



WBI ENERGY TRANSMISSION, INC.

Valley Expansion Project

FERC Docket No. CP17- -000

Resource Report No. 11

Safety and Reliability

FINAL

Volume II – Public

April 2017

RESOURCE REPORT NO. 11 – SAFETY AND RELIABILITY
SUMMARY OF FILING INFORMATION

Minimum Filing Requirement	Location Addressed
Describe how the project facilities would be designed, constructed, operated, and maintained to minimize potential hazard to the public from the failure of project components as a result of accidents or natural catastrophes. (§380.12(m))	Sections 11.1, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8, and 11.9

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Abbreviations and Acronyms

API	American Petroleum Institute
CFR	Code of Federal Regulations
Commission	Federal Energy Regulatory Commission
DOT	U.S. Department of Transportation
FERC	Federal Energy Regulatory Commission
HCA	high consequence area
MAOP	maximum allowable operating pressure
MP	milepost
NPMS	National Pipeline Mapping System
OQP	Operator Qualification Plan
OSHA	Occupational Health and Safety Administration
PHMSA	Pipeline and Hazardous Materials Safety Administration
Project	Valley Expansion Project
SCADA	supervisory control and data acquisition
WBI Energy	WBI Energy Transmission, Inc.

11.0 RELIABILITY AND SAFETY

WBI Energy Transmission, Inc. (WBI Energy) owns and operates a natural gas transmission pipeline system and associated aboveground facilities in the states of North Dakota, South Dakota, Montana, and Wyoming. WBI Energy is filing an abbreviated application with the Federal Energy Regulatory Commission (FERC or Commission) pursuant to Section 7(c) of the Natural Gas Act, as amended, and Title 18 Code of Federal Regulations (CFR), Part 157 of the Commission's regulations requesting approval to construct, install, operate, and maintain the proposed facilities described below.

WBI Energy is proposing to construct, install, operate and maintain the Valley Expansion Project (Project) which will consist of approximately 37.3 miles of 16-inch-diameter natural gas pipeline from a proposed interconnect with the existing Viking Gas Transmission Company pipeline near Felton, Minnesota (milepost [MP] 0.0) to a new electric-driven compressor station near Mapleton, North Dakota (MP 37.3) that will be tied into WBI Energy's Line Section 24. The pipeline will transport natural gas with bi-directional flow capabilities and will span across the state border from Clay County, Minnesota into Cass County, North Dakota. Associated auxiliary facilities will also be constructed with the Project. In order to provide the volumes of natural gas requested through the open season process, WBI Energy will also replace two existing town border station and construct a regulator station in Barnes, Stutsman, and Burleigh Counties, North Dakota, respectively. Construction of each facility will involve a new footprint; therefore, these facilities are evaluated in this environmental report. A complete description of the Project facilities is provided in section 1.1 of Resource Report 1.

Resource Report 11 describes the reliability and safety aspects of the Project, including potential impacts on workers, the public, and the environment as a result of accidents or natural catastrophes occurring at the proposed facilities, as well as the designs and operational measures WBI Energy will implement to minimize and mitigate hazards and service interruptions.

11.1 HAZARDS

Most natural gas consumed in the United States is delivered to consumers through approximately 319,000 miles of gathering and transmission pipelines, providing for about 29 percent of the total energy consumption in the United States (U.S. Department of Transportation [DOT], Pipeline and Hazardous Materials Safety Administration [PHMSA], 2015a; U.S. Energy Information Administration, 2016). Transporting natural gas by pipeline creates inherent risks to the public in the event of an incident and subsequent release of gas. Pipelines and related facilities are designed and maintained with strict adherence to PHMSA regulations, which are intended to provide for public safety and reliability and to minimize the risk of system failure. Historically, incidents have been linked to leaks or line breaks caused by corrosion, external forces not associated with pipeline operation (e.g., third-party line strike; seismic activity), or equipment malfunctions (DOT PHMSA, 2015b).

