Office of
Energy Projects

September 2019

Texas Eastern Transmission, LP **Docket No. CP19-191-000**

Bernville Compressor Units Replacement Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 1
Texas Eastern Transmission, L.P.
Bernville Compressor Units
Replacement Project
Docket No. CP19-191-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Bernville Compressor Units Replacement Project, proposed by Texas Eastern Transmission, L.P. (Texas Eastern) in the above-referenced docket. Texas Eastern requests authorization to replace two existing natural gas-fired turbine compressor engines and appurtenant facilities at its existing Bernville Compressor Station in Berks, Pennsylvania.

The EA assesses the potential environmental effects of the construction and operation of the Bernville Compressor Units Replacement Project in accordance with the requirements of the National Environmental Policy Act. The FERC staff concludes that approval of the proposed project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The project would consist of the following new facilities:

- installation of one 26,000 horsepower (hp) and one 18,100 hp Solar Turbine Inc. natural gas-fired centrifugal turbine compressor units and associated auxiliary piping and equipment;
- installation of related software controls that would limit the total hp of the 26,000 hp compressor unit to 23,700 hp;
- conversion of an existing 3,070-square-foot compressor unit building to an office building; and
- other related appurtenances.

The project would involve removing one 22,000 hp and one 19,800 hp natural gas-fired centrifugal turbine compressor unit and the associated auxiliary piping and equipment. Texas Eastern would also remove the 4,352-square-foot building, which houses the existing 22,000 hp compressor unit, to allow for the installation of an 11,780-square-foot building to house the two new replacement compressor units. The replacement activities would require the use of additional temporary workspace beyond the existing facility boundary.

The Commission mailed a copy of the *Notice of Availability* to federal, state, and local government representatives and agencies; elected officials; Native American tribes; potentially affected landowners and other interested individuals and groups, including commenters; and newspapers and libraries in the project area. The EA is only available in electronic format. It may be viewed and downloaded from FERC's website (www.ferc.gov), on the Environmental Documents page (https://www.ferc.gov/industries/gas/enviro/eis.asp). In addition, the EA may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link (https://www.ferc.gov/docs-filing/elibrary.asp), click on General Search, and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP19-191). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this project, it is important that we receive your comments in Washington, DC on or before 5:00 pm Eastern Time on **October 31, 2019.**

For your convenience, there are three methods you can use to file your comments with the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov. Please carefully follow these instructions so that your comments are properly recorded.

(1) You can file your comments electronically using the eComment feature located on the Commission's website (www.ferc.gov) under the link to Documents and Filings. This is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to Documents

and Filings. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the following address. Be sure to reference the project docket number (CP19-191-000) with your submission: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426.

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 Code of Federal Regulations 385.214). Motions to intervene are more fully described at http://www.ferc.gov/resources/guides/how-to/intervene.asp. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. The Commission may grant affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the project is available from the Commission's Office of External Affairs, at **(866) 208-FERC,** or on the FERC website (www.ferc.gov) using the eLibrary link. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription, which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

TABLE OF CONTENTS

A. PROPOSED ACTION 1
1.0 Introduction 1
2.0 Project Purpose and Need 2
3.0 Scope of this Environmental Assessment 4
4.0 Public Review and Comment 4
5.0 Land Requirements 5
6.0 Construction Schedule 7
7.0 Construction and Operation Procedures 7
7.1. Aboveground facility construction 8
7.2. Belowground facility construction 9
8.0 Non-Jurisdictional Facilities 9
9.0 Permits and consultations 9
B. ENVIRONMENTAL ANALYSIS 12
1.0 Geology 12
1.1. Geologic Conditions 12
1.2. Mineral Resources 13
1.3. Geologic Hazards 13
1.3.1. Seismicity 13
1.3.2. Landslides and Slope Stability 13
1.3.3. Ground Subsidence 14
2.0 Soils 14
3.0 Water Resources and Wetlands 16
3.1. Groundwater Resources 16
3.2. Surface Water and Wetland Resources 18
3.2.1. Hydrostatic Testing 19
4.0 Vegetation and Wildlife 20
4.1. Vegetation 20
4.2. Wildlife 20
4.2.1. Migratory Birds 21
4.3. Special Status Species 22

4.3.1. Federally Listed Species 22
4.3.2. State-Listed Species 23
5.0 Land Use, Recreation, and Visual Resources 23
5.1. Land Use 23
5.2. Environmental Contamination Sites 25
5.3. Traffic 26
5.4. Visual Resources 26
6.0 Cultural Resources 26
6.1. Cultural Resources 26
6.2. Area of Potential Effects 27
6.3. Cultural Resources Investigations 27
6.4. Tribal Consultations 27
6.5. Unanticipated Discoveries Plan 28
6.6. Compliance with the National Historic Preservation Act 28
7.0 Air Quality 28
7.1. Existing Environment 28
7.2. Regulatory Requirements 30
7.2.1. Prevention of Significant Deterioration and Nonattainment New Source Review 30
7.2.2. Title V Permitting 31
7.2.3. New Source Performance Standards 31
7.2.4. General Conformity 32
7.3. State Air Quality Regulations 32
7.3.1. PADEP Standards 32
7.4. Construction Emissions Impacts and Mitigation 33
7.5. Operational Emissions Impacts and Mitigation 35
8.0 Noise 38
8.1. Federal Noise Regulations 38
8.1.1. State and Local Noise Regulations 39
8.2. Ambient Noise Conditions 39

8.3. Construction Noise Impacts and Mitigation 39
8.4. Operation Noise Impacts and Mitigation 40
9.0 Reliability and Safety 42
9.1. Safety Standards 43
9.1.1. Station Design 43
9.2. Emergencies 43
10.0. Cumulative Impacts 44
10.1.1. Vegetation and Wildlife 47
C. ALTERNATIVES 49
1.1. No-Action Alternative 49
1.2. System Alternatives 49
1.3. Site Alternatives 50
D. CONCLUSIONS AND RECOMMENDATIONS 51
E. REFERENCES 56
F. LIST OF PREPARERS 58

FIGURES

Figure 1 Project Overview Map 3

TABLES

Table 1 Land Requirements for the Proposed Project 5
Table 2 Anticipated Environmental Permits, Reviews, and Consultations for the Project 10
Table 3 Summary of Land Use Impacts (acres) 24
Table 4 Environmental Sites with 0.25 mile of the Project 25
Table 5 Construction Emissions for the Project (tons per construction duration) 34
Table 6 Existing and Proposed Potential to Emit at the Bernville Compressor Station (tpy) 37
Table 7 Noise Analysis for the Proposed Modifications at the Bernville Compressor Station 41
Table 8 Geographic Scope of Potential Impact of the Project 45
Table 9 Recently Completed, Current, and Potential Future Projects Affecting Resource Areas of Impact Affected by the Bernville Project 47

APPENDICES

Appendix A Site Location Map

TECHNICAL ACRONYMS AND ABBREVIATIONS

APE	area of potential effect
ATWS	additional temporary workspace
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO&A	Consent Order and Adjudication
Commission	Federal Energy Regulatory Commission
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dBA	decibels on the A-weighted scale
DOT	Department of Transportation
EA	environmental assessment
ESA	Endangered Species Act
EI	environmental inspector
EPA	Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
FERC	Federal Energy Regulatory Commission
fbg	feet below ground surface
FWS	U.S. Fish and Wildlife Service
g	gravity
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
hp	horse-power
HUC	Hydrologic Unit Code
L_{eq}	24-hour equivalent sound level
L_{dn}	day-night sound level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NNSR	Nonattainment New Source Review
NOI	*Notice of Intent to Prepare an Environmental Assessment for the Proposed Bernville Compressor Units Replacement Project and Request for Comments on Environmental Issues*
NO_x	nitrogen oxides
NRHP	National Register of Historic Places
NSA	noise sensitive area
NSR	New Source Review

OCA	Operational Consideration Area
OEP	Office of Energy Projects
PADEP	Pennsylvania Department of Environmental Protection
PBO	Programmatic Biological Opinion
PCB	polychlorinated biphenyl
PGA	peak ground acceleration
Plan	FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*
PNDI	Pennsylvania Natural Diversity review
Procedures	FERC's *Wetland and Waterbody Construction and Mitigation Procedures*
Project	Bernville Compressor Units Replacement Project
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
Station	Bernville Compressor Station
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
Solar	Solar Turbine Inc.
SPCC Plan	Spill Prevention, Containment, and Countermeasures Plan
Texas Eastern	Texas Eastern Transmission Company, L.P.
tpy	tons per year
USGS	U. S. Geological Survey
VOC	volatile organic compounds

A. PROPOSED ACTION

1.0 INTRODUCTION

On April 18, 2019, Texas Eastern Transmission, L.P. (Texas Eastern) filed an application with the Federal Energy Regulatory Commission (FERC or Commission) in Docket No. CP19-191-000 for authorization under section 7(b) and section 7(c) of the Natural Gas Act (NGA)[1] to abandon, construct, and operate certain natural gas facilities at its existing Bernville Compressor Station (Station) in North Heidelberg Township with a small portion in Jefferson Township, Berks County, Pennsylvania. The proposed project is known as the Bernville Compressor Units Replacement Project (Project).

We[2] prepared this environmental assessment (EA) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality's regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508 [40 CFR 1500-1508]), and the Commission's regulations for implementing NEPA (18 CFR 380). The assessment of environmental impacts is an important and integral part of the Commission's decision-making process. As such, we prepared this EA to assess the environmental impacts that would likely occur as a result of the proposed Project. We have developed and incorporated measures into this EA that we believe would appropriately and reasonably avoid, minimize, or mitigate environmental impacts associated with the Project activities.

Texas Eastern proposes to replace two existing compressor units at the Station. The replacement activities would require the use of additional temporary workspace (ATWS) beyond the existing facility boundary. The Project would consist of the following new facilities:

- installation of one 26,000 horsepower (hp) and one 18,100 hp Solar Turbine Inc. natural gas-fired centrifugal turbine compressor unit and associated auxiliary piping and equipment;
- installation of related software controls that would limit the total hp of the 26,000 hp compressor unit to 23,700 hp; and
- conversion of an existing 3,070-square-foot compressor unit building to a new office building and other related appurtenances.

[1] 15 U.S.C. § 717(b). (c) (2018).

[2] "We", "us", and "our" refer to the environmental staff of the Office of Energy Projects.

The Project would also involve removing one 22,000 hp and one 19,800 hp natural gas-fired centrifugal turbine compressor units and the associated auxiliary piping and equipment. Further, Texas Eastern would remove a 4,352-square-foot building, which houses the existing 22,000 hp compressor unit, to allow for the installation of an 11,780-square-foot building to house the two new replacement compressor units.

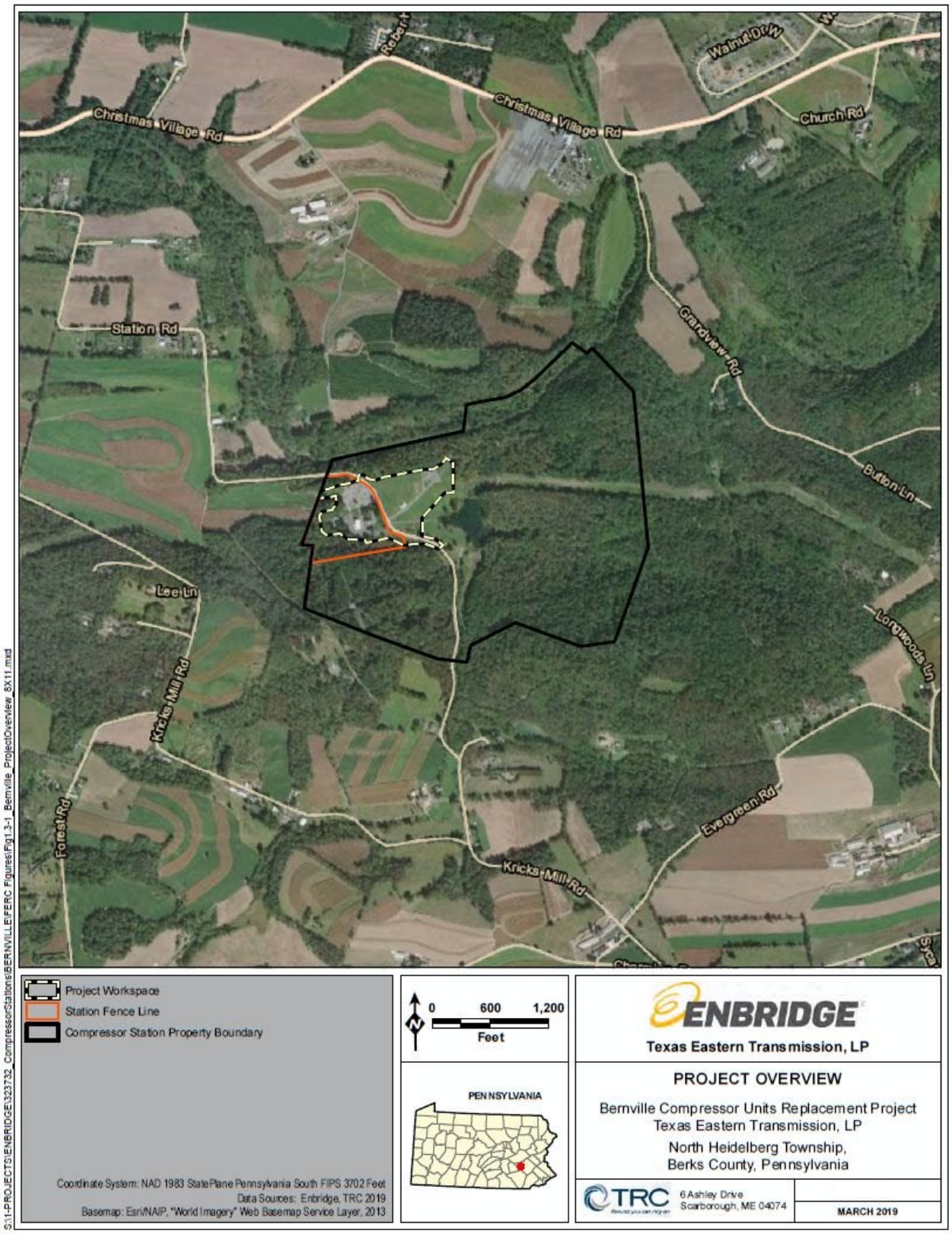
The general Project area is shown in figure 1. Appendix A includes a U.S. Geological Survey (USGS) topographic map and detailed location map of the Project.

