



# **LAMBERTVILLE EAST EXPANSION PROJECT**

## ***RESOURCE REPORT 11*** ***Reliability and Safety***

*FERC Docket No. CP18-\_\_\_\_-000*

**December 2017**

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<b>RESOURCE REPORT 11—RELIABILITY AND SAFETY</b>	
<b>Filing Requirement</b>	<b>Location in Environmental Report</b>
<input checked="" type="checkbox"/> 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 – Title 18 Code of Federal Regulations part 380.12 (m).	Sections 11.2 and 11.3

## ACRONYMS AND ABBREVIATIONS

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CFR	Code of Federal Regulations
Elizabethtown Gas	Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas
FERC	Federal Energy Regulatory Commission
Project	Lambertville East Expansion Project
PSEG	PSEG Power LLC
Texas Eastern	Texas Eastern Transmission, LP
U.S.	United States
USDOT	United States Department of Transportation

## **11.0 RESOURCE REPORT 11 – RELIABILITY AND SAFETY**

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### **11.1 Introduction**

Texas Eastern Transmission, LP (“Texas Eastern”) is seeking a certificate of public convenience and necessity from the Federal Energy Regulatory Commission (“FERC”) pursuant to Sections 7(b) and 7(c) of the Natural Gas Act to construct, install, own, operate, and maintain the proposed Lambertville East Expansion Project (“Project”).

The Project’s purpose is to expand the compression facilities at the Lambertville Compressor Station located in West Amwell Township, Hunterdon County, New Jersey to provide incremental pipeline transportation service to existing city-gates in New Jersey on behalf of two local utility customers, PSEG Power LLC (“PSEG”) and Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas (“Elizabethtown Gas”), as well as to comply with new air emissions regulations under the New Jersey Reasonably Achievable Control Technology program. This new firm transportation capacity will enable PSEG and Elizabethtown Gas to serve their growing residential and commercial demand in their respective service territories. To accomplish this, Texas Eastern will install two new Solar Taurus 70 natural gas-fired turbine compressor units to replace two existing higher emitting Clark DC-990 natural gas-fired turbine compressor units at the station. The replacement of the two existing units will also require removal of a building, coolers and auxiliary equipment associated with the compressor units to be removed and installation of replacement buildings, coolers and auxiliary equipment for the compressor units to be installed.

In addition, Texas Eastern will perform system maintenance activities for certain facilities at Texas Eastern’s existing Lambertville Compressor Station including the removal of four retired reciprocating compressor units and associated building, coolers and auxiliary equipment, and the removal of a warehouse and one other building. Texas Eastern will also perform yard piping modifications as part of this scope.

This Resource Report 11 (Reliability and Safety) describes the reliability and safety aspects of the proposed Project and discusses how the Project will comply with the United States (“U.S.”) Department of Transportation (“USDOT”) Minimum Federal Safety Standards specified in Title 49 of the Code of Federal Regulations (“CFR”), Part 192. A checklist showing the status of the FERC filing requirements for Resource Report 11 is included following the table of contents.

The existing Texas Eastern Lambertville Compressor Station is manned by a station operator 24-hours a day, 7-days a week, and 365-days a year. Texas Eastern has an excellent record of public safety since operations began in 1947. Texas Eastern will continue to employ similar system design, construction, operation, and maintenance practices to ensure this excellent record is maintained. Texas Eastern is committed to maintaining the highest standards of safety.

### **11.2 Safety Standards for Compressor Station Construction**

49 CFR Parts 192.163 through 192.173 establish safety guidelines for the design and construction of compressor stations in addition to pipeline safety standards.

Part 192.163 requires the location of each main compressor building of a compressor station be on property under the control of the operator. The station must also be far enough away from adjacent property, not under control of the operator, to minimize the possibility of fire spreading to the compressor building from structures on adjacent properties.

Part 192.163 also requires each building on a compressor station site be made of specific building materials and to have at least two separate and unobstructed exits to provide an unobstructed passage to a place of safety. The station must be in an enclosed fenced area and must have at least two gates to provide a safe exit during an emergency.

