



MVP Southgate Amendment Project

Docket No. CP25-XX-000

Resource Report 11 – Reliability and Safety

November 2018 (Docket No. CP19-14-000)

Amended February 2025

MVP Southgate Amendment Project Resource Report 11 – Reliability and Safety

Resource Report 11 – Filing Requirements	
Information	Location in Resource Report
Minimum Filing Requirements	
1. 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 well as a result of accidents or natural catastrophes. (§ 380.12(m))	Sections 11.2 through 11.4
2. Describe measures proposed to protect the public from failure of the proposed facilities (including coordination with local agencies). (§ 380.12(m)(1))	Section 11.4
3. Discuss hazards, the environmental impact, and service interruptions which could reasonably ensue from failure of the proposed facilities. (§ 380.12(m)(2))	Section 11.2
4. Discuss design and operational measures to avoid or reduce risk. (§ 380.12(m)(3))	Sections 11.3 and 11.4
5. Discuss contingency plans for maintaining service or reducing downtime. (§ 380.12(m)(4))	Section 11.4
6. Describe measures used to exclude the public from hazardous areas. Discuss measures used to minimize problems arising from malfunctions and accidents (with estimates of probability of occurrence) and identify standard procedures for protecting services and public safety during maintenance and breakdowns. (§ 380.12(m)(5))	Section 11.2
Additional Information Often Missing and Resulting in Data Requests	
7. Identify by milepost and in table form, all U.S. Department of Transportation Class Locations, High Consequence Areas, or areas of concern (as defined in Title 49 Code of Federal Regulations [CFR] Part 192.903) for the proposed route, alternate routes, and compressor stations and explain the basis for high consequence area identification.	Section 11.2.3
8. Discuss the outcome of the applicant’s consultations with local fire departments and emergency response agencies relative to whether additional equipment, training, and support are needed in the project area.	Section 11.4.8

RESOURCE REPORT 11 RELIABILITY AND SAFETY

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LIST OF ACRONYMS AND ABBREVIATIONS

Amendment Project	MVP Southgate Amendment Project
CFR	Code of Federal Regulations
EQT	EQT Corporation
ERP	Emergency Response Plan
ESD	emergency shutdown
FEIS	Final Environmental Impact Statement
FERC or Commission	Federal Energy Regulatory Commission
HCA	High Consequence Areas
IMP	Integrity Management Plan
MAOP	maximum allowable operating pressure
MCA	Moderate Consequence Areas
Mountain Valley	Mountain Valley Pipeline, LLC
MP	milepost
NextEra	NextEra Energy, Inc.
O&M	Operations & Maintenance
Original Certificated Project	MVP Southgate Project, as approved June 18, 2020
PHMSA	Pipeline and Hazardous Materials Safety Administration
U.S.	United States
USDOT	U.S. Department of Transportation

RESOURCE REPORT 11 RELIABILITY AND SAFETY

11.1 INTRODUCTION

On June 18, 2020, in Docket No. CP19-14-000, the Federal Energy Regulatory Commission (“FERC” or “Commission”) issued a Certificate of Public Convenience and Necessity (“Certificate”) pursuant to Section 7(c) of the Natural Gas Act to Mountain Valley Pipeline, LLC (“Mountain Valley”) authorizing Mountain Valley to construct and operate the MVP Southgate Project (or “Original Certificated Project”). A Final Environmental Impact Statement (“FEIS”) was issued by FERC on February 14, 2020.

In December 2023, Mountain Valley submitted an update on the status of the Original Certificated Project, indicating that it had entered into precedent agreements for a redesigned pipeline route. Mountain Valley is currently seeking to amend the MVP Southgate Project (“Amendment Project”) by truncating the Original Certificated Project to approximately 31.3 miles, incorporating certain route deviations, increasing the diameter of the pipeline, removing the Lambert Compressor Station, and modifying the proposed interconnects. The Amendment Project facilities will be located in Pittsylvania County, Virginia, and Rockingham County, North Carolina. See Resource Report 1 (General Project Description) for additional information on the Original Certificated Project and Amendment Project.

11.1.1 Environmental Resource Report Organization

Resource Report 11 includes descriptions of natural gas pipeline industry safety, corporate risk management, and measures to protect the public during the construction and operation of the Amendment Project facilities and is prepared and organized according to the FERC (2017) *Guidance Manual for Environmental Report Preparation*. The information presented in Resource Report 11 has not changed from the FEIS issued for the Original Certificated Project on February 14, 2020, except where noted.