Methane, the primary component of the natural gas transported in interstate transmission pipelines, is a colorless, odorless, and tasteless gas that, while not chemically toxic, is classified as an asphyxiant with a slight inhalation hazard. Exposure to high concentrations of methane could result in serious injury or death due to a lack of oxygen. Methane is lighter than air, so it typically rises and quickly disperses into the atmosphere. Methane ignites at temperatures over 1,000 degrees Fahrenheit but is generally diluted enough by the surrounding air to no longer be flammable or explosive when dispersed; however, methane/air mixtures between 5.0 and 15.0 percent methane by volume are flammable. Higher hydrocarbon components of natural gas such as propane are heavier than air, and although unlikely, may form a potentially flammable cloud near the ground until sufficiently dispersed in air.

11.2 PIPELINE ACCIDENT DATA

Since 1970, PHMSA has collected pipeline incident reports and has now combined them to provide 20-year trend data to the public. Natural gas pipeline operators, among others, are required to report incidents involving fatalities, injury requiring hospitalization, property damage of more than \$50,000 (measured in 1984 dollars), gas releases, and events the operator considers significant. A total of 1,695 onshore natural gas transmission pipeline incidents meeting these criteria were reported from 1996 to 2015 (DOT PHMSA, 2015b). Available PHMSA incident trend data is further detailed by primary cause category as shown in table 11.2-1. Note that data prior to the early 2000s categorized outside force damages and incorrect operation incidents as “other causes”. Natural force damage and other outside force damage can be caused by earth movements due to subsurface soil settlement, washouts, or other geological hazards; weather effects such as winds, heavy rains/flooding, and lightning; accidental vehicular traffic; and willful damage.

Cause	Number of Incidents	Percentage of Total
Corrosion	269	15.9
Excavation damage	356	21.0
Incorrect operation	57	3.4
Material, weld, and/or equipment failure	538	31.7
Natural force damage	153	9.0
Other outside force damage	110	6.5
All other causes	212	12.5
Total	1,695	100.0

Source: Department of Transportation Pipeline and Hazardous Materials Safety Administration. 2015b. Pipeline Incident 20 Year Trends: All-Reported Incident 20 Year Trend (filtered for onshore natural gas transmission). http://opsweb.phmsa.dot.gov/primis_pdm/all_reported_inc_trend.asp. Accessed December 2016.

Pipeline incidents are typically caused by material/weld/equipment failure, excavation damage, corrosion, and other causes. Excavation damage has historically been the most common incident; however, operators and contractors are now required to participate in the state One-Call locate systems, which has helped reduce unauthorized excavation activities and subsequent incidents in pipeline rights-of-way.

Corrosion remains a major concern for gas transmission pipelines, but related incidents have become less prevalent due to increased regulation and pipeline technology improvements, particularly using external protective coating and a cathodic protection system (required on all pipelines installed after July 1971). WBI Energy will utilize the best available materials and technologies to construct and operate the Project.

WBI Energy has a recorded total of 12 incidents on its pipeline systems between 2006 and 2016, only two of which resulted in injuries or fatality (DOT PHMSA, 2016). The majority of incidents were caused by excavation damage by a third party, followed by natural force damage (temperature).

11.3 SAFETY STANDARDS FOR PIPELINES

The proposed facilities will be designed, constructed, operated, and maintained in accordance with the DOT regulations in Title 49 CFR Part 192, which specify material selection and qualification, minimum design requirements, operating and maintenance schedules, and protection from internal, external, and atmospheric corrosion. These federal safety standards, along with WBI Energy’s pipeline integrity management program and recent advances in pipeline manufacturing, construction, installation, and inspection techniques, help minimize the potential for pipeline failures.

