an iOS device representing the
7 work performed.²⁹ Additionally, this initiative complies with the tracking and
8 traceability requirements of American Society for Testing Material (“ASTM”)
9 F2897,³⁰ standardizes the process for obtaining data while in the field, and
10 incorporates quality control procedures to identify appropriate checkpoints for
11 data quality through the construction data collection process. DAB will gather
12 more accurate data by eliminating paper records and utilizing a high accuracy
13 Global Positioning System device. Additionally, the real time validation provided
14 by DAB reduces backlog, user error, and data gaps.

15 **Q. IS BH NEBRASKA GAS PROPOSING TO RECOVER DIIP COSTS**
16 **THROUGH THE SSIR?**

17 A. Yes. BH Nebraska Gas is proposing to recover DIIP costs through the SSIR. As
18 explained in the testimony of Mr. Bennett, the DIIP costs are appropriately
19 included as part of the SSIR Charge since the costs are related directly to SSIR
20 Integrity and Reliability projects. Including those costs in the Revenue

²⁹ Esri is GIS mapping software providing general purpose basemaps and reference layers to support various applications.

³⁰ STM F2897 is the standard specification for tracking and traceability encoding system for natural gas distribution components.

1 Requirement Study is not appropriate at this time as the costs are estimated and
2 may vary from that estimate.

3 **Q. HOW DO DIIP PROJECTS FIT WITHIN THE SSIR?**

4 A. All projects identified through the DIIP fit within the DIMP criteria, TIMP
5 criteria, or PHMSA regulation criteria of the SSIR. These projects will be placed
6 under the new “Data Infrastructure Improvement Program” category of the SSIR
7 Application as explained in the testimonies of Mr. Bennett and Mr. Jarosz.

8 **Q. WHAT IS THE BUDGET AND PLAN FOR THE DIIP?**

9 A. BH Nebraska Gas is proposing to implement the DIIP beginning in 2021. The
10 planned projects are explained further below. The planned expenditures for 2021
11 are included in the 2021 SSIR Application attached to the testimony of
12 Mr. Bennett.

13 **Q. PLEASE DESCRIBE WHAT THE TRANSMISSION/GATHERING**
14 **TRACEABLE, VERIFIABLE AND COMPLETE (“TVC”) RECORDS**
15 **PROJECT IS.**

16 A. This project involves gathering, scanning and storing original construction records
17 in a document management system and linking to the Geospatial Information
18 System (“GIS”) asset. The documents will be used to verify MAOP and MAOP
19 attributes and update any missing pipeline attributes and features in GIS. The
20 project includes the following record sources for review: Historical Computer
21 Aider Drafting (“CAD”), Platt Book records, and In-Line Inspections (“ILI”)
22 records.

23 **Q. PLEASE DESCRIBE THE GAS SERVICE CARD MAPPING PROJECT.**

24 A. This is a two-phase project:

1 The first phase involves adding legacy Captricity and DIMP automatically
2 generated service lines to production GIS data and performing a gap analysis to
3 identify what spatial and attribute data is available to BH Nebraska Gas. This
4 project must be done prior to the Utility Network project. The project will involve
5 identifying all stakeholders who use service line data and displaying the created
6 service lines in a way that communicates the risks with the spatial accuracy of
7 these lines. The project will create a service line centerline for all active service
8 points that do not currently have a service connection to the main.

9 The second phase of the Gas Service Card Mapping Projects includes
10 mapping, verifying, or adjusting the centerlines of roughly 415,000 electronic
11 service line as-builts that are currently loaded in FileNet. This would include
12 updating the pipeline and pressure test attributes.

13 **Q. PLEASE DESCRIBE THE DISTRIBUTION MAIN AND SERVICE**
14 **CENTERLINE SURVEY PROJECT.**

15 A. This is a high accuracy Global Position System (“GPS”) survey of mains, service
16 lines and meter locations. This project includes adding unmapped service lines to
17 GIS, updating the spatial location of service lines in GIS and correcting the
18 location of service points and meters in GIS. Other information to be gathered and
19 updated includes meter structure location, meter number, and abandoned live
20 services (Service Point Status), above grade facilities, and unlocatable mains. This
21 survey will be combined with a required atmospheric corrosion survey. Towns
22 will be prioritized using DIMP analysis. The GIS updates as a result of this
23 project will be made as a part of the “Distribution Data Attribute Improvement”
24 project for efficiency purposes.

1 **Q. PLEASE DESCRIBE THE DISTRIBUTION DATA ATTRIBUTE**
2 **IMPROVEMENT PROJECT.**

3 A. This project focuses on updating high priority pipeline attributes and features in
4 GIS that are gathered from historic data and records. This project will include the
5 review of legacy data sets including historical CAD data, and MAOP access
6 database for BH Gas Distribution and the original construction records for all
7 states. The process to review construction records will include the
8 scanning/storing in a document management system, linking to GIS the original
9 construction documents and MAOP documentation. GIS updates and corrections
10 from the Centerline Survey project will be included in this project. Prioritization
11 will follow the same method as the centerline survey.

12 **Q. PLEASE DESCRIBE THE GIS PRESSURE SYSTEM PROJECT.**

13 A. This project will create pressure systems in GIS that will share a unique ID with
14 Gas Valve and AssetSuite. These pressure systems will be updated with data for
15 system MAOP, Operating Pressure, odorization, and take points. The correction
16 of any connectivity issues will be included in the scope of this project.