2.0 PROJECT PURPOSE AND NEED

Texas Eastern states that construction and operation of the new compressor station units would replace antiquated compressor units in the Station with more efficient gas turbine units to enable the Station's continued operation. The Project would ensure that this portion of the Texas Eastern system complies with future air emission reduction requirements by the Commonwealth of Pennsylvania and the terms of the existing Title V Permit for the Station, which would require that the existing compressor units be permanently shut down by January 1, 2024.

The Commission is an independent regulatory agency and conducts a complete independent review of project proposals, including an environmental review of the proposed facilities. Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment will not negatively affect the present or future public convenience and necessity. Under section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate of Public Convenience and Necessity to construct and operate them. The Commission bases its decisions on financing, rates, market demand, gas supply, environmental impact, and other issues concerning a project.

Figure 1 Project Overview Map



3.0 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

The topics addressed in this EA include geology, soils, groundwater, surface waters, wetlands, fisheries, wildlife, vegetation, species of special concern, land use, recreation, visual impacts, cultural resources, air quality, noise, reliability and safety, cumulative impacts, and alternatives. This EA describes the affected environment as it currently exists and the environmental consequences of the Project, and compares the Project's potential impact with that of various alternatives. This EA also presents our recommended mitigation measures.

As the lead federal agency for the Project, FERC is required to comply with section 7 of the Endangered Species Act (ESA), as amended and section 106 of the National Historic Preservation Act. These statutes have been considered in the preparation of this EA. In addition to FERC, other federal, state, and local agencies may use this EA in approving or issuing permits for all or part of the Project. Permits, approvals, and consultations for the Project are discussed in section A.9.0 of this EA.

4.0 PUBLIC REVIEW AND COMMENT

On June 7, 2019, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Bernville Compressor Units Replacement Project and Request for Comments on Environmental Issues* (NOI). The NOI was sent to affected landowners; federal, state, and local government agencies; elected officials; environmental and public interest groups; Native American tribes; other interested parties; and local libraries and newspapers. Comments were requested from the public on specific concerns about the Project or environmental issues that should be considered during the preparation of the EA.

The Commission received seven comment letters from individuals stating that no prior notification of this Project was given and requesting a need for a public participation process. The Commission follows a public participation process as required by our regulations[3] and NEPA. First notification is the Notice of Application, which the applicant sends to affected landowners (e.g. landowners within 0.5 mile of the Station) within three business days of its issuance (which occurred on April 30, 2019). The Notice of Application was also published in the *Federal Register* on May 7, 2019.[4] Applicants are also required to publish notice of the application twice in a daily or weekly newspaper of general circulation in each county in which the project is located. As stated above, the FERC notified the public via the NOI, this goes out to a wider range of stakeholders and was published in the *Federal Register*.[5] The FERC has an eLibrary system that makes all documents related to the application available for public review. A notice announcing the EA's issuance will be

[3] 18 C.F.R. § 157.6(d) (2019).
[4] 84 Fed. Reg. 19,915 (May 7, 2019).
[5] 84 Fed. Reg. 27,629 (June 13, 2019).

sent to affected landowners and stakeholders, including anyone who submitted comments to the Commission. Additionally, the public will have another opportunity to provide comments during the EA comment period beginning September 30, 2019. All substantive comments received within the EA comment period will be addressed in the Order.

Several commenters expressed concern regarding a blowdown that occurred on an unspecified Texas Eastern Pipeline during Hurricane Sandy in 2012. While this blowdown event is outside of the scope of this EA, section B.7 discusses construction and operational emission impacts and mitigation; and section B.9 discusses reliability and safety standards for this Project.

5.0 LAND REQUIREMENTS

The existing Station lies within a fenced area encompassing approximately 13.4 acres. Construction of the Project would disturb about 7.6 acres within the existing station fence line and 10 acres for ATWS outside of the fence line, largely east of Station Road. Texas Eastern would maintain about 9.5 acres for permanent operation of the Project's facilities following construction (1.9 acres of which would be outside of existing fence line on Texas Eastern property). Land requirements are summarized in table 1 below.

Table 1
Land Requirements for the Proposed Project

Facility	Temporary Impact (acres)	Permanent/Operational Impact (acres)
Bernville Compressor Station	7.6	7.6
ATWS and Station Road expansion	10	1.9
Project Total	**17.6**	**9.5**

[1] Temporary impacts include construction and permanent/operational acreage impacts.

Although some workspace would be beyond the Station area, all workspace is on property owned by Texas Eastern which has been utilized for either the operation of the existing permanent facilities or regularly maintained by the Station as open space for lawn, laydown areas, and parking. Texas Eastern would restore the acreage temporarily impacted by construction and it would revert to former use.

Proposed Facilities

The existing facilities at the Station include two compressor buildings that house the natural gas compressors and related equipment and electrical and auxiliary buildings that house air compressors, generators, and other related ancillary equipment. Additionally, there are office buildings, a well house, and warehouse/storage buildings within the existing fenced boundary of the compressor station. Texas Eastern currently operates two GE Frame 5 natural gas fired turbines, with a total certificated hp of 41,800 hp. Texas Eastern

proposes to replace these with one new 26,000 hp Solar Titan 250 and one 18,100 hp Solar Titan 130 natural gas fired turbine. Texas Eastern would install software controls limiting the 26,000 hp Solar unit to 23,700 hp so that the total designed hp and delivery capacity at the Station would remain substantially the same. The two new turbines would be installed with Solar's SoLoNO$_x$™ dry low emissions technology for the control of nitrogen oxides (NO_x) and equipped with oxidation catalysts to control carbon monoxide (CO), volatile organic compounds (VOC), and organic hazardous air pollutants (HAP). Additionally, Project activities would include the replacement of a number of buildings and auxiliary piping and equipment associated with the compressor units. Such as, a generator building, an electrical control building, and electric service entrance building with transformer, and an auxiliary building. The existing compressor units are in two separate compressor buildings. Texas Eastern would replace one building to house the new compressor units and convert the other into an office or warehouse building. The Project would also consist of the replacement of an existing emergency generator and the installation of other appurtenant facilities.

The Project facilities and activities that would be installed, upgraded, or otherwise occur outside of the Station fence line include a new stormwater management retention basin, the widening of an existing access road (Station Road), and the installation of utility lines beneath Station Road. The retention basin is a stormwater management feature that is required to comply with Title 25 of the Pennsylvania Code, Chapter 102: Erosion and Sediment Control regulations ("Chapter 102") and the Pennsylvania Department of Environmental Protection (PADEP) Erosion and Sediment Control General Permit - 3. There is not sufficient space within the existing fenced Station west of Station Road to construct this feature and comply with the Chapter 102 regulations. Texas Eastern is proposing to widen the existing Station Road to provide a uniform 30-foot width along the length of the drive for safe ingress and egress as well as an increased radius to provide a safe equipment turnaround.

The new utility lines include three 6-inch-diameter gas vent lines to connect the new compressor piping on the west side of Station Road to the blowdown vessels in the existing source control area on the east side of Station Road, one 2-inch-diameter domestic water supply line to connect the new Station facilities on the west side of Station Road to the existing Station water well on the east side of Station Road and four 1-inch-diameter electrical conduits connecting the new compressor facilities to the source control area for power/control supply. Additionally, Texas Eastern would install a new 24-inch-diameter stormwater culvert beneath Station Road to direct stormwater from the new facilities to the retention pond.

6.0 CONSTRUCTION SCHEDULE

Texas Eastern anticipates construction would commence by March 2020 and continue for eight months. Texas Eastern anticipates placing the facilities into service by November 1, 2020.

7.0 CONSTRUCTION AND OPERATION PROCEDURES

Texas Eastern would design, construct, test, operate, and maintain the proposed facilities to conform with or exceed federal, state, and local requirements, including the U.S. Department of Transportation's (DOT) Minimum Safety Standards in 49 CFR 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*, and 18 CFR 380.15, *Siting and Maintenance Requirements*.

During construction and restoration of the Project, Texas Eastern would implement the measures contained in the following plans, in addition to other federal, state, and local permit requirements:

- FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan);[6]
- FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures);[7]
- Spill Prevention Control and Countermeasures Plan (SPCC Plan);
- Unanticipated Discovery of Contaminated Materials Plan;
- Plan for the Unanticipated Discovery of Historic Properties and Human Remains During Construction; and
- Erosion and Sediment Control Plan (ESCP).

FERC's Plan and Procedures are baseline construction and mitigation measures developed to minimize the potential environmental impacts of construction on upland areas, wetlands, and waterbodies. Texas Eastern does not propose any modifications to FERC's Plan and Procedures.

Texas Eastern would employ an environmental inspector (EI) to oversee and document environmental compliance. All Project-related construction personnel would be informed of the EI's authority and would receive job-appropriate environmental training prior to commencement of work on the Project. Depending on the progress of the construction, additional EIs may be added as necessary.

---

[6] The FERC Plan can be viewed on the FERC website http://www.ferc.gov/industries/gas/enviro/plan.pdf.
[7] The FERC Procedures can be viewed on the FERC website https://www.ferc.gov/industries/gas/enviro/procedures.pdf.

Prior to commencement of any construction-related activities, survey crews would stake the limits of the construction work areas and access roads. Texas Eastern would avoid sensitive areas by flagging or fencing the resource, as appropriate. Texas Eastern would contact the national "one-call" system to identify and mark buried utility lines prior to ground disturbance. Construction work areas would be cleared of existing vegetation and graded, as necessary, to create level surfaces for the movement of construction vehicles. In accordance with the FERC Plan, temporary erosion and sediment control measures would be installed following initial ground disturbance.

During Project operation, Texas Eastern would operate and maintain the proposed facilities in compliance with the Commission's guidance in 18 CFR 380.15 and the maintenance requirements in the FERC's Plan and Procedures. Project facilities would be marked and identified in accordance with applicable DOT regulations. In accordance with 49 CFR 192, the facilities would be inspected for leaks as parts of scheduled operations and maintenance.

7.1. ABOVEGROUND FACILITY CONSTRUCTION

The existing compressor units are in two separate compressor buildings; one (4,352-square-foot) building would be removed to allow for the installation of an 11,780-square-foot building to house the two new replacement compressor units. The second compressor building would be converted to an office or warehouse building. Texas Eastern, proposes to build additional facilities, which include a generator building, an electrical control building, an electric service entrance building with transformer, and an auxiliary building. Texas Eastern would replace the existing emergency generator and install other appurtenant facilities.

The site of proposed facilities would be cleared of vegetation and graded as necessary to create a level surface for the movement of construction vehicles and to prepare the area for constructing pads and foundations. Texas Eastern would excavate the sites for the new compressor units and buildings as necessary, to accommodate reinforced concrete foundations to provide a stable support for the operating machinery. The compressor units would then be positioned on the foundations, leveled, grouted, and secured. Texas Eastern would flange, screw, or weld the pipe connections associated with the new compressors and equipment. As the various systems and subsystems are completed, Texas Eastern would test and calibrate them for proper operation using computerized systems prior to start-up of the facilities. Prior to placing the new facilities into service, Texas Eastern would hydrostatically (or a comparable equivalent method) test the system to ensure compliance with DOT's standards at 49 CFR 192. Texas Eastern would check and test the controls and safety devices, such as the emergency shutdown system, relief valves, and other protection and safety devices. The new Project facilities would be operated on a trial basis after the completion of piping and mechanical systems to verify operation of the safety and protective devices. Sections of the yard would be covered with gravel or final graded, fertilized,

seeded, and mulched as work is completed and as provided in Texas Eastern's ESCP. The existing security fence around the permanent aboveground facilities would remain in place.

7.2. BELOWGROUND FACILITY CONSTRUCTION

The only proposed excavation outside of the existing fence line is the installation of the stormwater retention basin south of the existing access road (Station Road) and the installation of the new gas, water, and electric utility lines, as well as a stormwater culvert, beneath Station Road. The utilities beneath the road would be installed by open trenching the road to a depth of about 8.5 feet during construction. Beyond the retention basin and work beneath the roadway, the required grading outside of the fence line would be limited to preparation of the ATWS. In this area, Texas Eastern proposes to remove the existing vegetation and segregate up to 12 inches of topsoil. Texas Eastern would install and maintain erosion and sediment control devices in accordance with its ESCP and the FERC Plan during construction and replace the topsoil during restoration.

8.0 NON-JURISDICTIONAL FACILITIES

Under Section 7 of the NGA, the Commission is required to consider, as part of the decision to approve facilities under its jurisdiction, all factors bearing on the public interest. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These "non-jurisdictional" facilities may be integral to the need for the proposed facilities, such as a power plant at the end of a jurisdictional pipeline, or they may be minor, non-integral components of the facilities under the Commission's jurisdiction.

The local electric utility provider (Met-Ed, a FirstEnergy Company) would extend a new service connection from its existing distribution line currently along Station Road to the new auxiliary buildings (i.e. meter and switchgear facility) proposed by Texas Eastern at the Station. All work to be conducted by the utility and Texas Eastern would be within the construction workspace. There is no additional right-of-way expected for this installation. Impacts from use of the construction workspace are described throughout this EA. Based on the information provided, no additional federal permits are required for the service connection.

9.0 PERMITS AND CONSULTATIONS

Table 2 provides a list of known federal, state, and local permits for the Project, as well as any responses that have been received to date. Texas Eastern would be responsible for obtaining all permits and approvals required for the Project, regardless of their listing in table 2.