11.3.1 Department of Transportation Class Locations

DOT class locations, as defined in 49 CFR Part 192 Subpart A §192.5, are area classifications based on population density near a pipeline that face more stringent design and safety requirements as population levels increase. A “class location unit” is defined as an onshore area that extends 220 yards (660 feet) on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined as follows:

- Class 1: Location with 10 or fewer buildings intended for human occupancy;
- Class 2: Location with more than 10 but less than 46 buildings intended for human occupancy;
- Class 3: Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards (300 feet) of any building or small, well-defined outside area (e.g., playground, recreational area) occupied by 20 or more people at least 5 days a week for 10 weeks in any 12-month period; and
- Class 4: Location where buildings with four or more stories aboveground are prevalent.

The entire Project is within a Class 1 designation. Class locations representing more populated areas require higher safety standards in pipeline design, testing, and operation. WBI Energy’s pipelines will have a design depth of 48 inches from the top of the pipe to the natural ground surface in normal soil conditions (this exceeds the depth of cover requirements prescribed in 49 CFR Part 192 Subpart G §192.327), which will satisfy the minimum depth requirements for the class location crossed by the pipeline facilities. Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles for Class 1, 7.5 miles for Class 2, 4.0 miles for Class 3, and 2.5 miles for Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure (MAOP), inspection and testing of welds, and frequency of pipeline patrols and leak surveys also must conform to standards related to Class and population density. Additionally, 49 CFR Part 192 Subpart C §192.105 specifies the formula for steel pipe design pressure and Sections 192.107 through 192.115 describe the components of the design formula, including yield strength, wall thickness, design factor, longitudinal joint factor, and temperature derating factor. WBI Energy will adhere to these requirements during design and operation of the Project.

WBI Energy will monitor population changes in the vicinity of the pipeline over the life of its operation. If an increase in population density adjacent to the pipeline right-of-way is detected, WBI Energy will evaluate whether a change in class location is required and respond accordingly while meeting the requirements of 49 CFR Part 192.

11.3.2 High Consequence Areas and Integrity Management Planning

PHMSA uses “high consequence areas” (HCAs) to identify areas near a pipeline where a release would have significant adverse impacts to the human health and safety, the environment, and property (49 CFR Part 192 Subpart O). This rule also requires companies to develop an integrity management program that assesses, documents, and remediates or mitigates risks to pipelines and facilities in HCAs.

49 CFR Part 192 Subpart O §192.903 outlines two methods for defining a HCA. In the first method, an HCA is defined as:

- any Class 3 or 4 location;
- any Class 1 or 2 location where the potential impact radius¹ is greater than 220 yards (660 feet) and the area within a potential impact circle² contains 20 or more buildings intended for human occupancy.

In the second method, an HCA includes any area within a potential impact circle that contains:

- 20 or more buildings intended for human occupancy; and/or
- an identified site.

An identified site is defined under 49 CFR Part 192 Subpart O §192.903 as:

- an outside area or open structure occupied by 20 or more persons on at least 50 days in any 12-month period (e.g., beaches);
- a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in a 12-month period (e.g., office buildings); or
- a facility that is occupied by persons who are confined, are of impaired mobility, or will be difficult to evacuate (e.g., day-care facilities).

The potential impact radius is the estimated distance from a potential pipeline failure that could have a significant impact on people or property. WBI Energy has calculated the potential impact radius for all points along the Project to determine the presence of HCAs. WBI Energy has determined the Project, as designed, will not affect HCAs.

11.3.3 Pipeline Markers

Per PHMSA regulations in 49 CFR Part 192 Subpart M §192.707, WBI Energy will clearly and frequently mark its pipeline along the right-of-way of the proposed pipeline, including at intersections with roadways, railways, and utilities; waterbody crossings; fence lines; mileposts; and other important areas. These markers will alert the public to the general location of the pipeline to help prevent encroachment and potential damages caused by third-party excavations. WBI Energy participates in state One Call systems to ensure the notification and safety of anyone digging near the pipeline.