The Project will be designed, constructed, operated, and maintained to meet or exceed Part 192 applicable specifications, as described below.

### ***11.2.1 Codes, Standards, Specifications and Procedures***

Texas Eastern will incorporate proven industry standards as published by associations that are recognized world-wide such as the American Society of Mechanical Engineers, the American Petroleum Institute, and the American Society of Testing Materials. Texas Eastern will also use its own technical specifications and operating procedures which reflect many years of expertise and experience and improvements in designing, constructing, and operating safe and reliable compressor stations.

### ***11.2.2 Design***

The compressor station will be designed to meet and in many cases, exceed the code requirements for station facilities. The Lambertville Compressor Station safety systems will be highly engineered with automated control systems to ensure the station and pipeline pressures are maintained within safe limits, and will have several additional over-pressure protection systems that provide an additional layer of safety to back-up the primary controls. The station will also have an automated emergency system that would shut down the station to prevent an incident should an abnormal operating condition occur, and if appropriate, would evacuate the gas from the station piping at a safe location.

System alarms are designed to notify Texas Eastern's Gas Control center should any abnormal conditions occur, allowing them to take appropriate measures using remote control systems if the station operations personnel are unable to respond to a particular situation. The station will have two different, communication systems so that station monitoring and controls would still be operational if the primary communications method were to become disabled. In the event the systems in the station were to become inoperative, remote control valves will also be at the existing nearby pipeline facilities that could be closed.

### ***11.2.3 Material Selection***

Texas Eastern material specifications meet and in many cases, exceed the federal standards. Texas Eastern purchases piping materials from manufacturers that have been subject to its stringent qualification and approval process to ensure they meet its quality standards. The pipe material is both high strength and ductile, and the wall thickness for the facilities will meet and in many cases, exceed the federal standards. Texas Eastern routinely sends experienced inspectors to the manufacturers' facilities to conduct quality checks during the manufacturing process.

### ***11.2.4 Construction***

Prior to beginning construction or operation related work activities, Texas Eastern conducts safety meetings with all personnel and contractors to make them aware of any changes to the work environment which may pose a safety risk and to review current safety procedures. Texas Eastern supports a relentless commitment to a zero work-related injury and illness culture. Texas Eastern has a "Don't walk by" policy and at any time personnel or contractors can stop work if they feel unsafe activities are underway.

Texas Eastern will only use the most qualified contractors that are specialized with years of experience in building our projects. These competent contractors provide the first line of quality control to ensure that the project is built to comply with applicable regulations, and Texas Eastern's technical specifications. Texas Eastern will also employ a staff of competent on-site inspectors to assure that our requirements are met. Additionally, the compressor station will be subject to inspections and/or audits by various federal agencies including the FERC and the USDOT who will assess the facilities for compliance with the regulations. These audits are typically very detailed and comprehensive.

Large-diameter pipe within a compressor station is welded together and each weld is carefully x-rayed to detect and repair any potentially harmful flaws. The welding and x-ray procedures are qualified in accordance with the regulations and company standards, and the welders and x-ray technicians must take and pass the stringent qualifications tests to demonstrate their competencies prior to being allowed to work. Every weld that will see gas pressure in the entire facility is x-rayed to ensure it meets the federal requirements (except alternative test methods must be used with the very small piping due to the limitations of the x-ray methods). Only after all inspection results and corrective measures have been checked and accepted, would the facilities be prepared for the final pressure testing.

### ***11.2.5 Pressure Testing***

As was done for all of the existing pipelines in the area, the Lambertville Compressor Station piping will be filled with water (or other medium besides natural gas) prior to being placed into gas service and be pressurized to a level that is much higher than the gas operating pressure to verify the integrity of the piping. Texas Eastern tests most piping to an even higher pressure than is required by the federal regulations.