11.2 NATURAL GAS PIPELINE INDUSTRY SAFETY OVERVIEW

Natural gas pipelines present potential safety issues, which are minimized via regulatory standards that have been adopted to prevent accidents, avoid hazards, improve safety, and minimize impacts. This section provides a summary of these hazards, safety standards, High Consequence Areas (“HCAs”), Moderation Consequence Areas (“MCAs”), and potential impacts on public safety.

11.2.1 Hazards

According to the U.S. Department of Transportation’s (“USDOT”) Pipeline and Hazardous Materials Safety Administration (“PHMSA”), there are approximately 300,000 miles of natural gas transmission pipelines operating in the United States, and these pipelines are the safest and most cost-efficient way to transport natural gas and hazardous materials (PHMSA 2024). Natural gas transmission pipelines are an integral part of the country’s infrastructure network necessary to transport a large portion of the country’s growing energy needs, and it is imperative that they be safe and reliable. PHMSA has established and enforces industry regulations for transmission pipelines and related facilities that are intended to provide for public safety and reliability and minimize the risk of system failure.

The natural gas transmission industry has an excellent track record of public safety and reliability. Nevertheless, the transportation of natural gas by pipeline involves some incremental risk to the public in the event of an accidental release of natural gas. The predominant hazards are described in the FEIS.

11.2.2 Safety Standards

The USDOT “Minimum Federal Safety Standards” (49 Code of Federal Regulations [“CFR”] Part 192) provide the standards pursuant to which the Amendment Project will be designed, constructed, operated, and maintained, which are described in the FEIS.

The intent of the USDOT regulations for pipeline facilities is to provide the public with adequate protection from pipeline failures. The USDOT “Minimum Federal Safety Standards” set forth in 49 CFR Part 192 include specifications for material selection and qualification, minimum design and construction requirements, and protection from internal, external, and atmospheric corrosion (USDOT 2017). These federal safety standards, together with Mountain Valley’s pipeline integrity management programs and recent advances in pipeline manufacture, construction, and inspection techniques, minimize the potential for pipeline failure and have not changed from the FEIS.

Class locations are defined in 49 CFR § 192.5 and are based on population densities. More stringent pipeline design, wall thickness, testing, and operation characteristics are required in more populated areas. Class location definitions and pipeline installation requirements have not changed from the FEIS.

Design pressures, wall thickness, maximum allowable operating pressures (“MAOP”), hydrostatic test pressures, weld testing, and inspection, as well as frequency of leak surveys and patrols of the pipeline, are required to conform to higher standards in areas of greater population density. The Amendment Project incorporates these requirements.

Table 11.2-1 provides a summary of the class locations crossed by the Amendment Project.

County / State	Class 1 (miles)	Class 2 (miles)	Class 3 (miles)
Pittsylvania, VA	26.59	4.31	0.12
Rockingham, NC	0.00	0.34	0.00
Amendment Project Total	26.59	4.65	0.12

If population densities near the pipeline increase after construction, resulting in a change in class location, 49 CFR §192.609 and §192.611 require confirmation or revision to the MAOP to match the new class. If revisions are needed, they may be achieved by reducing the operating pressure, by pressure testing the segment of pipe using the applicable class location multiplier, or by replacing the segment of pipe for the class change, if required, with one that complies with the USDOT minimum PHMSA code for that class location.

During operation, the methods of monitoring the pipeline to determine areas that have changed population density have not changed from the FEIS. If the population increases enough to require a possible class location change, the Amendment Project will complete an additional class study and change the class of pipeline within 24 months to maintain compliance with 49 CFR 192 requirements.

Additionally, 49 CFR Part 192 provides the minimum standards for the operation and maintenance of pipeline facilities, which includes a requirement for a written plan to govern these activities. The pipeline operator must also establish an Emergency Response Plan (“ERP”) prior to the operation of the pipeline with written procedures to minimize the hazards associated with a natural gas pipeline emergency.

Mountain Valley has an existing ERP covering the Mountain Valley Pipeline system that was previously incorporated and documented in the FEIS. Mountain Valley continues discussions with emergency response units in the Amendment Project area and will continue those discussions through the development of the Amendment Project.