Table 2 Anticipated Environmental Permits, Reviews, and Consultations for the Project		
Agency	**Permit/Approval/Consultations**	**Status**
FEDERAL		
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity and Abandonment Authorization under Section 7 of the Natural Gas Act	Application filed April 18, 2019
EPA/PADEP	Consultation prior to remediation of Operational Consideration Areas ("OCA")	Consultation and approval to occur prior to construction activities within Operational Consideration Areas. Anticipated approval is February 15, 2020
U.S. Fish and Wildlife Service (FWS)	Consultation under Section 7 of the Endangered Species Act; the Migratory Bird Treaty Act; and the Fish and Wildlife Coordination Act (16 USC 661 et seq.)	Pennsylvania Natural Diversity (PNDI) review conducted on February 22, 2019. Consultation with FWS completed on July 17, 2019.
COMMONWEALTH OF PENNSYLVANIA		
PADEP, Bureau of Clean Water	National Pollutant Discharge Elimination System General Permit For Discharges From Hydrostatic Testing Of Tanks And Pipelines 3800-PM-BCW0173 (PAG-10)	To be Filed September 1, 2019; Anticipated Issuance 4th Quarter 2019
	Temporary Discharge Permit	To be Filed September 1, 2019; Anticipated Issuance 4th Quarter 2019
	Certification of Compliance with Section 401 of the Clean Water Act and all state water quality standards	To be Filed September 1, 2019; Anticipated Issuance 4th Quarter 2019
PADEP, Bureau of Clean Water and Berks County Conservation District	Erosion And Sediment Control General Permit For Earth Disturbance Associated With Oil And Gas Exploration, Production, Processing, Or Treatment Operations Or Transmission Facilities (ESCGP-3)	Filed May 21, 2019; Anticipated Issuance 3rd Quarter 2019
PADEP, Bureau of Air Quality	Plan Approval to Construct, Modify or Reactivate an Air Contamination Source	Filed January 15, 2019
PADEP, Bureau of Waste Management	Consultation per Consent Decree and Adjudication, May 1991	Consultation and approval to occur prior to construction activities within operational consideration areas.
Pennsylvania Natural Heritage Program	PNDI Inventory Review	Completed February 22, 2019
Pennsylvania Historical and Museum Commission; State Historic Preservation Office	Comment on the project under Section 106, National Historic Preservation Act (54 USC § 306108)	Completed July 8, 2019
Pennsylvania Game Commission	PNDI Review	Completed February 22, 2019

Pennsylvania Department of Conservation and Natural Resources	PNDI Review	Completed February 22, 2019
Pennsylvania Fish and Boat Commission	PNDI Review	Completed February 22, 2019
FEDERALLY RECOGNIZED INDIAN TRIBES		
• Absentee Shawnee Tribe of Oklahoma • Cayuga Nation • Delaware Nation of Oklahoma • Delaware Tribe of Indians • Eastern Shawnee Tribe of Oklahoma • Oneida Indian Nation • Oneida Nation of Wisconsin • Onondaga Nation • Seneca Nation of Indians • Seneca-Cayuga Tribe of Oklahoma • Shawnee Tribe of Oklahoma • St. Regis Mohawk Tribe • Stockbridge-Munsee Band of Mohican Indians • Tonawanda Seneca Nation • Tuscarora Nation	Section 106, National Historic Preservation Act (16 USC § 470f)	Ongoing; No Comments as of August 5, 2019

B. ENVIRONMENTAL ANALYSIS

The following sections discuss the Project's potential direct and indirect impacts on environmental resources. When considering the environmental consequences of the Project, the duration and significance of any potential impacts are described below according to the following four levels: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction, with the resources returning to pre-construction conditions almost immediately. Short-term impacts could continue for up to three years following construction. Long-term impacts would require more than three years to recover, but eventually would recover to pre-construction conditions. Permanent impacts are defined as activities that modify resources to the extent that they may not return to pre-construction conditions during the life of the Project, such as with the construction of an aboveground facility. An impact would be considered significant if it would result in a substantial adverse change in the physical environment. Our analysis also addresses direct and indirect effects collectively by resource.

The analysis contained in this EA is based upon Texas Eastern's application and supplemental filings and our experience with the construction and operation of natural gas infrastructure. However, if the Project is approved and proceeds to the removal/construction phase, it is not uncommon for a project proponent to require modifications (e.g., minor changes in workspace configurations). These changes are often identified by a company once on-the-ground implementation work is initiated. Any Project modifications would be subject to review and approval from FERC's Director of the Office of Energy Projects (OEP) and any other permitting/authorizing agencies with jurisdiction.

1.0 GEOLOGY

1.1. GEOLOGIC CONDITIONS

The Project would be in the Great Valley section of the Valley and Ridge physiographic province. Local relief in this section ranges from 140 to 1,100 feet above mean sea level (Pennsylvania Department of Conservation and Natural Resources, 2018).

Based on the results of geotechnical investigations conducted by Texas Eastern at the Station, the Project overlies surficial fill and soil materials to depths of up to 3.5 feet below the ground surface (fbg). Surficial materials are underlain by unconsolidated colluvium materials to depths ranging from 13.5 to 48.5 fbg. Colluvium is underlain by weathered bedrock to depths of up to 55 fbg. Consolidated bedrock (siltstone and sandstone) was encountered or inferred at depths ranging from 20 to 55 fbg.

1.2. MINERAL RESOURCES

Active, historic, and proposed surface or subsurface mines and oil and gas exploration or extraction were not identified within 0.25 mile of the Project (USGS, 2011; Pennsylvania State University, 2014; PADEP, 2019a; PADEP, 2019b; PADEP, 2019c). Therefore, we conclude the Project would not affect mineral resources.

1.3. GEOLOGIC HAZARDS

Geologic hazards are natural, physical conditions that can result in damage to land and structures or injury to people. Such hazards typically are seismic-related, including earthquakes, surface faulting, and soil liquefaction; landslides and karst terrain; or ground subsidence hazards. The Project area is not within the 100- or 500-year floodplain as determined by the Federal Emergency Management Agency and is therefore not anticipated to be significantly impacted by flood hazards.

1.3.1. Seismicity

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g). USGS Seismic Hazard Probability Mapping shows that for the Project area, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 8 to 10 percent g; and a 10 percent probability of an earthquake with an effective PGA of 2 to 3 percent g being exceeded in 50 years (USGS, 2014). For reference, a PGA of 10 percent g (0.1g) is generally considered the minimum threshold for damage to older structures or structures that are not constructed to resist earthquakes. Based on the USGS Quaternary Fold and Fault Database, no active faults were identified in the vicinity of the Project site (USGS, 2019).

Soil liquefaction is a phenomenon associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (i.e., behave like a viscous liquid) when subjected to forces such as intense and prolonged ground shaking. All three of these conditions (non-cohesive soils, near surface saturation, and seismicity) are necessary for soil liquefaction to occur. Given the low seismic risk in the Project area, we conclude the likelihood of liquefaction at the Station is low.

1.3.2. Landslides and Slope Stability

The Project area overlies colluvium deposits (i.e., originating from weathered bedrock transported downslope by gravity-driven processes); however, the majority of the Project area is relatively flat or gently sloping and has been previously graded.

Therefore, and based on the limited scope of the Project, we conclude that the Project would not significantly contribute to or be impacted by landslides or slope instability.

1.3.3. Ground Subsidence

Oil and gas extraction and subsurface mines do not occur in the Project vicinity. Furthermore, the Project does not overlie an aquifer with elevated susceptibility to ground subsidence from excessive pumping. Geologic mapping indicates that the Project would be underlain by Ordovician age limestone bedrock (Berg et al., 1980). However, neither carbonate bedrock nor voids were encountered during Texas Eastern's site-specific geotechnical investigation and the closest mapped karst-related features (i.e., sinkhole or surface depression) are over 2 miles south of the Project area. Given this and the limited scope of Project activities, we conclude that the Project would not be significantly impacted by subsidence hazards.

Based on the above analysis, we conclude that Project construction and operation would not significantly affect or be affected by geologic resources or hazards.

2.0 SOILS

The National Resources Conservation Service Web Soil Survey provides descriptions of the soil series crossed by the Project (2018). Project area soils have low wind erosion potential and low compaction potential. The majority of Project area soils are not highly water erodible (13.1 acres). About 8.4 acres of the Project area have poor revegetation potential, and 9.2 acres are classified as farmland of statewide importance. About 13.1 acres are classified as underlain by shallow bedrock (bedrock within 60 inches of the ground surface); however, based on the results of site-specific geotechnical investigation, weathered bedrock was encountered at depths no less than 13.5 fbg and consolidated bedrock was encountered or inferred at depths ranging from 20 to 55 fbg.

Typical soil impacts that may occur during construction include mixing of topsoil and subsoil layers, compaction, rutting, erosion, and alteration of drainage characteristics. Construction activities such as clearing, grading, trench excavation, backfilling, heavy equipment traffic, and restoration along the construction right-of-way have the potential to adversely affect natural soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, thus reducing soil productivity. Clearing removes protective vegetative cover and exposes soil to the effects of wind and water which potentially increases soil erosion, the transport of sediment to sensitive resource areas, and decreased soil productivity.

Because the Station is an existing facility, new impacts on farmland of statewide importance would be limited to areas outside of the existing fence line. ATWS and access roads outside of the existing Station overlie 4.1 acres of farmland of statewide importance. No Project area proposed to be used by Texas Eastern is currently in

agricultural use and activities within this area would be temporary except for widening of the existing gravel access drive and installation of a stormwater retention basin, totaling approximately 0.4 acre of permanent impact on farmland of statewide importance. Texas Eastern would return the remaining ATWS to pre-construction conditions in accordance with its ESCP. Therefore we conclude that new impacts on farmland of statewide importance would not be significant.

To minimize the introduction of stones or rocks to surface soil layers in the ATWS outside of the existing fence line, Texas Eastern would segregate up to 12 inches of topsoil and, upon completion of Project construction activities, replace the topsoil layer. The disturbed area within the fence line would be returned to pre-construction conditions (gravel surfacing or maintained lawn). Therefore, the Project would not significantly impact surficial soils.

To minimize or avoid potential impacts due to soil erosion, Texas Eastern would implement its ESCP and the FERC Plan. Temporary erosion controls would be installed immediately following land disturbing activities. Texas Eastern would inspect these devices on a regular basis and after each rainfall event of 0.5 inch or greater to ensure proper function. Texas Eastern would additionally utilize dust-control measures, as outlined in its Dust Control Plan, including routine wetting of the construction workspace, as necessary, where soils are exposed. Temporary erosion control devices would be maintained until the Project area is successfully stabilized/revegetated.

Texas Eastern would stabilize the Project area with gravel cover or revegetate it with seed mixes recommended by the PADEP during the appropriate time of year, and continue revegetation efforts until it is successful, and install a stormwater retention basin. Therefore, permanent impacts due to soil erosion or poor revegetation potential are not anticipated.

Soil Contamination

Texas Eastern has conducted characterization and remediation activities for polychlorinated biphenyls (PCB) in soils at the Station as part of the requirements of a Consent Order and Adjudication (CO&A) between Texas Eastern and the PADEP and a Federal Consent Decree between Texas Eastern and the U.S. Environmental Protection Agency (EPA) since 1995. With one exception, all identified areas of PCB impact have been remediated in compliance with the CO&A and Federal Consent Decree. Specifically, concentrations of PCBs in soil samples were generally less than 10 parts per million (ppm), and no sample was greater than 25 ppm; groundwater samples for PCBs were non-detectable.

One remaining area, identified as an Operational Consideration Area (OCA) was too close to the foundation of one of the existing compressor buildings to safely conduct remediation activities. This OCA would be remediated during Project construction.

Texas Eastern would manage any contaminated soil or potentially contaminated groundwater encountered during construction in accordance with applicable laws and regulations and Texas Eastern's soil and groundwater management plan, developed in consultation with the PADEP and/or EPA CO&A and Consent Decree, respectively, to properly handle, store, and dispose of known PCB contaminated soils and potentially contaminated groundwater.

During Project construction, previously remediated areas would be disturbed. Soils from previously remediated areas may be used as backfill material in the same area from which it was excavated, but not outside of those areas.

All soils excavated from the OCA would be separately stockpiled for waste classification and disposal in accordance with EPA and PADEP requirements. Any soil materials determined to be suitable for onsite reuse must be remediated per the CO&A and Federal Consent Order prior to backfill. Any excavated material determined to be unsuitable for use as backfill during construction would be managed for offsite disposal in conformance with applicable federal and state regulations.

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could also adversely affect soils. Texas Eastern would implement the measures outlined in its SPCC Plan to reduce potential impacts on soils from spills of fuel and hazardous materials used during construction. These measures include regularly inspecting equipment to ensure it is in good working order, properly training employees on the handling of fuels and other hazardous materials, implementing appropriate clean-up protocols, and promptly reporting any spills to the appropriate agencies, if applicable.

Given the minimization and mitigation measures described above, we conclude that soils would not be significantly affected by Project construction and operation.

3.0 WATER RESOURCES AND WETLANDS

3.1. GROUNDWATER RESOURCES

The Project would overlie the sandstone and carbonate rock Valley and Ridge principal aquifer system (Miller, 1999). Well yields within the Valley and Ridge aquifer system vary greatly depending on geologic structural and topographical factors, and the water quality is somewhat variable; however, the water is generally suitable for municipal supplies and other uses (Miller, 1999).

The EPA oversees the Sole Source Aquifer Protection Program to protect high production aquifers that supply 50 percent or more of the region's water supply and for which there is no reasonably available alternative drinking water sources should the aquifer become contaminated. The Project does not overlie a Sole Source Aquifer (EPA, 2019a).

The wellhead protection program in Pennsylvania is deployed voluntarily at a local level, and a publicly available database outlining the wellhead protection areas is not available. Texas Eastern consulted with the North Heidelberg Township Engineer and determined that North Heidelberg Township does not participate in the wellhead protection program.

One private well owned by Texas Eastern is within a shed within the eastern limits of the construction work area. To avoid damage or destruction of this well during construction activities, Texas Eastern would install bollards around the shed with an orange construction fence to provide a visible barrier. No other public or private wells or springs were identified within 150 feet of the Project area (PADEP, 2019d; PACDNR, 2019). Texas Eastern would offer pre- and post-construction testing for water quality and yield to owners of water supply wells within 150 feet of construction if any additional wells are identified.

The Project would not intercept known contaminated groundwater (EPA, 2019b; PADEP, 2019e). If contaminated groundwater is encountered during construction, Texas Eastern would follow its Unanticipated Discovery Plan for Contaminated Environmental Media, which specifies how it would handle, temporarily store, and properly dispose of contaminated groundwater if encountered.

Project construction has the potential to impact groundwater, including alteration of overland flow and groundwater recharge resulting from clearing of vegetation, grading, development of the stormwater retention basin, and trenching activities. However, these impacts would be highly localized and minor.

Groundwater contamination could occur from accidental spills of fuels, solvents, and lubricants used during construction. Texas Eastern would minimize spill-related impacts through implementation of the measures included in its SPCC Plan. Texas Eastern would also prohibit refueling activities and the storage of hazardous liquids within at least a 200-foot radius of all private water wells.

Given Texas Eastern's proposed mitigation measures, the limited area of construction, and absence of water supply wells in the Project vicinity (other than Texas

Eastern's water supply well), we conclude that the Project would not have a significant impact on groundwater resources.

3.2. SURFACE WATER AND WETLAND RESOURCES

Texas Eastern conducted wetland and waterbody delineation surveys in February 2019. A waterbody, as defined by the FERC, is "any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing and other permanent waterbodies such as ponds and lakes." No surface waterbodies or wetlands are within the Project workspaces; however, one ponded area approximately 125 feet east of the Project area may be indirectly impacted by Project construction.[8] Indirect impacts could occur from the installation of the stormwater retention basin (0.2 acre). Texas Eastern would use the proposed stormwater retention basin to manage stormwater runoff to prevent flooding and collect excess water from the Station during construction which would drain through a proposed culvert beneath Station Road. The outfall of the basin would connect to the existing stormwater water swale on the east side of Station Road which leads to the pond on Texas Eastern's property.