## **11.3 Safety Standards for Compressor Station Operation and Maintenance**

Parts 192.731 through 192.736 establish safety guidelines for inspection, testing, and monitoring at compressor stations. Work at the Lambertville Compressor Station will be designed, constructed, operated, and maintained to meet or exceed applicable specifications. As with pipeline safety operation and maintenance, Texas Eastern will apply some of the same and/or similar standards to the Project. Examples of Parts 192.739 through 192.743 specifications which Texas Eastern will apply include inspections that will be conducted at intervals not exceeding 15 months, but at least once each calendar year, to determine whether the facilities and pipeline systems are:

- In good mechanical condition;
- Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed;
- Set to control or relieve at the correct pressure consistent with the pressure limits of 192.201(a); and
- Are properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.

Examples of some of the same and/or similar standards of pipeline safety operation and maintenance Texas Eastern will apply to the Project aboveground facilities include:

- Weekly Aerial Patrols;
- Above/Below Ground Coating Maintenance;
- Third Party Damage Prevention;
- One-Call Response;
- Aboveground Safety Brochures;
- Public Outreach; and

- Emergency Response.

Details on the above operation and maintenance standards are further discussed in various sections of this Resource Report.

### ***11.3.1 Compressor Stations and Emergency Shutdowns***

Compressor stations are highly regulated facilities that must meet rigorous siting, safety and environmental standards established respectively by the FERC, the USDOT and the U.S. Environmental Protection Agency. Texas Eastern's compressor stations integrate a variety of safety systems and practices designed to protect the public, our employees and the environment.

As an initial, yet important premise, natural gas is lighter than air, and therefore rises and dissipates quickly into the atmosphere. Nevertheless, compressor stations are designed with continuous monitoring devices along with emergency shutdown systems capable of isolating the station and safely venting the gas very quickly in the unlikely event of an emergency. These systems are designed and routinely tested to be reliable, which is why it is extremely rare to have compressor station incidents.

Compressor stations are also designed with various automated shutdowns as well as emergency manual shutdown buttons strategically placed throughout the facility which can be activated by station operators. Every one of our compressor stations is operated and maintained by highly skilled, experienced personnel trained to maintain the station and its pipelines safely.

Part 192.163 of CFR Title 49 requires that each compressor station have an emergency shutdown system (except for unattended field compressor stations of 1,000 horsepower or less) that must meet several specifications. The proposed Lambertville Compressor Station will be equipped with automatic detection and emergency shutdown systems. These systems will include:

- Flame detection that uses ultraviolet sensors;
- Gas detection for detecting low concentrations of natural gas inside buildings;
- Emergency shutdowns to isolate the gas piping, stop equipment, and safely vent station gas;
- Individual unit shutdown systems in case of mechanical or electrical failure of a compressor unit system or component;
- Emergency shutdowns will be operable from at least two locations; and
- Pressure relief or other suitable protective devices of sufficient capacity and sensitivity to ensure that the maximum allowable operating pressure of the station piping and equipment will not be exceeded by more than 10 percent.

An emergency shutdown is a very rare occurrence, but one for which Texas Eastern is well-prepared. In the event of a condition that could potentially involve the public, local public safety and/or emergency management officials are immediately notified and thoroughly briefed so they may respond to the situation as needed.

The release of gas will last anywhere from one to three minutes and is the result of the release of pressure from the compressor station piping. Natural gas is released from a compressor station very quickly to clear the natural gas and reduce potential danger.

The natural gas released during an emergency shutdown is not dangerous. Natural gas is odorless, colorless and lighter than air. However, an odorant called mercaptan is injected into the natural gas for safety reasons per USDOT Code. Mercaptan creates a recognizable odor, often compared to rotten eggs, which helps the public identify or detect a leak. It is not harmful and will dissipate. In some cases, the smell of mercaptan



may linger if minute traces of the odorant separate from natural gas that has risen and been absorbed into the atmosphere. While release amounts vary from station to station, they fall within strict guidelines mandated by federal regulations. The natural gas release is necessary to reduce potential risk to the facility, employees and the surrounding community. All gas within the Lambertville Compressor Station is odorized.

Regulations require that compressor stations periodically test or perform maintenance on the emergency shutdown system to ensure reliability. Periodic tests and maintenance cause little or no disruption and are rarely noticed by adjacent neighbors.