11.3.4 Operations, Maintenance, and Emergency Planning

In compliance with 49 CFR Part 192 Subpart L §192.615, pipeline operators must develop an operation and maintenance plan as well as an emergency plan, both of which describe the hazard minimization and

¹ Per 49 CFR Part 192 Subpart L §192.615, the potential impact radius is calculated as the product of 0.69 and the square root of the MAOP of the pipeline in pounds per square inch gauge multiplied by the square of the pipeline diameter in inches. WBI Energy estimates a more conservative potential impact radius by using 0.72 in this equation in place of 0.69.

² The potential impact circle is a circle of radius equal to the potential impact radius.

mitigation measures to be implemented during a natural gas pipeline emergency, including the following procedures:

- Receiving, identifying, responding to, and managing emergency incidents (e.g., gas leaks, fires, explosions, natural disasters);
- Establishing and maintaining communication as well as notifying local fire, police, and public officials of incidents and coordinating emergency response;
- Promptly and effectively responding to emergencies;
- Ensuring WBI Energy personnel are properly trained and supplied with the appropriate equipment, tools, and materials for dealing with an emergency;
- Protecting and securing life over property when dealing with hazards; and
- Performing an emergency shutdown of the system when necessary and safely restoring service following outages.

WBI Energy will design the pipelines with a 0.6 design factor to protect against future class location changes and will monitor changes in population density along the pipeline to ensure it meets the appropriate design criteria and safety standards where class locations change. If modifications are necessary, WBI Energy may replace sections of pipe, reduce the operating pressure in the line, or take other similar safety measures to ensure the new class location requirements are met. Inspection requirements also vary with each class location, with monitoring frequency increasing as areas become more heavily populated.

WBI Energy's emergency response program and other pipeline safety monitoring program aspects are summarized in section 11.6.5.

11.4 SAFETY STANDARDS FOR OTHER PIPELINE COMPONENTS

Subparts within 49 CFR Part 192 address other pipeline component designs, including but not limited to compressor stations, service lines, customer meters, and valves. The other pipeline components will be designed, constructed, and operated to meet or exceed these specifications. WBI Energy maintains proper fire protection, first aid, and safety equipment at all of its compressor stations. In accordance with Occupational Health and Safety Administration (OSHA) regulations in 29 CFR Part 1910, WBI Energy's emergency response staff are trained in first aid and proper use of safety equipment. In addition to WBI Energy's Operation and Maintenance manual and Emergency Operating Plan, a site-specific Emergency Plan will be developed for the Mapleton Compressor Station. Key elements of this plan include procedures for:

- Receiving, identifying, and classifying emergency events (i.e., gas leakage, fires, explosions, and natural disasters);
- Establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- Maintaining access to the facilities and making personnel, equipment, tools, and materials available at the scene of an emergency;
- Protecting people first and then property, and making both safe from actual or potential hazards; and
- Emergency shut-down of the system and the safe restoration of service.

The Mapleton Compressor Station will house a reciprocating compressor driven by an electric motor. The site will be securely fenced to prevent unauthorized access. The facility will have an emergency shut-down system that complies with DOT regulations found in 49 CFR Part 192 Subpart D §192.167 and additional safety systems addressed in 49 CFR Part 192 Subpart D §192.169 and §192.171. The proposed compressor will be equipped with a full range of automatic emergency detection and shut-down systems. Station and unit control computers will monitor the essential functions of the compressor and associated facilities, and will automatically trigger an appropriate sequence of remedial actions if an upset condition is detected. Each compressor station must have an emergency shut-down system that can be manually operated from at least two points, as specified by 49 CFR Part 192. In addition to having more than the two required manual shutdown points, the compressor station will have a number of monitoring systems for the compressor and buildings that will initiate a shut-down automatically. The building housing the compressor unit will also be equipped with fire, heat, and gas detection systems which would, based upon certain conditions, initiate an automatic shut-down. The safety and emergency systems will be monitored by the on-site control systems and remotely by WBI Energy's gas control center on a continuous basis (i.e., 24 hours per day, 365 days per year). These systems will immediately dispatch local personnel to the site should any safety related alarm be triggered. Additionally, the compressor station will have hand-held dry chemical fire extinguishers as well as a fire and gas detection system, among other firefighting tools. WBI Energy requires that all company vehicles have fire extinguishers that can be utilized as needed anywhere along the pipeline right-of-way.