11.2.3 High and Moderate Consequence Areas

A rule for Pipeline Integrity Management in HCAs for Gas Transmission was promulgated by the PHMSA and was incorporated into 49 CFR Part 192, Subpart O. This rule requires that an Integrity Management Plan (“IMP”) be developed for each facility to provide procedures for monitoring and maintaining pipeline integrity in areas where the pipeline traverses lands or facilities that are considered HCAs as defined in 49 CFR §192.903. These procedures have not changed from the FEIS.

The two ways HCAs may be defined are described in the FEIS. The proposed 30-inch-diameter pipeline with a MAOP of 1,440 psig would have a potential impact radius of 785 feet.

Using the same methods as the FEIS, the Amendment Project has identified two HCAs along the proposed pipeline route (see Table 11.2-2). An additional HCA analysis will be done on each section of pipeline following pipeline construction (as-built analysis) prior to that section of the Amendment Project being placed in service.

Location of High Consequence Areas			
County	Begin Milepost (“MP”)	End MP	Length (mile)
Pittsylvania, VA	4.28	4.92	0.65
Pittsylvania, VA	20.02	20.66	0.64
Pittsylvania, VA	23.88	24.51	0.64
Amendment Project Total			1.92

On October 1, 2019, PHMSA issued new regulations modifying and expanding the standard pipeline safety standards under 49 CFR Parts 191 and 192 to address integrity management requirements and to improve the safety of onshore gas transmission lines (84 Federal Register 52180). These regulations went into effect on July 1, 2020, and are defined in the FEIS as follows:

These regulations, in part, established: new standards for in-line inspections; requirements for newly established MCAs explicitly requires consideration of seismicity and geotechnical risks in its integrity management plan for the pipeline; new regulations on pipeline patrol frequency HCAs, MCAs and grandfathered pipelines; a policy to reconfirm MAOP for certain pipelines; installation of pressure relief for pig launcher/receivers, and report exceedances of MAOP to PHMSA.

The criteria for an MCA, as defined in the new regulations, is an area that is within the potential impact circle (as defined in § 192.903) of the pipeline that contains five or more buildings intended for human occupancy or any portion of the paved surface including shoulders of a designated interstate, freeway,

expressway, or any other principal arterial roadway with four or more lanes, as defined in Section 3.1 of the Federal Highway Administration’s (2013) *Highway Functional Classification Concepts, Criteria and Procedures*, that lies within the potential impact circle and that does not meet the definition of high consequence area, as defined in § 192.903 (Federal Highway Administration 2013).

As these regulations were not in effect prior to the release of the FEIS, no MCAs were identified in the FEIS for the Original Certificated Project. Mountain Valley has identified multiple MCAs along the proposed pipeline route (see Table 11.2-3). As with HCAs, an additional MCA analysis will be done on each section of pipeline following pipeline construction (as-built analysis) prior to that section of the Amendment Project being placed in service.

Table 11.2-3			
Location of Moderate Consequence Areas			
County, State	Begin MP	End MP	Length (mile)
Pittsylvania, VA	3.09	3.67	0.58
Pittsylvania, VA	4.26	4.28	0.02
Pittsylvania, VA	4.92	5.02	0.09
Pittsylvania, VA	7.42	7.94	0.52
Pittsylvania, VA	10.31	11.29	0.99
Pittsylvania, VA	13.41	14.14	0.72
Pittsylvania, VA	15.00	15.53	0.53
Pittsylvania, VA	16.08	16.61	0.54
Pittsylvania, VA	19.31	20.02	0.71
Pittsylvania, VA	20.66	20.96	0.31
Rockingham, NC	30.90	31.36	0.46
Amendment Project Total			5.47

11.2.4 Pipeline Markers

PHMSA requirements regarding pipeline marker placement have not changed from the FEIS.

11.2.5 Aboveground Facilities

Proposed aboveground facilities include four meter stations/interconnects, two of which will include pig launchers and/or receivers, and four mainline valves. No compressor facilities are proposed as part of the Amendment Project.

11.3 SAFETY OVERVIEW

Mountain Valley is committed to safely operating and maintaining all of its facilities, including the Amendment Project, and will instill the existing corporate risk management philosophies of its parent companies to efficiently identify and control or eliminate hazards throughout the life of the pipeline. The Amendment Project facilities will fully adhere to USDOT Minimum Federal Safety Standards in 49 CFR Part 192, as discussed in the FEIS.