Additionally, one small emergent wetland, 40 to 50 feet lower in elevation, was identified along the perennial waterbody 220 feet east of the Project area. This freshwater emergent wetland is dominated by sedges and Japanese stilt grass plant species.

Potential impacts on the pond and fringe wetland could occur from stormwater runoff, hydrostatic test discharges, and spills or leaks of hazardous liquids from refueling construction vehicles or storage fuel, oil, and other fluids. Texas Eastern would minimize any indirect impacts on the pond and wetland from erosion and runoff by implementing its ESCP. The ESCP contains measures such as the installation of erosion control devices, including silt fence and straw bales, and revegetation or stabilization of disturbed areas upon completion of construction. Additionally, Texas Eastern would implement its SPCC Plan which includes preventative measures to avoid spills of hazardous materials and response procedures to be implemented in the event of a release. Because the Project workspace is more than 100 feet from any waterbody, any hazardous materials, chemicals, lubricating oils, solvents, or fuels used during construction would be stored in upland areas at least 100 feet from waterbodies and wetlands as required by the ESCP and SPCC Plan.

Following construction, Texas Eastern would restore temporary workspaces to pre-construction contours, stabilize the areas with erosion control blankets, and would revegetate the area with the appropriate seed mix. Based on the lack of direct impacts on

[8] The pond was a result of a dam installed south of one perennial waterbody (an unnamed tributary to Tulpehocken Creek) approximately 220 feet east of the eastern extent of the Project site.

surface waterbodies and wetlands and implementation of the ESCP, SPCC Plan, and the FERC Procedures to minimize any indirect impacts, we conclude that the Project would not have significant impacts on surface waterbodies and wetlands.

3.2.1. Hydrostatic Testing

In accordance with DOT regulations, Texas Eastern would perform hydrostatic testing of the new aboveground facility piping prior to placing the Project facilities into service. Hydrostatic testing is a method by which water is introduced to segments of pipe and then pressurized to verify the integrity of the pipeline. A total of 80,000 to 100,000 gallons of water is anticipated to be used for hydrostatic testing. Hydrostatic test water would be sourced from municipal sources. No chemicals would be added to the hydrostatic test water. Following hydrostatic testing, test water would first pass through an energy-dissipation device as necessary, before being discharged into a well vegetated, upland area in accordance with the FERC's Procedures.

Water also may be withdrawn for the control and mitigation of fugitive dust from the Project. Texas Eastern estimates up to about 60,000 to 75,000 gallons of water may be used over the course of construction of the Project. Water for hydrostatic testing and fugitive dust control would also be sourced from local municipal sources.

Based on Texas Eastern's implementation of the FERC's Procedures and its ESCP, we conclude that hydrostatic test water and fugitive dust control impacts would not result in significant impacts.

4.0 VEGETATION AND WILDLIFE

4.1. VEGETATION

Project workspaces, including the existing Station and adjacent field Texas Eastern would use as ATWS, are characterized as open upland and industrial areas. The open upland areas are predominantly regularly disturbed by ongoing maintenance activities. However, limited tree clearing of individual trees (12 trees) within the Station fence line categorized as open land would be converted to lawn or scrub-shrub areas to ensure safe operation of the facility. Construction of the Project would include temporary impacts on 8.3 acres of open space vegetation and 9.3 acres of industrial land. Following construction, Texas Eastern would permanently maintain 9.5 acres of industrial land (1.9 acres of which would be outside of the existing fence line on Texas Eastern property). However, all but 0.2 acre of open land that Texas Eastern would permanently impact are currently classified as industrial areas. This conversion of open land to industrial would be necessary for the widening of the existing gravel access road (Station Road) and removal of the 12 trees. Additionally, 0.2 acre of open land would be converted for permanent use as a stormwater retention basin. The remaining acreage would be restored and revert to former uses. No vegetation types of special concern would be impacted by the Project. See table 3 for a detailed summary of land use and vegetation impacts.

Texas Eastern would conduct topsoil segregation during use of the ATWS and would decompact, restore the topsoil layer, and revegetate the area following construction in accordance with its ESCP and the FERC Plan.

Land outside of the existing Station facility is Texas Eastern owned and would be continued to be maintained accordingly. Texas Eastern would conduct follow-up inspections of all disturbed areas to ensure revegetation is successful. Given the limited permanent impacts on vegetation associated with the aboveground facilities and the limited area of disturbance, we conclude that impacts on vegetation would be mostly short-term and not significant.

4.2. WILDLIFE

The Project consists of grasslands and disturbed and/or maintained areas, such as lawns, where ground nesting birds such as brown thrasher and field sparrow, and small mammals such as raccoon, striped skunk, eastern cottontail rabbit, and eastern gray squirrels are commonly found.

Potential impacts on wildlife include habitat removal, construction-related ground disturbance, and noise. Some individuals could be inadvertently injured or killed by construction equipment. However, more mobile species such as birds and mammals would likely relocate to other nearby suitable habitat and avoid the Project area once

construction activities commence. Given the limited Project area, limited duration of disturbance (eight months), and abundant adjacent habitat, the short-term disturbance of local habitat is not expected to have population-level effects. Long-term impacts from habitat alteration would be further minimized by the use of previously disturbed areas (i.e., the existing compressor station) and implementation of Texas Eastern's ESCP and the FERC Plan, which would ensure revegetation of areas temporarily disturbed by construction.

Noise levels by the facilities would return to pre-construction levels immediately following completion of construction activities. Noise associated with new aboveground facilities would be permanent; however, the aboveground facilities associated with the Project would be within existing industrial facilities and replace aging infrastructure. Therefore, noise associated with construction and operation of the Project is not anticipated to significantly impact wildlife in the Project area, and we conclude that the Project would have a short-term and not significant impact on wildlife or their habitat in the Project area.

4.2.1. Migratory Birds

Migratory birds are species that nest in the U.S. and Canada during the summer and then migrate to and from the tropical regions of Mexico, Central and South America, and the Caribbean for the non-breeding season. Migratory birds are protected under the Migratory Bird Treaty Act ([MBTA] – 16 U.S. Code [U.S.C.] 703-711), and bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 U.SC. 668-668d). The MBTA, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Executive Order (EO) 13186 was enacted in 2001 to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions on migratory birds. EO 13186 directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and avoid, minimize, or mitigate adverse impacts on migratory birds through enhanced collaboration with the U.S. Fish and Wildlife Service (FWS), and emphasizes species of concern, priority habitats, and key risk factors, with particular focus given to population-level impacts.

On March 30, 2011, the FWS and FERC entered into a Memorandum of Understanding regarding implementation of EO 13186, that focuses on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This memorandum does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act, the ESA, or any other statutes, and does not authorize the take of migratory birds.

In its letter dated June 17, 2019, the FWS stated that Project construction would avoid and minimize impacts on migratory birds because the new facilities would be limited to the existing compressor station facility site. No species-specific conservation measures have been recommended. The FWS determined no further consultation pursuant to the MBTA is warranted.

Given the limited amount of vegetative clearing (for ATWS outside of the Station fence line and an estimated 12 trees within the existing Station facility fence line), ample adjacent habitats suitable for any birds that may be disturbed, and that no eagles or nests were observed in the Project area, we conclude that the Project would not significantly impact migratory birds or eagles.

4.3. SPECIAL STATUS SPECIES

Special status species are those species for which state or federal agencies provide an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the ESA, species considered as candidates for such listing by the FWS, and those species that are state-listed as threatened, endangered, or state species of special concern.

4.3.1. Federally Listed Species

In accordance with Section 7 of the ESA, the FERC, in coordination with the FWS, must ensure that any federal action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally listed threatened or endangered species or result in an adverse modification of designated critical habitat of a federally listed species.

On February 22, 2019, Texas Eastern utilized the Pennsylvania Natural Diversity (PNDI) online database to identify the federally listed species potentially present in the Project area. The PNDI review recommended additional consultation with the FWS. As our non-federal representative, Texas Eastern initiated consultation with the FWS. On March 12, 2019, Texas Eastern utilized the Information for Planning and Consultation review to obtain a list of threatened and endangered species that may occur in the Project area. The federally endangered bog turtle, federally endangered Indiana bat, and the federally threatened northern long-eared bat were identified as potentially present within the Project workspaces.

The bog turtle occurs in small, discrete populations, in open-canopy, herbaceous sedge meadows and fens bordered by wooded areas. These preferred wetlands are typically composed of micro-habitat, including dry pockets, saturated areas, and areas that are periodically flooded. Texas Eastern conducted wetland delineations within the Project area and no wetlands are within the planned workspace for the Project. One small

fringe wetland was identified at the bottom of a slope 40 to 50 feet lower in elevation and 220 feet from the Project workspace. Although the Project avoids all direct impacts on the wetland, indirect impacts from construction could occur. As such, we have determined the Project may affect but is *not likely to adversely affect* the bog turtle.

Indiana bat and the northern long-eared bat roost in trees during the summer and hibernate in caves and abandoned mines during the winter. Roosting habitats include living and dead trees greater than 5 inches in diameter at breast height with cracks, crevices, and/or exfoliating bark. The Project is not within known Indiana and northern-long eared bat habitat. Limited tree clearing of 12 individual trees within two separate areas, south and west of the Station yard, within the otherwise open land, would be required for construction. If schedule allows, Texas Eastern would complete these clearing activities outside of the active bat season (April 1 to September 30). Therefore, we conclude that the Project may affect but *is not likely to adversely affect* the Indiana bat and the northern long-eared bat.

On June 27, 2019, the FWS concurred that the Project is *not likely to adversely affect* the bog turtle and the Indiana bat; therefore, no further section 7 consultation with the FWS for these species are required. On July 17, 2019, the FWS verification letter included the determination key results under the January 5, 2016, Programmatic Biological Opinion (PBO) on Final 4(d) Rule for the northern long-eared bat and Activities Excepted from Take Prohibitions from the FWS. The results determined the Project may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the FWS PBO; however, any taking that may occur incidental to this action is not prohibited under the final 4(d) rule. Therefore, the PBO satisfies consultation under the ESA Section 7 relative to the northern long-eared bat.

4.3.2. State-Listed Species

On February 22, 2019, Texas Eastern utilized the PNDI online database to identify the state-listed species potentially present in the Project area. The PNDI determined that the Project would have no known impact on state-listed species and that additional consultation with the Pennsylvania Game Commission, Pennsylvania Department of Conservation and Natural Resources, or the Pennsylvania Fish and Boat Commission was not required (PNDI 2019). Thus, we conclude the Project would not impact state-listed species.

5.0 LAND USE, RECREATION, AND VISUAL RESOURCES

5.1. LAND USE

Land use categories identified in the Project area consist of open and industrial land. The total acreage to be disturbed for construction of all Project facilities would be

17.6 acres, and operation would be about 9.5 acres. A summary of the land use categories that would be affected by construction and operation of the Project facilities is provided in table 3.

Table 3
Summary of Land Use Impacts (acres)

Facility	Open Land		Industrial Land		Project Total	
	Const.	Op.	Const.	Op.	Const.	Op.
Existing Permanent Facility[a]	0.0	0.0	9.3	9.3	**9.3**	**9.3**
Expansion of Gravel Road	0.2	0.2	0.0	0.0	**0.2**	**0.2**
Stormwater Retention Pond[b]	0.2	0.0	0.0	0.0	**0.2**	**0.0**
ATWS	7.9	0.0	0.0	0.0	**7.9**	**0.0**
PROJECT TOTAL	**8.3**	**0.2**	**9.3**	**9.3**	**17.6**	**9.5**

[a] Includes all workspaces within the fence line, Station Road, and the existing gravel access drive.
[b] The retention pond would be unavailable as open space during construction, but would be classified as open land after construction.
Const = the total acreage of land impacted during construction.
Op = all areas that would be maintained after construction.

Open land includes existing pipeline right-of-way, other utility rights-of-way, open fields, vacant land, herbaceous and scrub-shrub uplands, and minimal trees. Industrial land includes developed and paved areas and existing roads, including all facilities within the existing fence line of the Station.

Impacts resulting from construction would be mostly short-term and limited to the construction period. Select trees would be cut within the fence line of the existing facility. Texas Eastern would implement the measures in its ESCP and FERC's Plan to control erosion, segregate topsoil, and minimize impacts due to sedimentation. Texas Eastern would restore temporary workspaces to current use after construction. Therefore, we find that impacts on open and industrial lands would be short-term and not significant.

The nearest residence is about 900 feet, thus the Project would not directly impact residents from the Project. No future planned developments have been identified within 0.25 mile of the Project area.

5.2. ENVIRONMENTAL CONTAMINATION SITES

After review of the PADEP's online viewer and eMapPA, we determined there are two contamination sites within 0.25 mile of Project construction. The sites are shown in table 4 below.

Table 4
Environmental Sites with 0.25 mile of the Project

Site name	Location	Status	Comments
Bernville Compressor Station 306 Station Road	Onsite	Closed	Inactive Storage Tanks
Bernville Compressor Station 306 Station Road	Onsite	Active	Residual Waste: non-hazardous industrial waste

The first potential contamination site was identified as inactive storage tanks. Three tanks, installed in the 1980s, were identified by the PADEP's Bureau of Environmental Cleanup and Brownfields as inactive for over 15 years. Two of the three inactive tanks are listed as underground fuel storage tanks, a 10,000-gallon gas tank and a 2,000-gallon diesel fuel tank. The third inactive tank is listed as a 1,308-gallon aboveground tank. No significant releases were noted in the PADEP database and the tanks were reviewed as closed and removed from the site in 1993 (both underground tanks) and 2003 (aboveground tank). Because the three tanks have been removed without recorded releases or required remediation, we conclude the Project would not impact, or be impacted by, these inactive storage tanks.

The second potential contamination site has been identified as an active captive residual and hazardous waste operation facility regulated under Pennsylvania Code, Title 25, Chapter 287 Residual Waste Management - General Provisions. Texas Eastern is permitted by the PADEP to generate and temporarily store potential hazardous waste as a byproduct of operation at the Station. The PADEP lists this permitted waste operation facility as being in compliance with the Residual Waste Permit Program. The Station would remain covered under the same active permit after the proposed replacement of the compressor units. If contaminated media is discovered during construction, Texas Eastern would adhere to its Unanticipated Discovery of Contaminated Materials Plan, and applicable federal and state regulations. As the Station is currently in compliance, no changes to the operation of the Station is planned, and Texas Eastern would implement its Unanticipated Discovery of Contaminated Materials Plan should contamination be discovered during construction, we conclude the Project would not impact, or be impacted by, this potential contaminated site.