WBI Energy will add odorant to the gas downstream of the custody transfer point. Odorized gas will pass through the compressor station for discharge to WBI Energy's existing system which also carries odorized gas.

WBI Energy will implement all applicable OSHA requirements during construction of the Mapleton Compressor Station, with strong emphasis placed on 29 CFR Part 1910; 29 CFR Part 1926 and DOT requirement 49 CFR Part 192 as part of general practice. WBI Energy will ensure its workforce and contractors understand these regulations and will provide training prior to and during construction, as needed.

11.5 SAFETY STANDARDS FOR CONSTRUCTION

11.5.1 Traffic Control

WBI Energy will cross 38 roads while installing the Project pipeline. Construction crews will utilize the guided bore method to cross most roads. It is not anticipated that additional road signage, traffic management, or detours to maintain traffic flow through construction areas will be necessary, however, should traffic control be necessary WBI Energy will follow the recommendations outlined in the Minnesota Manual of Uniform Traffic Control Devices (Minnesota Department of Transportation, 2015) and for portions of the Project in North Dakota, the 2009 Edition of the Manual of Uniform Traffic Control Devices (DOT, Federal Highway Administration, 2012). In the event the guided bore crossing method cannot be completed due to unforeseen conditions or circumstances, and for certain other road crossings, WBI Energy will use the open-cut method as the crossing method (see table 1.5.4-2 in Resource Report 1). Potential traffic interruptions are not expected due to installation of the pipeline across roads but could occur when delivering materials and equipment to the construction site. WBI Energy will coordinate with local officials to avoid traffic interruptions and ensure the safety of pedestrians, motorists, and emergency vehicles in the Project area. Additional descriptions of road crossing construction procedures are provided in section 1.5.4.3 of Resource Report 1.

11.5.2 Affected Residences and Public Access

The Project is not located in close proximity to residences or residential areas. WBI Energy will install safety fence along its workspace as needed and where there is potential for public access. The Project is not located in proximity to any schools or childcare organizations that may warrant additional safety precautions. WBI Energy will restrict the public from easily accessible or potentially dangerous workspaces (e.g., open bore pits at road crossings) by installing temporary safety fencing and barriers around areas of active construction. If situations necessitate, WBI Energy will hire security guards to patrol worksites after hours. Additional description of potential impacts on residents is provided in section 1.5.4.5 of Resource Report 1 and section 8.3.5 of Resource Report 8.

11.5.3 Working over Existing In-service Pipelines

WBI Energy avoids construction activities over existing operating pipelines whenever possible, but is capable of safely doing so when subsurface conditions allow. WBI Energy anticipates crossing 3 existing, foreign in-service pipelines for the Project. To prepare, WBI Energy's engineers will assess the potential stresses imposed by equipment and materials on the existing pipelines and make recommendations as necessary (e.g., additional soil cover, timber mats) for protecting the in-service pipelines and public from potential hazards.

It is a common practice for utilities to safely cross over or under (typically under) existing pipelines, when necessary. Crossovers typically require a larger excavated area, which in turn requires additional workspace, greater volumes of spoil, and longer exposure of crossed pipelines.

WBI Energy will develop a work plan for crossovers that incorporates the necessary regulatory and safety requirements for this procedure. Construction contractors will not be allowed to perform mechanized excavation within 24 inches of the existing pipeline. WBI Energy will hire qualified construction crews and inspectors that have experience with pipeline crossovers.