These safety regulations will be reinforced by the comprehensive and strictly enforced practices of the Amendment Project. The effectiveness of the federal and corporate requirements in ensuring reliability and

safety is illustrated by the following operating experience profile of the Amendment Project companies. The empirical information presented illustrates that the potential for public hazard from accidents associated with the operation of the proposed facilities is low.

11.3.1 System Overview

Mountain Valley's Operating Partner, EQT Corporation ("EQT"), provides natural gas gathering, transmission, and storage services in the Appalachian Basin. EQT owns and operates approximately 1,400 miles of gathering pipelines, 1,200 miles of FERC-regulated transmission pipelines, and 18 natural gas storage reservoirs. EQT utilizes in-house design engineering expertise along with contracted specialty engineering firms. The Engineering Department has specific subject matter expertise in areas such as compression, measurement, and pipeline designs, regulatory, compliance, equipment automation, and controls, telecommunications, system planning and hydraulic modeling, civil, geotechnical, geologic, mechanical, electrical, operations, and reliability. NextEra Energy Inc. ("NextEra"), an additional partner in the Amendment Project, owns and operates almost 1,000 miles of oil and gas pipelines across 14 different pipeline systems. NextEra and its affiliates have been providing pipeline services since 1978 for oil pipelines and since 1985 for natural gas pipelines. Mountain Valley's remaining partners also have extensive backgrounds and a history of managing pipeline networks.

11.3.2 Historical Operating Record

Generally, the natural gas transmission industry has an excellent record of public safety. Pipelines and related facilities are designed and maintained with strict adherence to 49 CFR Part 192 standards to ensure public safety and reliability and to minimize the opportunity for system failure. EQT and NextEra have excellent records of public safety and established records of operating pipelines and will continue to employ proper system design, construction, operation, and maintenance practices to ensure this excellent record is maintained.

11.3.3 Safety

11.3.3.1 Construction

A Fire Prevention and Suppression Plan protects the public, employees, property, and the environment from the unlikely event of a fire during the construction and operation of the pipeline. A copy of the project-specific Fire Prevention and Suppression Plan was presented in the FEIS and has been updated for the Amendment Project (Resource Report 1, Appendix 1-G).

Karst Terrain

Karst terrain is not anticipated to be encountered during the construction of the Amendment Project, as concluded in the FEIS. Information on potential karst areas is provided in Resource Report 6.

11.3.3.2 Operation

Mountain Valley's role in emergency response coordination has not changed from the FEIS. The ERP incorporated and documented in the FEIS has been updated for the Amendment Project (Resource Report 1, Appendix 1-G).

11.4 MEASURES TO PROTECT THE PUBLIC

As a new pipeline, and with the continuing advancements in materials and pipeline operating and maintenance practices, the chances of a failure of the Amendment Project facilities are extremely low. The safety and reliability of the Amendment Project have not changed from the FEIS.

Measures to protect the public from inadvertent natural gas releases due to accidents or natural disasters can be grouped into three categories: passive protection, active controls, and procedural controls. These measures have not changed from the FEIS.

11.4.1 Continuous Evaluation and Improvement

Mountain Valley will continually refine and enhance the integrity management techniques as it implements the IMP on its pipeline system.

11.4.2 Public Safety

Mountain Valley is committed to safety, protecting the environment, preventing accidents/incidents, and maintaining the highest standards for its pipeline operation and maintenance. Mountain Valley will accomplish this goal through routine preventative maintenance, pipeline patrols, detailed emergency response plans, and a strong pipeline IMP. Mountain Valley has established and will maintain strict construction, operation, and maintenance policies and procedures that will be audited periodically by PHMSA and are in compliance with 49 CFR Part 192, as presented in the FEIS.

Active pipeline construction can increase safety risks to the public generally in two ways: from an increase of traffic on roadways in the vicinity of the pipeline and from potential exposure to construction activity itself within the construction right-of-way. Transportation and traffic mitigation for the Amendment Project are detailed in the FEIS. In addition, the Mountain Valley will obtain necessary permits for public roadway crossings and roadway use and will comply with traffic control and public safety mitigation measures that are conditions of these permits.

During construction, special care will be taken in residential and commercial areas to minimize neighborhood and traffic disruption, control noise and dust to the extent practicable, and protect the public at large. Measures to be implemented where the pipeline is near residential areas have not changed from the FEIS.