5.3. TRAFFIC

The Project would occur on a parcel of land which is bisected by Station Road, a public road maintained by the North Heidelberg Township. Project construction would require a temporary trench across the roadway with of about 8.5 feet during excavation and installation. During construction within the roadway, temporary impacts on traffic may occur through lane restrictions and/or road closures. Texas Eastern would comply with Pennsylvania Department of Transportation (PennDot) Publication 213*: Temporary Traffic Control Guidelines* and implement a traffic plan to minimize impacts on traffic from construction. Additionally, parking may occur on the east side of Station Road within the ATWS during construction; therefore, Texas Eastern would regulate pedestrian crossing. All traffic modifications would be temporary with construction, and therefore would not significantly impact traffic use.

5.4. VISUAL RESOURCES

The proposed Project is not within any federal, state, or locally designated scenic areas, such as National Wild and Scenic Rivers and scenic roads, highways, and byways. Impacts on visual and/or aesthetic resources would primarily occur during construction as a result of the presence of construction equipment.

While the new buildings may be larger than the buildings that are proposed to be removed, the new buildings are equal in character to the existing infrastructure at the Station. Therefore, we conclude visual impacts from construction and operation of the Project would be minimal and consistent with surrounding facilities.

6.0 CULTURAL RESOURCES

6.1. CULTURAL RESOURCES

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the National Historic Preservation Act, as amended, requires FERC to take into account the effects of its undertakings on historic properties listed, or eligible for listing on the National Register of Historic Places (NRHP),[9] and to afford the Advisory Council on Historic Preservation an opportunity to comment. Texas Eastern, as a non-federal

[9] In accordance with 36 CFR 800.16(l)(1), a historic property is any prehistoric or historic district, site, building, structure, object, or property of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization, included in, or eligible for inclusion in, the NRHP. This term includes artifacts, records, and remains that are related to and located within such properties. Cultural resources are those properties that have not been evaluated for NRHP eligibility.

designee, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

6.2. AREA OF POTENTIAL EFFECTS

Texas Eastern defined the Project area of potential effects (APE) as approximately 17.6 acres, which includes all areas of potential direct effects from construction, operations, and maintenance for the proposed Project and incorporates properties adjacent to the existing Station to account for indirect effects on historic properties posed by the Project. Due to the area's topography, vegetation, and development, which combine to limit views to and from the Station property, we conclude the APE is sufficient to account for all the potential direct and indirect effects to historic properties by the proposed Project.

6.3. CULTURAL RESOURCES INVESTIGATIONS

Texas Eastern conducted a desktop assessment and archaeological and historic architectural properties identification surveys to study the effects that the Bernville Compressor Units Replacement Project would have on cultural resources. The proposed Project APE had been previously surveyed as part of cultural resources investigations for Texas Eastern projects in 1981 and 1986. The area has been disturbed and archaeological sensitivity is low. No archaeological sites were identified within the APE. On June 5, 2019, Texas Eastern submitted the results of the cultural resources assessment for review and concurrence to the Pennsylvania Historical and Museum Commission, which serves as the Pennsylvania State Historic Preservation Office (SHPO). In a letter dated July 8, 2019, the SHPO concurred with Texas Eastern's recommendation and found that the proposed Project would not have any adverse effects on historic properties. We agree.

6.4. TRIBAL CONSULTATIONS

Texas Eastern contacted the following Native American tribes regarding the proposed Project: Absentee Shawnee Tribe of Oklahoma, Cayuga Nation, Delaware Nation of Oklahoma, Delaware Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Oneida Indian Nation, Oneida Nation of Wisconsin, Onondaga Nation, Seneca Nation of Indians, Seneca-Cayuga Tribe of Oklahoma, Shawnee Tribe of Oklahoma, St. Regis Mohawk Tribe, Stockbridge-Munsee Community Band of Mohican Indians, Tonawanda Seneca Nation, and Tuscarora Nation. On April 9, 2019, Texas Eastern provided to the tribes a Project information package, a cultural resources assessment, and a draft unanticipated discoveries plan. FERC also contacted the tribes by letter on June 7, 2019 regarding the Project. To date, Texas Eastern and FERC have not received any responses from the tribes.

6.5. UNANTICIPATED DISCOVERIES PLAN

Texas Eastern developed a Project-specific plan titled: *Procedures Guiding the Discovery of Unanticipated Historic Properties and Human Remains: Post-Review Discoveries (36 CFR 800.13)*, which outlines the procedure to follow, in accordance with state and federal laws, in the event that unanticipated cultural resources or human remains are discovered during construction of the Project. The plan was submitted to FERC and the SHPO; FERC requested minor changes to the plan. On July 1, 2019, Texas Eastern provided copies of the revised plan with the requested revisions to FERC, the SHPO, and tribes. We find the plan to be acceptable.

6.6. COMPLIANCE WITH THE NATIONAL HISTORIC PRESERVATION ACT

FERC has completed its compliance requirements with Section 106 of the National Historic Preservation Act for the proposed Project. If there are any changes to the Project that have the potential to affect historic properties, further consultation under Section 106 may be required.

7.0 AIR QUALITY

Air quality in the Project area would be affected by construction and operation of the Project. The term air quality refers to relative concentrations of pollutants in the ambient air. Although minor air emissions would be generated by Project construction, the majority of air emissions associated with the Project would result from Project operation. However, the Project would involve the replacement of antiquated turbine compressor units with new units that would have multiple emissions controls; therefore, the Project would result in an overall net reduction of pollutant emissions. The subsections below summarize federal and state air quality regulations that are applicable to the Project. This section also characterizes the existing air quality and describes potential impacts the facilities may have on air quality regionally and locally.

7.1. EXISTING ENVIRONMENT

The climate in the Project area (Berks County, Pennsylvania) is primarily continental in character, and subject to modification by the Atlantic Ocean, which exposes the region to a variety of meteorological conditions and events. Rainfall is abundant and fairly well-distributed throughout the year, with an average rainfall of 2.4 to 4.7 inches per month. Average winter temperatures range from the upper-20s to upper 30s degrees Fahrenheit , and average summer temperatures range from the upper-60s to the mid-70s. Average precipitation is about 46 inches per year, with well-distributed rainfall throughout the year (National Climatic Data Center, 2012).

Ambient air quality is protected by the Clean Air Act (CAA) of 1970, as amended in 1977 and 1990. The EPA oversees the implementation of the CAA and establishes National Ambient Air Quality Standards (NAAQS) to protect human health and welfare. NAAQS have been developed for seven "criteria air pollutants," including nitrogen dioxide, CO, ozone, sulfur dioxide (SO_2), particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and lead, and include levels for short-term (acute) and long-term (chronic) exposures. The NAAQS include two standards, primary and secondary. Primary standards establish limits that are considered to be protective of human health and welfare, including sensitive populations such as children, the elderly, and asthmatics. Secondary standards set limits to protect public welfare, including protection against reduced visibility and damage to crops, vegetation, animals, and buildings (EPA, 2019c). Although ozone is a criteria air pollutant, it is not emitted into the atmosphere from an emissions source; rather, it develops as a result of a chemical reaction between NO_x and VOCs in the presence of sunlight. Therefore, NO_x and VOCs are referred to as ozone precursors and are regulated to control the potential for ozone formation. Additional pollutants, such as VOCs and HAPs, are emitted during fossil fuel combustion. These pollutants are regulated through various components of the CAA that are discussed further below.

The EPA, and state and local agencies have established a network of ambient air quality monitoring stations to measure concentrations of criteria pollutants across the U.S. The data are then averaged over a specific time period and used by regulatory agencies to determine compliance with the NAAQS and to determine if an area is in attainment (criteria pollutant concentrations are below the NAAQS), nonattainment (criteria pollutant concentrations exceed the NAAQS), or maintenance (area was formerly nonattainment and is currently in attainment). Berks County is part of the Northeast Pennsylvania-Upper Delaware Valley Interstate Air Quality Control Region and is designed as an attainment area for all criteria pollutants based on the most recent standards, including the 2015 ozone standard. However, Berks County was previously designated as marginal nonattainment under the 2008 ozone standard, which has not yet been revoked and is therefore still applicable to the Project.

Greenhouse gases (GHG) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHGs under the CAA. The primary GHGs that would be emitted by the Project are carbon dioxide (CO_2), methane, and nitrous oxide. During construction and operation of the Project, these GHGs would be emitted from the majority of construction and operational equipment, as well as from fugitive methane leaks from the aboveground facilities.

Emissions of GHGs are typically quantified and regulated in units of carbon dioxide equivalents (CO_2e). The CO_2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO_2. Thus, CO_2 has a GWP of 1, methane has a GWP of 25, and nitrous oxide has a GWP of 298.

7.2. REGULATORY REQUIREMENTS

The provisions of the CAA that may be applicable to the Project are discussed below. The estimated potential operational emissions for the Project are shown in table 6.

7.2.1. Prevention of Significant Deterioration and Nonattainment New Source Review

Proposed new or modified air pollutant emission sources must undergo a New Source Review (NSR) prior to construction or operation. Through the NSR permitting process, state and federal regulatory agencies review and approve project emissions increases or changes, emissions controls, and various other details to ensure air quality does not deteriorate as a result of new or modified existing emission sources. The two basic groups of NSR are major source NSR and minor source NSR. Major source NSR has two components: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR). PSD, NNSR, and minor source NSR are applicable to projects depending on the size of the proposed project, the projected emissions, and if the project is proposed in an attainment area or nonattainment/maintenance area. PSD regulations define a major source as any source type belonging to a list of 28 specifically listed source categories that have a potential to emit 100 tons per year (tpy) or more of any regulated pollutant or 250 tpy for sources not among the listed source categories (such as natural gas compressor stations). These are referred to as the PSD major source thresholds.

The existing Station is currently a PSD major source due to NO_x and CO potential emissions that exceed the thresholds. However, following the proposed Project modifications, the station would be reclassified as a minor source. Under the PSD program, major NSR requirements are triggered at an existing major source when a major modification occurs. A major modification is defined as a change that results in a significant emissions increase and a significant net emissions increase based on a five-year contemporaneous period. Because the Project would result in the replacement of two existing GE Frame 5 turbines with new Solar Taurus units with emissions controls that would result in an emissions decrease, the Project will not result in a significant net emissions increase and will not trigger major NSR requirements under the PSD program.

The Project is also an existing major source of NO_x under the NNSR program because it is in a marginal ozone nonattainment area under the 2008 ozone standard. Because the Project would result in NO_x emissions, a net emissions increase analysis was performed. For the same reasons stated above, the Project would not trigger major NSR requirements under the NNSR program.

7.2.2. Title V Permitting

Title V is an operating air permit program run by each state for each facility that is considered a "major source." The major source threshold for an air emission source is 100 tpy for criteria pollutants, 10 tpy for any single HAP, and 25 tpy for total HAPs. In ozone nonattainment areas, more stringent major source thresholds apply for VOCs and NO_x. The existing Station is in a marginal nonattainment area for ozone and the state of Pennsylvania is in the Ozone Transport Region; therefore, the Title V threshold of 50 tpy of VOC, rather than 100 tpy, is applicable to the Project. The Station is currently permitted as a Title V source. Following Project completion, the existing Station would be reclassified from a major Title V facility to a minor source subject to a state only operating permit. Texas Eastern's Plan Approval to Construct, Modify, or Reactivate an Air Contamination Source Permit would transition to a state operating permit once the Project is complete.

7.2.3. New Source Performance Standards

The EPA promulgates New Source Performance Standards (NSPS) for new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology for stationary source types or categories as specified in the applicable provisions discussed below. NSPS also establishes fuel, monitoring, notification, reporting, and recordkeeping requirements.

NSPS Subpart JJJJ applies to owners and operators of new or existing stationary spark ignition internal combustion engines that commence construction, modification, or reconstruction after June 12, 2006. The Project includes a new emergency stationary spark ignition internal combustion engine greater than 25 hp at the Station, and therefore, the requirements of subpart JJJJ would apply to the proposed Project.

NSPS Subpart KKKK applies to stationary combustion turbines with a heat input rate at peak load of 10 million British thermal units per hour or greater that commenced construction modification, or reconstruction after February 18, 2005. Subpart KKKK limits emissions of NO_x as well as the sulfur content of fuel that is combusted from the subject unit. The Project involves the installation of new stationary combustion turbines at the Station; therefore, the Project would trigger the emissions limitations as well as the monitoring, reporting, recordkeeping, and testing requirements under Subpart KKKK.

NSPS 40 CFR Subpart ZZZZ applies to existing, new, and reconstructed stationary reciprocating internal combustion engines depending on size, use, and whether the engine is in a major or area source of HAP. The Project includes the installation of one new emergency stationary reciprocating internal combustion engine with a site rating greater than 500 hp. The new emergency engine will meet the requirements of Subpart ZZZZ through compliance with Subpart JJJJ.

7.2.4. General Conformity

The lead federal agency must conduct a conformity analysis if a federal action would result in the generation of emissions that would exceed the conformity threshold levels of the pollutant(s) for which a county is designated nonattainment or maintenance. Although Berks County is in attainment for the 2015 ozone standard, because the 2008 ozone standard has not yet been revoked, and the Project's non-exempt emissions (emissions which are not covered by a permit, e.g., construction emissions) were reviewed and are summarized in table 5 below. Based on the non-exempt Project emissions, the Project would be below the applicable general conformity thresholds and emissions are considered to be *de minimus*.

7.3. STATE AIR QUALITY REGULATIONS

This section discusses the potentially applicable state air regulations for the proposed Project.

7.3.1. PADEP Standards

Particulate Emissions: Processes

Title 25 of the Pennsylvania Code, Chapter 123.13 defines particulate matter emissions limitations for processes. The proposed compressor units and emergency generator are subject to these requirements.

Sulfur Compound Emissions: General and Combustion Units

Title 25 of the Pennsylvania Code, Chapter123.21 limits the concentration of sulfur oxides in the effluent gas to 500 ppm on a dry volume basis or less. The proposed compressor units and emergency generator are subject to these requirements.

Title 25 of the Pennsylvania Code, Chapter123.22 states that a person may not permit the emissions into the outdoor atmosphere of sulfur oxides from a combustion unit in excess of 4 pounds per million British thermal units of heat input over a one-hour period. The proposed fuel gas heaters would be subject to these requirements.

Visible Emissions: Limitations and Measuring Techniques

Title 25 of the Pennsylvania Code, Chapter123.41 states that a facility may not emit visible emissions equal to or greater than 20 percent for a period aggregating to more than three minutes in any one hour. Title 25 of the Pennsylvania Code, Chapter123.43 specifies measuring techniques for visible emissions. These standards apply to the station.