11.5.4 Welding

WBI Energy maintains a policy that permits only company-approved and certified welders to work on WBI Energy's pipeline facilities. WBI Energy welding inspectors supervise welding activities, which are carried out under WBI Energy's welding procedures. All qualified welders must also meet the standards of the American Petroleum Institute (API) 1104 (20th edition) and 49 CFR Part 192, as well as applicable OSHA rules specified under 29 CFR Parts 1910 and 1926.

11.5.5 Blasting

WBI Energy does not anticipate blasting will be required for the Project; however, if construction crews encounter bedrock that cannot be removed by conventional excavation, WBI Energy will conduct blasting activities in accordance with applicable regulations and safety practices. Should this occur, WBI Energy will submit to FERC written safety precautions and blasting procedures prior to initiating blasting activities.

Section 6.1.5 of Resource Report 6 (Geological Resources) provides additional discussion about the unlikely potential for blasting during the Project.

11.6 SAFETY MONITORING PROGRAM

11.6.1 Material Construction

WBI Energy’s pipeline safety monitoring program is designed to ensure that the pipeline is constructed properly from quality materials, from pipe mill to operation. WBI Energy will inspect the pipe, and its protective coating which prevents corrosion, to confirm that it meets quality control standards and specifications throughout the lifecycle of the Project. Repairs will be made as necessary and verified by qualified inspectors. In accordance with DOT requirements, pipe girth welds will be non-destructively tested before installation can be considered complete. WBI Energy will perform pressure testing to confirm there are no leaks before placing the pipeline into service.

11.6.2 Observations and Inspections

Following construction, WBI Energy will routinely monitor surface conditions along pipeline facilities for leaks or ground-disturbing activities that may affect safety and operation, as well as conduct leak surveys at least once a year or per regulatory requirements. WBI Energy personnel will immediately address issues as they arise and perform additional maintenance as needed, including cathodic protection bed testing and damaged pipeline marker repair.

11.6.3 Supervisory Control and Data Acquisition Monitoring System

In addition to the PHMSA-required inspections, WBI Energy monitors its pipeline systems using a supervisory control and data acquisition (SCADA) system. Pipeline SCADA systems allow centralized control of monitoring equipment and pipeline facilities, including operating status, flow volumes, and compressor station pressures and temperatures. It also utilizes alarm systems that alert personnel if a leak or drop in pressure occurs and carries out the necessary analyses and controls. If system parameters fall outside a predetermined range, an alarm is activated at WBI Energy’s gas control department and corrective action is taken by the gas controller, as needed. Local WBI Energy personnel will be dispatched in response to these alarms if intervention is required outside the gas control department. WBI Energy’s pipeline system is monitored by a gas control department located in Bismarck, North Dakota, which will include the new facilities associated with the Project.

11.6.4 Employee Qualification Program

In compliance with 49 CFR Part 192 Subpart N, WBI Energy has created and administers a written employee qualification program, which includes training employees in the necessary skills and expertise to safely conduct their work. WBI Energy administers an Operator Qualification Plan (OQP) to ensure those working on the system are qualified under these regulations. WBI Energy personnel and contractors performing regulated tasks on pipeline facilities are required to be qualified to safely perform this work, and recognize and react to abnormal operating conditions. Elements of the OQP include the following:

- Identification of the covered tasks;
- Evaluation and qualifications of individuals;
- Non-qualified individuals;
- Performance contributing to an incident;
- Reasonable cause to verify qualification;
- Communication of change;
- Subsequent qualification intervals;
- Recordkeeping;
- Training requirements; and
- Regulatory agency notification.

11.6.5 Emergency Response

WBI Energy's, Gas Control department manages 24-hour emergency response services. The emergency Gas Control toll-free number (1-888-859-7291) will be displayed on all markers along the pipeline, and provided to local emergency agencies in the vicinity of Project facilities. Gas Control is staffed 24 hours a day, 365 days a year. Trained personnel will receive calls regarding the Project, record the information given, and notify the appropriate WBI Energy employee who will address the concern.