### **Causes of Emergency Shutdowns**

Natural gas and flame sensors, located inside the compressor building, constantly monitor the station. If a problem is detected, the emergency system will activate automatically to protect the community, station personnel and the facility. There are also manual shutdown buttons strategically placed throughout the facility which can be activated by station operators. Every one of Texas Eastern's compressor stations is operated and maintained by highly skilled, experienced personnel trained to maintain the safe operation of the station and its pipelines.

#### ***11.3.2 Compressor Station Safety Systems and Equipment***

A gas control center is maintained in Houston, Texas. The gas control center monitors system pressures, flows, and customer deliveries. Further, the gas control center is staffed 24 hours a day, 365 days a year. Data acquisition systems are present at all compressor and metering stations along the system. If system pressures fall outside a predetermined range, an alarm is activated, and notice is transmitted to the Houston gas control center. The alarm provides notice that pressures at the station are not within an acceptable range. To ensure safe operations, well trained gas controllers work around the clock in a high-tech control center to monitor and control the gas as it travels through all sections of the pipeline network. Compressor stations are maintained by highly skilled and experienced pipeline personnel along Texas Eastern's pipeline systems. Enbridge's employees operate over 100 compressor station sites around the clock – with nearly two million horsepower in the U.S., 19,100 miles of interstate transmission pipeline, and over 65 years of success.

In addition, safety equipment at the proposed Lambertville Compressor Station will include adequate fire protection systems. Fire protection, first aid, and safety equipment will be maintained at all the Project aboveground facilities at all times. Each compressor station building will be ventilated per USDOT code.

### **Public Liaison Program and Emergency Response Plan**

Texas Eastern is committed to providing pertinent information about its facilities and working with nearby emergency responders. In keeping with USDOT requirements, Texas Eastern will review and expand its existing public liaison program with municipal elected and public safety officials before the facilities are placed in service. This program will include an Emergency Response Plan specific to the Lambertville Compressor Station and local public safety officials and first responder organizations will be trained in how Texas Eastern plans to coordinate a response with public safety and first responder personnel in the unlikely event of an emergency at the Lambertville Compressor Station.

The Emergency Response Plan will include:

- Details on how to identify and classify emergencies;
- Notification and emergency response procedures including emergency shutdown steps;

- Enbridge emergency response personnel phone numbers;
- First Responder (Fire Departments and Law Enforcement) phone numbers;
- Emergency Response Contractor phone numbers;
- Operating maps; and
- Directions to facilities.

The emergency response procedures covered by the plan respond to the following types of emergencies:

- Gas (odorized) detected inside or near a building;
- Fire located near or directly involving a pipeline facility;
- Explosion occurring near or directly involving a pipeline facility;
- Natural disaster, such as an earthquake or hurricane, as applicable; and
- Bomb threats.

The Emergency Response plan will be reviewed annually, and all applicable Texas Eastern personnel will receive annual training on the Emergency Response Plans. The Area Office will conduct annual emergency response exercises and has previously provided training to the West Amwell Fire Department on Texas Eastern's pipeline and our emergency plans. Texas Eastern also plans to communicate annually with members of the public who live or work near the Lambertville Compressor Station, and is committed to collaborating with organizations who share Texas Eastern's dedication to pipeline safety and public awareness.

The need to evacuate the areas surrounding the Lambertville Compressor Station would be very unlikely if an emergency event were to occur, due to the limited extent of any potential emergency. However, if evacuation is warranted, the evacuation zone would depend on the nature, extent and location of the incident. Texas Eastern accordingly plans to work with the West Amwell Police and Fire personnel to identify reasonable and appropriate evacuation measures. Texas Eastern will coordinate work with the local authorities to ensure they have prompt and accurate information.

Finally, Texas Eastern plans to follow its internal Crisis Management Plan and its emergency response plan which will ensure an effective response to pipeline emergencies. Texas Eastern personnel are trained to work in cooperation with emergency responders to manage these events.