Plan Approval Requirements

As shown in table 2, the Station is subject to the Plan Approval to Construct, Modify, or Reactivate an Air Contamination Source Permit requirements of Title 25 of the Pennsylvania Code, Chapter127.11-127.51.

7.4. CONSTRUCTION EMISSIONS IMPACTS AND MITIGATION

Project construction would result in temporary, localized emissions that would last the duration of construction activities (i.e., about eight months, from March 2020 to November 2020). Heavy equipment, trucks, delivery vehicles, and construction workers commuting to and from work areas would generate exhaust emissions through the use of diesel or gasoline engines.

Construction activities, such as land clearing and grading, ground excavation and soil disturbance, and driving on unpaved roads, would also result in the temporary generation of fugitive dust. The amount of dust generated would be a function of construction activity, soil type, soil moisture content, wind speed, precipitation, vehicle traffic and types, and roadway characteristics. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity.

Texas Eastern estimated construction emissions based on the fuel type and anticipated frequency, duration, capacity, and levels of use of various types of construction equipment. Construction emissions were estimated using the EPA's MOVES model, the EPA's NONROAD model, Western Regional Air Partnership's Fugitive Dust Handbook, and the EPA's Complication of Air Pollutant Emission Factors AP-42. Table 5 below provides the total Project construction emissions by county, including exhaust emissions and fugitive dust from on-road and off-road construction equipment and vehicles, exhaust emissions from construction worker vehicles for commuting, and exhaust emissions from vehicles used to deliver equipment/materials to the site.

Table 5 Construction Emissions for the Project (tons per construction duration)								
Activity	**NOx**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**	**HAPS**	**CO_{2e}**
Fugitive Dust	-	-	11.2	1.3	-	-	-	-
Non-road and On-Road Emissions	7.8	85.6	0.5	0.5	0.02	2.3	0.2	2,420
Commuting Emissions	0.22	2.7	0.04	0.01	0.002	0.06	0.06	294
Total	**8.02**	**88.3**	**11.74**	**1.81**	**0.022**	**2.36**	**0.26**	**2,714**
General Conformity Thresholds	***100***	**-**	**-**	**-**	**-**	***50***	**-**	**-**

Construction emissions shown in table 5 are not expected to result in a degradation of ambient air quality standards or an exceedance of the NAAQS. During construction, Texas Eastern would make its best efforts to use ultra-low sulfur diesel in construction equipment and utilize non-road engines either retrofitted with best available technology or certified to meet the EPA's Tier IV Exhaust Emissions Standards with the need for additional retrofitting. Best available technology for reducing emissions may include diesel retrofit devices such as diesel particulate filters, diesel oxidation catalysts, or catalyzed wire mesh filters. Texas Eastern would also limit idling of engines to a maximum of five minutes when construction equipment is not in use. In addition, construction equipment would be properly tuned and operated only on an as-needed basis to minimize combustions emissions from diesel and gasoline engines.

Texas Eastern would implement measures contained within its Fugitive Dust Control Plan, including the following:

- apply water when needed;
- control track-out;
- maintain low speeds (5 miles per hour) on unpaved roads;
- route vehicles and equipment to covered surfaces where possible;
- prevent motor vehicle use when unnecessary in unpaved areas;
- minimize soil disturbance; and
- remove soil from the exteriors of vehicles and construction equipment prior to moving off of the right-of-way and other work sites.

Construction emissions would occur over the duration of construction activity and would be emitted at different times throughout the Project area. Construction emissions would be relatively minor and would result in short-term, localized impacts in the immediate vicinity of construction work areas. With the mitigation measures proposed

by Texas Eastern, we conclude that air quality impacts from Project construction would be temporary and would not result in significant impact on local or regional air quality.

7.5. OPERATIONAL EMISSIONS IMPACTS AND MITIGATION

The Project would replace older compressor units at the existing Station with more efficient gas turbine units to enable to station's continued operation. The Project would also ensure Texas Eastern's compliance with the existing Title V Permit for the station, which requires the existing compressor units be permanently shut down by January 1, 2024. Specifically, the PADEP published a final-form rulemaking amending Title 25 of the Pennsylvania Code, Chapter 129: *Standards for Sources – Additional Reasonably Available Control Technology ("RACT") Requirements for Major Sources of NOx and VOCs* (RACT II Rule) in the Pennsylvania Bulletin on April 23, 2016. The RACT II Rule requires emission reductions to existing major NO_x-emitting facilities such as the two units at the Station. The existing Station currently includes the following emissions-generating units:

- one 22,000 hp GE Frame 5 compressor unit;
- one 19,800 hp GE Frame 5 compressor unit;
- one 1,175 horsepower natural gas-fired emergency generator;
- one 1,100-gallon condensate tank; and
- related appurtenant facilities.

The proposed work at the Station would involve installation and removal of the following emissions sources:

- installation of one 18,100 hp Solar Titan 130 compressor unit;
- installation of one 26,000 hp Solar Titan 250 compressor unit;[10]
- removal of one 22,500 hp GE Frame 5 compressor unit and associated auxiliary piping and equipment;
- removal of one 19,800 hp GE Frame 5 compressor unit and associated auxiliary piping and equipment;
- replacement of one 440 horsepower natural gas-fired emergency generator;
- station piping modifications; and
- installation of other appurtenant facilities.

Following the modifications at the Station, the turbine compressor units would have a total capacity of 41,800 hp, which is the total capacity of the existing Station.

To reduce emissions from the proposed compressor turbines, Texas Eastern would comply with Best Available Technology requirements that would apply to NO_x, CO, VOC, PM, and SO_2 emissions from the turbines. Texas Eastern would also use

[10] Software controls would limit the total hp output of the new unit to 23,700 hp.

SoLoNo$_x$™ combustion technology to control NO_x and CO emissions from the proposed new turbines. Further, the turbines would be equipped with oxidation catalysts to further reduce CO, VOC, and HAP emissions.

To reduce fugitive gas releases from meters and regulators, valves, and other piping components, and from operation and maintenance activities, Texas Eastern would limit the frequency and extent of blowdowns during maintenance. In addition, Texas Eastern participates in the EPA's Natural Gas STAR Program to share best practices for methane reduction technologies.

Table 6 Existing and Proposed Potential to Emit at the Bernville Compressor Station (tpy)									
Proposed Unit	**NO_x**	**CO**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**Formaldehyde**	**Total HAPs**	**CO_2e**
Existing Bernville Compressor Station Potential to Emit									
22,000 hp GE Frame 5	460.9	330.8	6.9	6.9	14.7	35.2	11.9	17.2	130,270
19,800 hp GE Frame 5	441	327.6	6.6	6.6	14	34.9	11.8	17.01	124,188
Emergency Generator	2.5	4.1	0.02	0.02	0.02	0.04	0.02	0.04	136
Boilers/Heaters	0.042	0.01	0.004	0.004	0.007	0.004	0	0.0009	54
Separator Vessels and Storage Tanks	-	-	-	-	-	1.1	0	0.06	56
Fugitive Emissions/Blowdowns	-	-	-	-	-	36.7	0	1.5	27,651
Total PTE of Existing Compressor Station	**904.4**	**662.5**	**13.5**	**13.5**	**28.7**	**107.9**	**23.7**	**35.8**	**282,355**
Proposed Modifications to Bernville Compressor Station Potential to Emit									
18,100 hp Solar Taurus	23.2	55.6	4.6	4.6	9.9	4.8	0.9	1.6	83,368
26,000 hp Solar Tauras	30.9	11.8	6.2	6.2	13.2	3.9	0.4	0.9	111,391
Emergency Generator	1.3	2.6	0.02	0.02	0.03	1.2	0.5	0.7	576
Boilers/Heaters	0.0424	0.02	0.004	0.004	0.007	0.004	0	0.0009	54
Separator Vessels and Storage Tanks	-	-	-	-	-	1	0	0.05	38
Fugitive Emissions/Blowdowns	-	-	-	-	-	31.95	0	1.6	19,903
Total PTE of Compressor Station following modifications	55.4	70.0	10.8	10.8	23.1	42.9	1.8	4.9	215,330
Difference in PTE Pre- and Post-Project Modifications	**-849.0**	**-592.5**	**-2.7**	**-2.7**	**-5.6**	**-65.1**	**-21.9**	**-31.0**	**-67,025**

As shown in table 6 above, the Project would result in an overall reduction of potential emissions for all criteria pollutants, HAPs, and CO_2e, including potential reductions of between 86 to 94 percent for NOx, CO, VOC, and HAPs. Therefore, we conclude the Project would not result in significant impacts on air quality, but would result in pollutant emissions' reductions and would generally improve existing ambient air quality in the Project area.

8.0 NOISE

Noise is generally defined as sound with intensity greater than the ambient or background sound pressure level. Construction and operation of the Project would affect overall noise levels in the Project area. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures that relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, the L_{dn} is the L_{eq} plus a 10 decibels on the A-weighted scale (dBA) penalty added to account for people's greater sensitivity to nighttime sound levels (typically considered between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used to assess noise impacts because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise (Bies and Hansen, 1988).

8.1. FEDERAL NOISE REGULATIONS

In 1974, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA, 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from the proposed Project at noise sensitive areas (NSAs). NSAs are defined as homes, schools, churches, or any location where people reside or gather. FERC requires that the noise attributable to any new or modified compressor engine during full load operation not exceed an L_{dn} of 55 dBA at any NSAs. Due to the 10 dBA nighttime penalty added prior to the logarithmic calculation of the L_{dn}, for a facility to meet the 55 dBA L_{dn} limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA L_{eq} at any NSA. However, for certain facilities that were constructed prior to the establishment of FERC's noise requirement, the 55 dBA L_{dn} limit does not apply. The ambient noise conditions reviewed below indicate that the existing Station is louder than our 55 dBA L_{dn} requirement. Because the Station was constructed prior to the establishment of FERC's noise requirements, the 55 dBA L_{dn} limit does not apply. However, following Project modifications, FERC's noise requirement will now apply to the modified station.

8.1.1. State and Local Noise Regulations

The Township of North Heidelberg, in conjunction with other western Berks County townships/boroughs has noise regulations. The regulations state that operations or activities should not generate noise that exceeds 62 dBA during the daytime (7:00 am to 9:00 pm) and 55 dBA during the nighttime (9:00 pm to 7:00 am) at residential districts/zoning. The regulation also sets a limit of 70 dBA for all other times/days for any other type of zoning. These requirements are not applicable to construction between the hours of 7:00 am and 8:00 pm. During Project operation, Texas Eastern would comply with these standards through compliance with the FERC's noise requirements below, which are more stringent.

8.2. AMBIENT NOISE CONDITIONS

Generally, land use in the Project area is primarily industrial and open land. The nearest NSAs are between 900 feet to 1,850 feet from the Station. Daytime noise data at the NSAs were collected by Texas Eastern on August 21, 2017 while the station was under full load operation of one compressor unit. The sound levels at full load for the entire station operation were then estimated from these measurements. Texas Eastern also estimated the ambient noise levels without any noise contribution from the Station. The results of the noise surveys are presented in table 7 below.

8.3. CONSTRUCTION NOISE IMPACTS AND MITIGATION

Noise would be generated during construction of the Project. Construction activities throughout the Project site would last up to the estimated eight months on an intermittent basis. Texas Eastern would conduct the majority of construction activities from 7:00 am until 7:00 pm, Monday through Saturday. However, Texas Eastern anticipates that the following activities may need to be completed overnight or over the weekend due to specific construction requirements or when other construction crews are demobilized:

- hydrostatic and/or pneumatic pressure testing;
- welding;
- x-ray activities including non-destructive testing of welds;
- depressurization of pipelines; and
- miscellaneous electrical or similar work inside building structures.

Construction noise associated with the above listed activities is expected to be short-term, intermittent, and is not expected to result in significant noise impacts on nearby NSAs. In order to mitigate impacts on residents during potential nighttime/weekend construction activities, Texas Eastern would notify residents in advance of the planned activities and duration. Texas Eastern would also provide a 24-

hour hotline to nearby residents, would be responsive to calls, and would work with landowners to promptly resolve any concerns. Additionally, Texas Eastern would work with its contractors to use less impactful backup alarms, would position any light towers away from NSAs to the extent practicable, and would ensure a Texas Eastern representative is present during all nighttime activities.

To mitigate construction noise levels during general construction activities (including daytime and nighttime activities), Texas Eastern would ensure standard sound muffling devices are kept in good working order. Based on the temporary nature of construction activities, Texas Eastern's commitment to conduct the majority of construction activities during daytime hours, and the mitigation measures Texas Eastern would employ during both daytimes and nighttime activities, we conclude that construction noise would not result in significant noise impacts on residents or the surrounding communities.

8.4. OPERATION NOISE IMPACTS AND MITIGATION

The proposed Station modifications would generate noise on a continuous basis (i.e., up to 24 hours per day) when operating. The noise impact associated with the Station would attenuate with distance. Noise generated at the Station would result primarily from the following operational noise sources:

- new turbine/compressor units;
- turbine exhaust and exhaust duct;
- gas piping and associated components;
- outdoor lube oil cooler; and
- air intake systems.

The results of the ambient sound survey were used in determining the proposed Project's noise impacts on nearby NSAs. Based on manufacturers' data, Texas Eastern determined the noise levels due to operation of the new proposed equipment at the Station. The results of the existing sound survey were then combined with the predicted noise impacts from the proposed new equipment to determine the noise impacts from operation of the Station at each NSA. The results of the operational noise analysis are provided below in table 7.

Lastly, Texas Eastern committed to the following noise control measures, as recommended by their noise consultant:

- enclosing the new turbine compressor units inside an acoustically-insulated metal building, constructed from appropriate building materials;
- installing an adequate silencer system on each turbine air intake and exhaust system;

- covering outdoor aboveground gas piping with acoustical pipe insulation;
- installing a low-noise lube oil cooler for each new turbine compressor unit; and
- installing a silencer on the new blowdown separator.

Table 7
Noise Analysis for the Proposed Modifications at the Bernville Compressor Station

NSA	Type	Distance and Direction from New Units	Sound Level of Station during Full Load Operation (dBA L_{dn})[1]	Estimated Sound Level of New Replacement Units (dBA L_{dn})	Estimated Ambient Sound Levels with No Station Operation (dBA L_{dn})[2]	Total Estimated Sound Level after Project Modifications, including Ambient Sound Levels (dBA L_{dn})	Predicted Change in L_{dn} between Existing and Modified Station Sound Levels (dBA)
NSA 1	residence	900 feet north-northwest	66.5	52	50	54.2	-12.3
NSA 2	residence	1,500 feet northwest	57.2	46.8	45	49	-8.2
NSA 3	residences	1,850 feet west-southwest	59.5	44.6	45	47.8	-11.7

1 = Sound level was estimated based on measured sound levels during full load operation of one compressor unit only.
2 = Ambient sound levels assuming no station operation were estimated based on minimal station operation and/or existing land use categories.