17 **Q. PLEASE DESCRIBE THE GIS EMERGENCY RESPONSE ZONES**
18 **PROJECT.**

19 A. This project focuses on the creation and standardization of Emergency Response
20 Zones per BH Nebraska Gas' Operations and Maintenance Manual to support
21 Emergency Valves in GIS. This project also includes the digitization of the
22 emergency response plans for each system and linking to these zones.

1 **Q. PLEASE DESCRIBE THE GIS CATHODIC PROTECTION ZONES**
2 **PROJECT.**

3 A. This project involves the creation and standardization of Cathodic Protection
4 (“CP”) zones in GIS and ensures consistency between GIS and the CP Databases.
5 CP test stations will be included in the scope for this project.

6 **Q. PLEASE DESCRIBE THE BARE PIPE INSPECTION (“BPI”) AND SME**
7 **PIPELINE ATTRIBUTE ASSESSMENT PROJECT.**

8 A. This project would use electronically available buried pipe inspection information
9 and SME knowledge to analyze and identify data issues. The data would then be
10 corrected in the GIS system. The project would include a process to verify the
11 quality of this data before any updates are made in the GIS system.

12 **Q. PLEASE DESCRIBE THE DOCUMENT MANAGEMENT MIGRATION**
13 **PROJECT.**

14 A. This project involves the migration of the following document sources to the new
15 FileNet document management location: SharePoint MAOP Library, FileNet Gas
16 Service Cards, N: Drive As-built polygon files.

17
18 **Q. OVERALL, DO BH NEBRASKA GAS CUSTOMERS BENEFIT FROM**
19 **THE DIIP?**

20 A. Yes, the overall goal of the DIIP is safety. In the long run, the DIIP should lower
21 costs by having better data to rely upon in preparing safety infrastructure
22 investments.

23 Recovery of the DIIP costs through the SSIR Charge will appropriately
24 link the cost of the safety infrastructure project with the cost of the data program

1 relied upon by the Company's engineering and operations teams in developing the
2 SSIR.

3 **Q. ARE THE PROGRAMS PROPOSED TO BE INCLUDED IN THE SSIR IN**
4 **THE PUBLIC INTEREST?**

5 A. Yes. Inherent in the federal regulations, the integrity rules, and the associated
6 directives, is the requirement that pipeline operators are to do what is reasonably
7 necessary for the public good. The assessment, rehabilitation and proactive
8 replacement of aging infrastructure is essential to enhancing the safety and
9 integrity of the system. This is especially true for systems where integrity cannot
10 be positively confirmed as a result of limited data. The replacement projects are
11 essential and reasonable to ensure the continued safe operation of the Company's
12 system.

13 Promoting safety and investing in the integrity of the Company's system
14 in a systematic manner is in the public interest. In addition, implementing and
15 funding an enhanced integrity program in a manner consistent with the federal
16 requirements and directives, and consistent with the overall DIMP and TIMP goal
17 of knowing the system, will afford the Company's customers and the public the
18 continued security and benefits associated with a safe natural gas distribution
19 system.

20 **Q. DO FEDERAL REGULATORS AGREE THAT PIPELINE**
21 **REPLACEMENT PROGRAMS LIKE THOSE PROPOSED TO BE**
22 **INCLUDED IN THE SSIR ARE IN THE PUBLIC INTEREST?**

23 A. Yes. The PHMSA Administrator promoted the public's interest in infrastructure
24 replacement programs in a letter to the President of NARUC, stating that these

1 “programs play a vital role in protecting the public by ensuring the prompt
2 rehabilitation, repair, or replacement of high-risk gas distribution
3 infrastructure.”³¹

4 **Q. HAS NARUC RECOGNIZED THE NEED FOR FUNDING MECHANISMS**
5 **SUCH AS THE SSIR TO FACILITATE ACCELERATED INVESTMENT**
6 **IN GAS INFRASTRUCTURE?**

7 A. Yes. On July 24, 2013, NARUC issued a resolution encouraging state
8 commissions to “consider adopting alternative rate recovery mechanisms as
9 necessary to accelerate the modernization, replacement and expansion of the
10 nation’s natural gas pipeline systems.”³²

11 **Q. HAVE OTHER STATES APPROVED SIMILAR MECHANISMS FOR**
12 **NATURAL GAS UTILITIES?**

13 A. Yes. The AGA reported that as of 2007, 15 natural gas utilities in 11 states serving
14 eight million residential customers were using “innovative rate structures” that
15 allowed the expedited recovery of investment made in utility infrastructure
16 replacement between rate cases. As of December 2016, the vast majority of states
17 have allowed accelerated infrastructure cost recovery mechanisms, with a
18 significant number (including Nebraska) having a cost recovery tracker.

19 **VIII. CONCLUSION**

20 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

21 A. Yes.

³¹ See Exhibit No. MIL-9.

³² See Exhibit No. MIL-10.

STATE OF NEBRASKA)

) SS

COUNTY OF LANCASTER)

I, Marc I. Lewis, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.

|



Marc I. Lewis

Subscribed and sworn to before me this 27th day of May, 2020.

(SEAL)





Notary Public

My Commission Expires:
July 4, 2022