WBI Energy has a Public Awareness Program that will provide information to the affected public, emergency officials, and public officials, as well as excavators. Topics covered as part of this program include what a pipeline right-of-way is and looks like; the purpose of pipeline markers and the information contained on them; pipeline location info; availability of National Pipeline Mapping System (NPMS); who to call in case of an emergency; physical properties of natural gas; and what is expected of first responders during an emergency.

WBI Energy's emergency response team consists of Gas Control, Engineering Services, and local WBI Energy and LDC field personnel. The Gas Control center is located in Bismarck, ND and functions as the Emergency Command Center. The emergency response team uses an incident command structure. All emergency response team members receive annual training on the emergency procedures and participate in periodic mock emergency drills.

WBI Energy has developed emergency response plans for its entire system, and operating personnel attend training for emergency response procedures and plans, pursuant to regulations of 49 CFR Part 192. WBI Energy will review, revise, and develop new emergency response plans, as necessary, before placing the new facilities in operation.

WBI Energy will meet DOT requirements to establish and maintain relationships with local fire, police, and other emergency responders to plan for and coordinate emergency response efforts in the event of an incident during construction or operation of the Project. WBI Energy will work with local emergency planning committees and emergency responders to communicate specifics about the pipeline facilities in the area and the need for emergency response. As required by DOT regulations, WBI Energy will establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to the appropriate public officials. WBI Energy will use available, reasonable, and relevant means to aid in the response if an emergency occurs along the pipeline or related facilities.

No special fire-fighting apparatus is required to fight a high-pressure natural gas fire at the proposed facilities. The most effective and immediate way to begin to address a high-pressure gas pipeline rupture is to shut off the gas source. WBI Energy will install valves at intervals along the pipeline to facilitate isolation and evacuation in the event of a pipeline incident.

11.7 INTEGRITY MANAGEMENT PROGRAM

WBI Energy has developed a pipeline integrity management program to improve pipeline safety along its entire pipeline system. WBI Energy implements this program to comply with the prescriptive requirements in 49 CFR Part 192 Subpart O using the following methods:

- Assessing the integrity of pipelines in HCAs and other areas;
- Improving company integrity management data systems;
- Increasing the integrity and reliability of the pipeline system;
- Identifying and analyzing potential threats on pipeline segments; and
- Implementing Preventive and Mitigative measures to lower probability and minimize consequences.

The proposed pipeline facilities will be incorporated into WBI Energy’s Integrity Management Program. This Integrity Management Plan is intended to meet the requirements of the Federal Department of Transportation’s Integrity Management Plan Rule which specifies regulations to assess, evaluate, repair, and validate the integrity of gas transmission lines that, in the event of a leak or failure, could affect HCAs.

11.7.1 Pressure Testing

Following pipeline installation and prior to operation, WBI Energy will verify the integrity of the pipeline by performing pressure testing in accordance with 49 CFR Part 192 as part of its pipeline integrity management program. This involves capping pipe segments with manifolds, filling them with water, air, or nitrogen, and then pressurizing the segment to or slightly above its recommended design pressure, and holding it for 8 hours.³ WBI Energy will perform pressure testing to a pressure at least 1.5 times higher than its maximum operating pressure of the pipeline to confirm there are no leaks before placing the pipeline into service. Any significant pressure loss indicates that a leak may have occurred that requires inspection and repair, if necessary.

PHMSA regulations defined in 49 CFR Part 192 Subpart J require that pipelines be hydrostatically tested at a higher pressure than the final operating pressure of the line. This practice is intended to protect the public and nearby properties by going above and beyond the pipeline’s tested strength. Additional discussion of WBI Energy’s pressure testing procedures is provided in section 1.5.3.12 of Resource Report 1.

11.7.2 Periodic Inspections

As part of regular operation and maintenance practices, WBI Energy will periodically inspect its pipelines for leaks and safety hazards by walking, driving, or other appropriate means of traversing the right-of-way.