The operational noise analysis in table 7 indicates that both the noise contribution from the new turbine compressor units and the total noise would be less than 55 dBA L_{dn} at all NSAs. Additionally, table 7 indicates that following Project modifications, the total noise from the Station during full load operation would be reduced from between 8 to 12 dBA at all NSAs.

While the analysis above shows that noise impacts at the NSAs from the Project modifications at the Station would be below our 55 dBA requirement, to verify compliance with the FERC's noise standards, **we recommend that**:

- **Texas Eastern should file noise surveys with the Secretary of the Commission (Secretary) <u>no later than 60 days</u> after placing the**

modified Bernville Compressor Station into service. If a full power load condition noise survey is not possible, Texas Eastern should file an interim survey at the maximum possible power load within 60 days of placing the modified station into service and file the full power load survey within 6 months. If the noise from all the equipment operated at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSA, Texas Eastern should:

a. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;

b. install additional noise controls to meet that level within 1 year of the in-service date; and

c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.

Blowdown events generate noise at compressor stations and occur when pressure in the compressor casing, piping, or the entire station must be released in a controlled manner. Blowdown events cause a temporary increase in sound levels that would typically last for about 1 to 5 minutes. Because of the short duration and infrequent occurrence, we do not believe that blowdown events would be a significant contributor to operational noise from the Project.

Based on the predicted noise impacts at the Station, which would result in an overall decrease in noise levels in the Project vicinity, the sound mitigation measures proposed by Texas Eastern, and the recommendation stated above, we conclude that the proposed Project would not result in significant noise impacts on residents or the surrounding communities.

9.0 RELIABILITY AND SAFETY

The pressurization of natural gas at a compressor station involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an auto-ignition temperature of 1,000 ^{o}F and is flammable at concentrations between 5.0 and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however, it may ignite and burn if there is an ignition

source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

9.1. SAFETY STANDARDS

The DOT is mandated to prescribe minimum safety standards to protect against risks posed by natural gas facilities under Title 49 of the U.S. Code, Chapter 601. The DOT's Pipeline and Hazardous Materials Safety Administration administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of natural gas facilities. Many of the regulations are written as performance standards, which set the level of safety to be attained and allow the operator to use various technologies to achieve safety. The Pipeline and Hazardous Materials Safety Administration's safety mission is to ensure that people and the environment are protected from the risk of incidents. This work is shared with state agency partners and others at the federal, state, and local level.

9.1.1. Station Design

The piping and aboveground facilities associated with the proposed Project would be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The DOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

Part 192 of 49 CFR establishes 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 a 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. The station must be in an enclosed fenced area and must have at least two gates to provide a safe exit during an emergency.

9.2. EMERGENCIES

The DOT prescribes the minimum standards for operating and maintaining pipeline and aboveground natural gas facilities, including the requirement to establish a

written plan governing these activities. Each operator is required to establish an emergency plan that includes procedures to minimize the hazards of a natural gas emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

The DOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline or facility emergency, and to coordinate mutual assistance. Texas Eastern must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas emergency and report it to the appropriate public officials. Texas Eastern would provide the appropriate training to local emergency service personnel before the Project is placed in service.

With continued compliance with DOT safety standards, operation, and maintenance requirements, the Project would be constructed and operated safely.

10.0. CUMULATIVE IMPACTS

In accordance with NEPA and with FERC policy, we evaluated the potential for cumulative effects of the Project. Cumulative impacts represent the incremental effects of a proposed action when added to other past, present, or reasonably foreseeable future actions, regardless of the agency or party undertaking such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time.

This cumulative effects analysis generally follows a method set forth in relevant Council of Environmental Quality and EPA guidance and focuses on potential impacts from the Project on resource areas or issues where the incremental contribution would be potentially significant when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affect a resource potentially affected by the Project;
- cause this impact within all, or part of, the Project area (i.e. geographic scope); and
- cause this impact within all, or part of, the time span for the potential impact from the Project.

Actions outside the Project's geographic scope, as defined below in table 8, and timeframe were generally not evaluated because their potential to contribute to a cumulative impact would diminish with increasing distance and time from the Project.

Table 8
Geographic Scope of Potential Impact of the Project

Resource	Geographic Scope
Geological Resources and Soils	Limits of Project disturbance
Water Resources	Watershed boundary (Hydrologic Unit Code [HUC]-12)
Vegetation, Wildlife, and Special Status Species	HUC-12
Land Use, Recreation, and Visual Resources	1 mile
Cultural Resources	Area of potential effect
Air Quality	Construction: 0.25 mile Operation: 31.07 miles (50 kilometers)
Noise	Construction: 0.25 mile for general construction activities, 0.5 mile for drilling activities Operation: 1 mile

The EA analyzed the Project impacts on geology and soils; water resources; vegetation and wildlife; cultural resources; land use and visual resources; and air quality and noise. As described earlier in section B of this EA, the Project-related construction and operational impacts would not impact surface waters, wetlands, fisheries, cultural resources, or visual resources. Therefore, the project would not contribute to cumulative impacts within the geographic and temporal scope on these resources and they will not be discussed further. No projects were identified within the geographic and temporal scope for geology, soils, groundwater, land use, construction air quality or noise. Therefore, these resources will not be discussed further. In addition, because the Project would result in an overall reduction in operational pollutant emissions and operational noise, it would not contribute negatively to cumulative impacts for operational air quality or noise, and as such, cumulative impacts on these resources were not considered in the cumulative impact analysis.

Below, we assess the potential for cumulative impacts on vegetation and wildlife. The geographic scope used to assess cumulative impacts for each resource is discussed below and in table 8.

The following describes the geographic scope and rationale for our cumulative impact analysis:

- Impacts on vegetation and wildlife could extend outside of the workspaces, but would generally be contained to a relatively small area. We believe the watershed scale is most appropriate to evaluate impacts as it provides a natural boundary and a geographic proxy to accommodate general wildlife habitat and ecology characteristics in the Project area. Therefore, we evaluated projects within the HUC-12 watershed (Tulpehocken Creek-Northkill Creek) that would be crossed by the Project.

Texas Eastern obtained information about present and future planned developments by consulting federal, state, and local agency and municipality websites, reports, and direct communications; permit applications with various agencies; and online database searches. The projects identified as occurring within the resource-specific geographic scopes are identified based on resource type below in table 9.

As described in section A.8, the Station would require new service connection from its Met-Ed existing distribution line currently along on Station Road to a meter and switchgear facility to be constructed by Texas Eastern at the Station. All work conducted by the utility would be within Texas Eastern's proposed construction workspace. There is no additional right-of-way expected for this installation. Because the service connection would be constructed within the proposed Project's workspace, the environmental impacts of this connection are analyzed throughout this EA. Therefore, this project is not included in the cumulative impact discussion below.

Table 9 Recently Completed, Current, and Potential Future Projects Affecting Resource Areas of Impact Affected by the Bernville Project					
Project Proponent/Project Name	**County**	**Project Description**	**Date of Construction / Project Status**	**Approximate Distance to Project (km)**	**Resources Potentially Affected within the proposed Project's Geographic Scope**
PennDOT/ Water Street Resurfacing	Berks	Base repair, overlay and widen State Route 3039 from US 422 to State Route 3037 in Womelsdorf Borough and Heidelberg Township.	Under Development	4.1	Vegetation Wildlife
PennDOT/ Bunkerhill Road Resurfacing	Berks	Base repair, overlay and widen State Route 3039 from US 422 to State Route 3037 in Womelsdorf Borough and Heidelberg Township.	Under Development	5.1	Vegetation Wildlife
PennDOT/ State Route 422 Resurfacing	Berks	Base repair, overlay and widen State Route 3039 from US 422 to State Route 3037 in Womelsdorf Borough and Heidelberg Township.	Completed	6.3	Vegetation
Sources: PennDOT: https://www.dot7.state.pa.us/OneMap					

10.1.1. Vegetation and Wildlife

Cumulative effects on vegetation and wildlife affected by the Project could occur in the HUC-12 watershed that would be crossed by the Project. The PennDOT projects listed on table 9 are not expected to contribute discernably to cumulative impacts on vegetation or wildlife because they involve base repairs and expansion of existing roadways. These projects could impact adjacent vegetation habitats that would not be considered quality habitat. Impacts on vegetation by the PennDOT projects could include vegetative clearing and grading to expand the roadways and temporary displacement of wildlife from construction noise. Similarly, the majority of the proposed Project would be constructed on previously disturbed industrial land that does not provide quality wildlife habitat. Impacts by the proposed Project includes limited tree clearing of individual trees (12 trees) within the Station fence line, which would be converted to lawn or scrub-shrub areas to ensure safe operation of the facility. Permanent impacts are limited to 0.4 acres of open land conversion to expand the existing gravel access road (Station Road) and construct a permanent stormwater retention pond. Texas Eastern would minimize impacts on vegetation and wildlife habitat by implementing the measures in the FERC Plan and ESCP.

Where construction schedules overlap, increased noise, lighting, and human activity could also disturb wildlife in the area. However, these impacts attenuate with distance and, given that the PennDOT projects are at least 4 miles from the Project, we do

not anticipate any additive noise, lighting, or human activity impacts on wildlife or vegetation. More mobile species, such as birds, may temporarily displace to nearby suitable habitat or avoid the areas affected by construction, but are anticipated to return to those areas temporarily impacted following the completion of project activities. Direct mortality of smaller, less mobile species, may occur as a result of project activities in the area. Overlapping construction timelines increases the area and duration of disturbance for wildlife, thus increasing cumulative impact. Nevertheless, there is abundant available habitat within the geographic scope; therefore, we conclude cumulative impacts on vegetation and wildlife would be of short duration, localized, and minor.

C. ALTERNATIVES

In accordance with NEPA and Commission policy, we evaluated alternatives to the Project to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives included the no-action alternative, system alternatives, and site alternatives. The evaluation criteria used for developing and reviewing alternatives were:

- ability to meet the Project's stated objective;
- technical and economic feasibility and practicality; and
- significant environmental advantage over the proposed action.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same general workspace requirements.

1.1. NO-ACTION ALTERNATIVE

Under the no-action alternative, the proposed facilities would not be constructed, and the environmental impacts associated with the Project would not occur. However, the Project's objectives would not be met. The no-action alternative would prevent this portion of the Texas Eastern system from remaining in compliance with the Title V Permit for the Station (#06-05033), which specifically requires that the two existing compressor units be permanently shut down by January 1, 2024. This would prevent Texas Eastern from continuing operations of the pipeline and allowing delivery of natural gas to existing customers. Additionally, without replacement of the compressor units Texas Eastern would not be able to meet the Pennsylvania RACT regulations to reduce NO_2 emissions. The no-action alternative would not meet the Project's purpose and need, and would not result in lower NO_2 emissions. Therefore, we have dismissed this alternative as a reasonable alternative to meet the Project objectives.

1.2. SYSTEM ALTERNATIVES

System alternatives are alternatives to the proposed action that would make use of existing, modified, or proposed Project(s) systems to meet the stated objective of the proposed Project. System alternatives involve the transportation of the equivalent amount of natural gas by the modification or expansion of existing pipeline systems or by other new pipeline systems. Any other systems would not meet the purpose and need of the proposed Project to reduce emissions and meet the Pennsylvania RACT regulations. Additionally, we have not identified other systems that would be able to meet the

transportation needs of this project. Therefore, this alternative has been removed from further consideration.

1.3. SITE ALTERNATIVES

As discussed in section B above, the majority of construction would occur within existing Station facilities and previously disturbed areas. Our review of the Project found that environmental impacts associated with the Station have been minimized.

Based on the limited environmental impact associated with this Project, we did not identify any unresolved resource conflicts that would present a need to examine further alternatives. Additionally, no comments were received regarding resources that would be impacted by the Project. Because the impacts associated with the proposed Project amendments are not significant, we did not evaluate additional alternatives. Therefore, we conclude that the Project is the preferred alternative to meet the Project objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Texas Eastern abandons, constructs, and operates the proposed facilities in accordance with its application and supplements, and the staff's recommended mitigation measures below, approval of the Project would not constitute a major action significantly affecting the quality of the human environment. We recommend that the Commission Order contain a finding of no significant impact and include the measures listed below as conditions in any authorization the Commission may issue to Texas Eastern.

1. Texas Eastern shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Texas Eastern must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of OEP **before using that modification**.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during abandonment, construction, and operation of the Project. This authority shall allow:

    a. the modification of conditions of the Order;
    b. stop-work authority; and
    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project abandonment, construction, and operation.

3. **Prior to any construction or abandonment**, Texas Eastern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed Project plot plans. **As soon as they are available, and before the start of construction**, Texas Eastern shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

5. Texas Eastern shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to extra workspaces allowed by the Commission's Plan and/or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resource mitigation measures;
   b. implementation of endangered, threatened, or special concern species mitigation measures;
   c. recommendations by state regulatory authorities; and
   d. agreements with individuals landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of this authorization and before abandonment by removal or construction begins**, Texas Eastern shall file an Implementation Plan with the Secretary for review and written approval by the Director of the OEP. Texas Eastern must file revisions to the plan as schedules change. The plan shall identify:

a. how Texas Eastern will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
b. how Texas Eastern will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
c. the number of EIs assigned per facility, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions Texas Eastern will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
f. the company personnel (if known) and specific portion of Texas Eastern's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) Texas Eastern will follow if noncompliance occurs; and
h. for each discrete facility, a Gantt or PERT chart (or similar Project scheduling diagram), and dates for:
    i. the completion of all required surveys and reports;
    ii. the environmental compliance training of onsite personnel;
    iii. the start of construction; and
    iv. the start and completion of restoration.

7. Texas Eastern shall employ at least one EI. The EI shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
d. a full-time position, separate from all other activity inspectors;
e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, Texas Eastern shall file updated status reports with the Secretary on a **monthly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

   a. an update on Texas Eastern's efforts to obtain the necessary federal authorizations;
   b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
   c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies;
   d. a description of the corrective actions implemented in response to all instances of noncompliance;
   e. the effectiveness of all corrective actions implemented;
   f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
   g. copies of any correspondence received by Texas Eastern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Texas Eastern's response.