Mountain Valley will update site-specific residential construction plans that were documented in the FEIS in areas where occupied residential dwellings are within 25 feet of construction.

11.4.3 Emergency Response

Consistent with 49 CFR § 192.615, pipeline contractors will establish an ERP by construction spread that provides written procedures to minimize the hazards from a pipeline emergency. An ERP was previously incorporated and documented in the FEIS and has been updated as applicable to the Amendment Project.

Should the need arise, Mountain Valley will have field service personnel and repair contractors available who are capable of completing emergency repairs and restoration.

11.4.4 Public Awareness Program

Mountain Valley has developed a Public Awareness Program as required by 49 CFR § 192.616 and as described in the ERP. The ERP was previously incorporated and documented in the FEIS and has been updated as applicable to the Amendment Project.

11.4.5 One-Call Response

Mountain Valley's one-call response has not changed from the FEIS.

11.4.6 Pipeline Safety Brochures

Mountain Valley will mail information brochures to homeowners, businesses, and public officials along the pipeline system each year to inform them of the presence of the pipeline and instruct them on how to recognize and react to unusual activity in the area. These brochures will provide emergency contact phone numbers available 24 hours a day, 7 days a week, and reinforce the need for excavators to contact the Virginia and North Carolina "811" program "Call Before You Dig." In addition to these outreach efforts, Mountain Valley will also provide pipeline location information in the National Pipeline Mapping System to inform the public and others as to the general location of the Amendment Project's pipeline facilities.

11.4.7 Interactions with Federal Authorities

Mountain Valley will maintain frequent contact with PHMSA. These procedures and practices for interactions with federal authorities have not changed from the FEIS.

11.4.8 Liaison Procedures with Local Authorities

Mountain Valley personnel involved with public awareness will ensure that appropriate liaisons and public education are established and maintained in the communities within which the Amendment Project operates. An ERP was previously incorporated and documented in the FEIS and is applicable to the Amendment Project. An updated ERP is provided in Resource Report 1, Appendix 1-G. Outreach and liaison procedures with local governmental and emergency response agencies have not changed from the FEIS.

11.4.9 Utility Protection

Utility protection procedures have not changed from the FEIS.

11.4.10 Equipment Engineering and Design

The Amendment Project will include many equipment features that are designed to increase the overall safety of the system and protect the public from a potential failure of the system due to accidents or natural disasters. These features have not changed from the FEIS. The Amendment Project would be designed, constructed, operated, and maintained in accordance with PHMSA 49 CFR Part 192 requirements, as described in the FEIS.

The H-650 pipeline will be equipped with remote control valves, which have not changed from the FEIS.

11.4.11 Operations and Maintenance

The operation, monitoring, and maintenance of the Amendment Project have not changed from the FEIS.

PHMSA 49 CFR Part 192 prescribes the baseline standards for operating and maintaining pipeline facilities, including the establishment of a written plan governing these activities. Mountain Valley will develop an Operations & Maintenance (“O&M”) Manual for the Amendment Project facilities during the construction phase. This O&M Manual will be implemented prior to filling the pipeline system with natural gas. The O&M Manual will include contingency plans for maintaining service or reducing downtime during operation. Mountain Valley will have field services crews to perform PHMSA 49 CFR Part 192 required operations, maintenance, and inspection tasks along the pipeline. All personnel will have the proper training and qualifications as required by 49 CFR Part 192.

11.4.12 Corrosion Control

The Amendment Project will have cathodic protection and will be closely monitored and maintained in compliance with PHMSA 49 CFR Part 192 and NACE International (National Association of Corrosion Engineers) recommended practice SP-0169-2013. Corrosion controls and inspection methods and frequency have not changed from the FEIS.

11.5 REFERENCES

- Federal Energy Regulatory Commission. 2017. Guidance Manual for Environmental Report Preparation. February 2017.
- Federal Highway Administration. 2013. Highway Functional Classification Concepts, Criteria and Procedures. U.S. Department of Transportation, Federal Highway Administration. Available at: https://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/fcauab.pdf. Accessed October 2024.
- U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration. 2017. 49 Code of Federal Regulations 192. Available at: <https://www.govinfo.gov/content/pkg/CFR-2023-title49-vol3/pdf/CFR-2023-title49-vol3-part192.pdf>. Accessed November 2024.