11.7.3 Cathodic Protection

WBI Energy’s pipeline will be protected against external corrosion with an external coating and a compatible cathodic protection system. The cathodic protection system will be placed in operation as soon as is practical, but not to exceed 1 year after completion of construction. Line pipe used to construct the Project will be externally coated at the pipe mill with fusion bond epoxy. To ensure safety and protect against tampering, all rectifiers (Cathodic Protection Units) and electrical equipment are enclosed inside locked metal boxes.

WBI Energy is required to assess the actual pipe-to-soil potentials of the final cathodic protection system design, regardless of how corrosive the surrounding soil environment may be. WBI Energy will consult with federal, state, and local agencies regarding permitting of the cathodic protection system following the completion of pipeline construction.

Following cathodic protection system installation and balancing, WBI Energy will perform an initial pipe-to-soil survey to establish adequate protection levels. WBI will routinely check rectifier voltages and amperages as well as measure pipe-to-soil potentials (both periodically and annually) and make adjustments as environmental conditions require.

³ The duration of hydrostatic tests will be determined by WBI Energy’s operating procedures and engineering standards, in compliance with DOT regulations.

11.8 PUBLIC EDUCATION PROGRAM

WBI Energy has developed public awareness programs that comply with API 1162 and its Public Awareness Program for Pipeline Operators (API, 2003). Using this guidance, WBI Energy has identified the groups that should receive correspondence (e.g., affected landowners, general public, local public officials, emergency responders, local emergency planning committees, One Call centers, media, libraries) and provides information, as appropriate, to ensure adequate reporting to WBI Energy or the appropriate emergency response organization. The public awareness program messaging includes, but is not limited to:

- Pipeline purpose and reliability;
- Potential hazards, awareness of hazards, and prevention measures undertaken;
- Emergency preparedness communications;
- Damage prevention awareness;
 - One-call requirements;
- Leak recognition and response;
- Pipeline location and operator information;
 - HCA locations;
 - Purpose of pipeline markers and information contained on markers;
 - NPMS;
- Integrity measures taken; and
- How to get additional information.

WBI Energy will mail public awareness and pipeline damage prevention information to residences, businesses, emergency and public officials in the Project area on a scheduled basis or more frequently if conditions warrant.

Additionally, WBI Energy will work with the public using the following procedures to help minimize potential excavation-related damages to the pipeline:

- WBI Energy will help the general public in the vicinity of the Project, as well as individuals or companies conducting excavations in the area, identify the locations of its pipelines before ground disturbing activities begin.
- WBI Energy will participate in state One Call systems and be responsible for marking and preventing pipeline damage from excavation activities by:
 - Temporarily marking the buried pipeline in areas designated for excavation prior to any work being done; and
 - Inspecting the pipeline during and after excavation activities to verify integrity (WBI Energy will observe active excavations occurring in HCAs and Class 3 areas, and will inspect excavations prior to backfill in all other areas on its right-of-way to confirm no damage to the pipeline facilities occurs).

11.9 SECURITY AND TERRORISM

The threat of terrorism is a potential concern for pipeline operators and regulators that must be taken into consideration when approving new projects and operating existing facilities. The Office of Homeland Security is tasked with coordinating the executive branch's efforts to detect, prepare for, prevent, protect against, respond to, and recover from terrorist attacks within the United States (Executive Order 13228).

It is difficult to predict the probability of future acts of terrorism on Project pipeline facilities due to the sporadic nature of attacks. Construction of facilities to support future natural gas pipeline infrastructure outweighs the threat of any such acts. WBI Energy is committed to cooperating with the FERC and other federal, state, and local agencies to protect its facilities, employees, and the neighboring public.

11.10 CUMULATIVE IMPACTS

By constructing the Project, WBI Energy is increasing the capacity and extent of its pipeline system; however, by following the safety measures described in this resource report, WBI Energy does not anticipate a significant increase in risk to the public or nearby properties.

11.11 REFERENCES

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