9. Texas Eastern must receive written authorization from the Director of OEP **before commencing construction or abandonment of any Project facilities**. To obtain such authorization, Texas Eastern must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. Texas Eastern must receive written authorization from the Director of OEP **before placing the Project into service.** Such authorization will only be granted following a determination that rehabilitation and restoration of the areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Texas Eastern shall file an affirmative statement with the Secretary, certified by a senior company official:

a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
b. identifying which of the conditions in the Order Texas Eastern has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. Texas Eastern shall file noise surveys with the Secretary **no later than 60 days** after placing the modified Bernville Compressor Station into service. If a full power load condition noise survey is not possible, Texas Eastern shall file an interim survey at the maximum possible power load **within 60 days** of placing the modified station into service and file the full power load survey **within 6 months**. If the noise from all the equipment operated at the station under interim or full power load condition exceeds an L_{dn} of 55 dBA at any nearby NSA, Texas Eastern shall:

a. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;
b. install additional noise controls to meet that level **within 1 year** of the in-service date; and
c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

E. REFERENCES

Berg, T. M., Edmunds, W. E., Geyer, A. R., and others, compilers. 1980. Geologic map of Pennsylvania (2nd ed.): Pennsylvania Geological Survey, 4th ser., Map 1, 3 sheets, scale 1:250,000. http://www.docs.dcnr.pa.gov/topogeo/publications/pgspub/map/map1/index.htm. Accessed July 2019.

Bies, David A. and Colin H. Hansen. 1988. Engineering Noise Control: Theory and Practice.

U.S Environmental Protection Agency [EPA]. 2019a. SSA Locations. https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b. Accessed June 2019.

EPA. 2019b. Digital information regarding Facility Registry Service Geospatial Data Downloads Service. https://www.epa.gov/frs/geospatial-data-download-service. Accessed March 2019.

EPA. 2019c. "EPA's Air Quality System Monitor Values Report." AirData. United States Environmental Protection Agency. Available online at: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report. Accessed March 5, 2019

Miller, James A. 1999. Ground Water Atlas of the United States. U.S. Geological Survey Introduction and National Summary. https://pubs.usgs.gov/ha/ha730/ch_a/. Accessed March 2019.

National Climatic Data Center [NCDC]. 2012. "1981-2010 U.S. Normals Data." National Climatic Data Center. National Oceanic and Atmospheric Administration. Available online at: http://www.ncdc.noaa.gov/land-based-station-data/climate-normals/1981-2010-normals-data. Accessed March 5, 2019

Natural Resources Conservation Service. 2018. Web Soil Survey Geographic Database. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed June 2019.

NONROAD. 2008. USEPA's NONROAD Model (Nonroad Engines, Equipment, and Vehicles). Available online at: https://www.epa.gov/moves/nonroad-model-nonroad-engines-equipment-andvehicles. Accessed March 5, 2019

Pennsylvania Department of Conservation and Natural Resources. 2018. Physiographic Provinces of Pennsylvania. Available online at: http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_016202.pdf. Accessed June 2019.

Pennsylvania Natural Diversity Inventory [PNDI]. 2019. Online viewer operated by the Pennsylvania Natural Heritage Program [PNHP]. Available online at: https://conservationexplorer.dcnr.pa.gov/. Accessed February 2019.

PACDNR. 2019. Pennsylvania Groundwater Information System. https://www.dcnr.pa.gov/Conservation/Water/Groundwater/PAGroundwaterInformationSystem/Pages/default.aspx. Accessed July 2019.

Pennsylvania Department of Environmental Protection [PADEP]. 2019a. Mine Subsidence Insurance. https://www.dep.pa.gov/Citizens/MSI/Pages/default.aspx. Accessed June 2019.

PADEP. 2019b. Pennsylvania Historic Underground Mine Map Inventory System. http://www.phummis.pa.gov/phummis. Accessed June 2019.

PADEP. 2019c. Pennsylvania Oil and Gas Mapping. http://www.depgis.state.pa.us/paoilandgasmapping/. Accessed June 2019.

PADEP. 2019d. Digital information regarding public water supply locations. http://data-padep-1.opendata.arcgis.com/datasets/997dbe5dead040e7b9e376dad4118061_221/features/4265201. Accessed June 2019.

PADEP. 2019e. eMapPA – Web-based GIS Application. http://www.depgis.state.pa.us/emappa/. Accessed July 2019.

Pennsylvania State University. 2014. Pennsylvania Mine Map Atlas. http://www.paminemaps.psu.edu/. Accessed June 2019.

U.S. Geological Survey [USGS]. 2011. Mineral Resource Data System. https://mrdata.usgs.gov/mrds/. Accessed June 2019.

USGS. 2014. Seismic-Hazards Maps for the Conterminous United States. https://pubs.er.usgs.gov/publication/sim3325. Accessed June 2019.

USGS. 2019. US Geological Survey Quaternary Fault and Fold Database of the United States. https://earthquake.usgs.gov/hazards/qfaults/. Accessed June 2019.

F. LIST OF PREPARERS

Poli, Kimberly- Project Manager, Surface Water & Wetlands, Vegetation, Wildlife, Special Status Species, Alternatives, Cumulative Impacts

B.S. BioResource Research, 2013, Oregon State University
B.A. International Studies, 2013, Oregon State University

Augustino, Kylee – Air Quality, Noise, Reliability and Safety

M.S., Environmental Engineering, 2016, The Johns Hopkins University
B.A & Sc., Biology and Geography, 2005, McGill University

Bloomfield, Andrea - Land Use, Visual Resources

B.S., Environmental Management, 2018, University of Maryland University College

Wazaney, Bradford - Cultural Resources

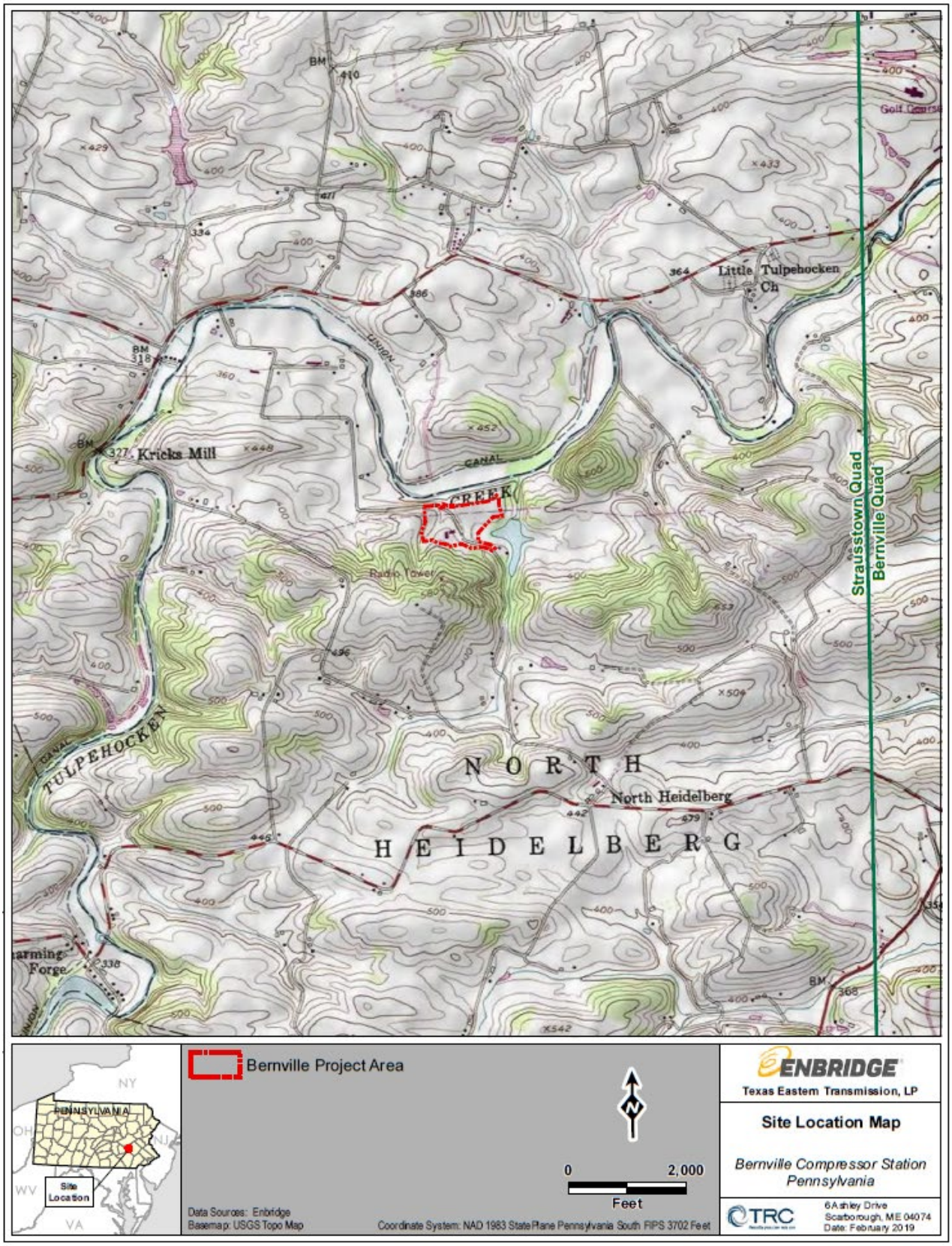
Ph.D., Anthropology, 2006, Washington State University
M.A., American Studies, 2001, University of Wyoming
B.A., History, 1996, Old Dominion University

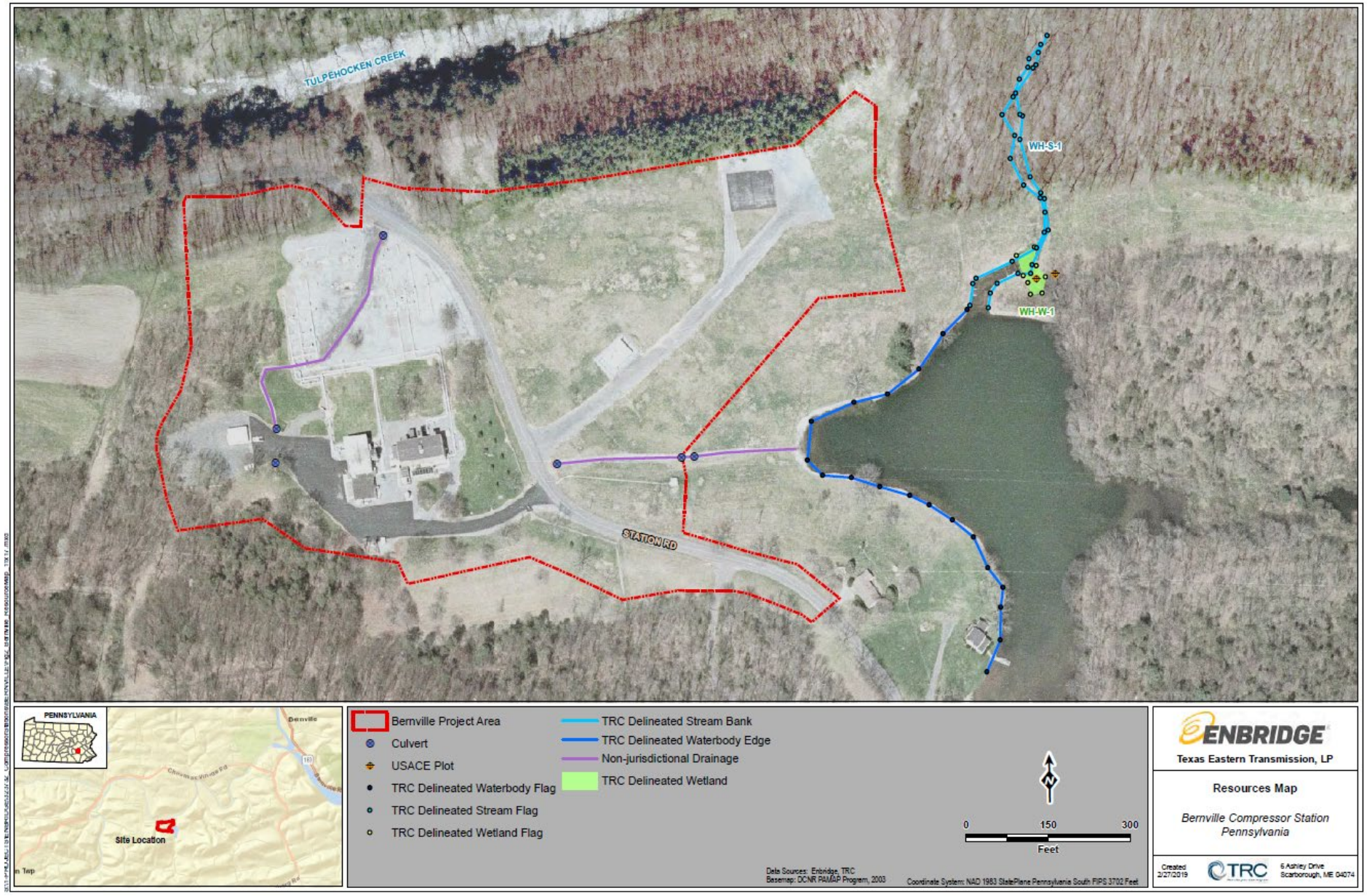
Jensen, Andrea – Geology, Soils, Groundwater Resources

B.S., Environmental Geology, 2012, College of William and Mary

Appendix A

Site Location Map


Bernville Project Area
NY
PENNSYLVANIA
OH
NJ
WV
VA
Site Location
0
2,000
Feet
Data Sources: Enbridge
Basemap: USGS Topo Map
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
ENBRIDGE
Texas Eastern Transmission, LP
Site Location Map
Bernville Compressor Station
Pennsylvania
TRC
6 Ashley Drive
Scarborough, ME 04074
Date: February 2019
Strausstown Quad
Bernville Quad
Kricks Mill
Little Tulpehocken Ch
North Heidelberg
CREEK
CANAL
TULPEHOCKEN
UNION
Golf Course


TULPEHOCKEN CREEK
WH-S-1
WH-W-1
STATION RD
PENNSYLVANIA
Site Location
Bernville Project Area
Culvert
USACE Plot
TRC Delineated Waterbody Flag
TRC Delineated Stream Flag
TRC Delineated Wetland Flag
TRC Delineated Stream Bank
TRC Delineated Waterbody Edge
Non-jurisdictional Drainage
TRC Delineated Wetland
N
0
150
300
Feet
Data Sources: Enbridge, TRC
Basemap: DCNR PAMAP Program, 2003
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
ENBRIDGE
Texas Eastern Transmission, LP
Resources Map
Bernville Compressor Station
Pennsylvania
Created
2/27/2019
TRC
6 Ashley Drive
Scarborough, ME 04074