Federal Energy Regulatory Commission

Office of
Energy Projects

November 2018

Portland Natural Gas Transmission System **Docket No. CP18-506-000**

Portland Xpress 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 2
Portland Natural Gas Transmission System
Portland Xpress Project
Docket No. CP18-506-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Portland Xpress Project (Project), proposed by Portland Natural Gas Transmission System (PNGTS) in the above-referenced docket. The Project is designed to provide 24,375 million cubic feet per day (Mcf/d) to PNGTS owned facilities, and 22,339 Mcf/d on PNGTS and Maritimes & Northeast Pipeline, LLC (Maritimes) jointly owned facilities. PNGTS also requests approval to abandon 7,185 Mcf/d of existing interim capacity from Maritimes. The Project includes modifications to existing facilities in Cumberland and York Counties, Maine, and Middlesex County, Massachusetts.

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

The proposed Project includes the following facilities:

Westbrook Compressor Station (CS), Cumberland County, Maine

- Install a new electrical control building with motor control center, emergency generator building and generator and ancillary equipment.

Eliot CS, York County, Maine

- Expansion of the existing building to include one new 6,300 horsepower (hp) gas-fired compression unit and ancillary equipment; and
- install an auxiliary building housing a replacement emergency generator and boiler.

Dracut Meter and Regulator (M&R) Station, Middlesex County, Massachusetts

- Install a low flow meter and transmitters and replace ultrasonic meter assemblies;
- install a new 86-hp emergency generator; and
- installation of ancillary equipment.

The Commission mailed a copy of the Notice of Availability of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners; other interested individuals and groups; and newspapers and libraries in the project area. The EA is only available in electronic format. It may be viewed and downloaded from the FERC's website (www.ferc.gov), on the Environmental Documents page (https://www.ferc.gov/industries/gas/enviro/eis.asp). In addition, the EA can 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. CP18-506). 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 would 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 5:00pm Eastern Time on **December 27, 2018.**

For your convenience, there are three methods you can use to file your comments with the Commission. In all instances, please reference the project docket number (CP18-506) with your submission. 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. Using eComment 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 (CP18-506-000) 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 CFR 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 all 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.

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TECHNICAL ACRONYMS AND ABBREVIATIONS

AQCR	Air Quality Control Region
BMP	Best Management Practices
Certificate	Certificate of Public Convenience and Necessity
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Commission	Federal Energy Regulatory Commission
CS	Compressor station
cPAH	carcinogenic polycyclic aromatic hydrocarbons
dB	decibel
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
EA	environmental assessment
ECD	Erosion Control Devices
EI	environmental inspector
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDCP	Fugitive Dust Control Plan
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
G	gravity
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutants
IPAC	Information for Planning and Consultation
L_{eq}	equivalent sound level
L_{dn}	day-night sound level
M&R	meter and regulator
MDEP	Maine Department of Environmental Protection
Maritimes & Northeast Operating Company	MNOC
Maritimes & Northeast Pipeline, LLC	Maritimes
MBTA	Migratory Bird Treaty Act
Mcf/d	million cubic feet per day
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
N_2O	nitrous oxide

NOI	*Notice of Intent to Prepare an Environmental Assessment for the Proposed Portland Xpress Project and Request for Comments on Environmental Issues*
NRCS	Natural Resources Conservation Service
NSA	noise sensitive area
OEP	Office of Energy Projects
PCB	polychlorinated biphenyl
PGA	peak ground acceleration
Plan	FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
PNGTS	Portland Natural Gas Transmission System
Procedures	FERC's *Wetland and Waterbody Construction and Mitigation Procedures*
Project	Portland Xpress Project
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasure Plan
SDWA	Safe Drinking Water Act
USGS	U.S. Geological Service
VOC	volatile organic compound

A. PROPOSED ACTION

1.0 INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to assess the environmental effects of the natural gas pipeline facilities proposed by Portland Natural Gas Transmission System (PNGTS) in Cumberland and York Counties, Maine, and Middlesex County, Massachusetts.

We[1] prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA, Title 40 of the Code of Federal Regulations, Parts 1500-1508 [40 CFR 1500-1508]), and with the Commission's implementing regulations under 18 CFR 380.

On June 19, 2018, PNGTS filed an application with the Commission in Docket No. CP18-506-000 for the Portland Xpress Project (Project) under section 7(c) and 7(b) of the Natural Gas Act and part 157 of the Commission's regulations. PNGTS seeks to construct and operate certain natural gas facilities in Maine and Massachusetts. The Project would provide 24,375 million cubic feet per day (Mcf/d) to PNGTS owned facilities, and 22,339 Mcf/d on PNGTS and Maritimes & Northeast Pipeline, LLC (Maritimes) jointly owned facilities, operated by M&N Operating Company, LLC (MNOC). PNGTS also requests approval to abandon 7,185 Mcf/d of existing capacity of interim capacity from Maritimes.

2.0 PURPOSE AND NEED

PNGTS's stated that the Project purpose is to provide access to, and allow for, the transportation of natural gas supplies from supply basins to customers in New England and Atlantic Canada markets. To accomplish this, PNGTS proposes to increase the firm transportation capacity on the existing pipeline to allow greater access to natural gas supplies.

Under Section 7(c) of the Natural Gas Act, 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 (Certificate) to construct and operate them. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

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 would not negatively affect the present or future public convenience and necessity. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

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

3.0 PROPOSED FACILITIES

PNGTS proposes to perform the following activities for construction of the Project (figure 1):

Westbrook Compressor Station (CS), Cumberland County, Maine

- Install a new electrical control building with motor control center, emergency generator building and generator and ancillary equipment.

Eliot CS, York County, Maine

- Expand the existing building to include one new 6,300 horsepower (hp) gas-fired compression unit and ancillary equipment; and
- install an auxiliary building housing a replacement emergency generator and boiler.

Dracut Meter and Regulator (M&R) Station, Middlesex County, Massachusetts

- Install a low flow meter and transmitters and replace ultrasonic meter assemblies;
- install a new 86-hp emergency generator; and
- install ancillary equipment.

4.0 NON-JURISDICTIONAL FACILITIES

There are no non-jurisdictional facilities associated with the Project.

5.0 PUBLIC REVIEW AND COMMENT

On July 12, 2018, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Portland Xpress Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to affected landowners, federal, state, and local government representatives and agencies; elected officials; Native American tribes; environmental and public interest groups; and newspapers and libraries in the Project area. The NOI requested written comments from the public on the scope of the analysis for the EA. Public scoping period closed on August 11, 2018. In response to the NOI, the Commission received statements of no comment from the Maine field office of the U.S. Fish and Wildlife Service (FWS) and the New England field office of FWS. A comment from the Maine Natural Areas Program was received, which stated no concerns, but recommends that the Swamp White Oak at the Eliot CS is flagged to prevent disturbance during construction, and that if the new facilities are to be placed in currently vegetated areas, to contact the Maine Natural Areas Program prior to construction. A comment was received from resident Michael E. Gilmore, who recommends that a thorough residential water testing assessment be conducted prior to approval. These comments are addressed throughout the EA.

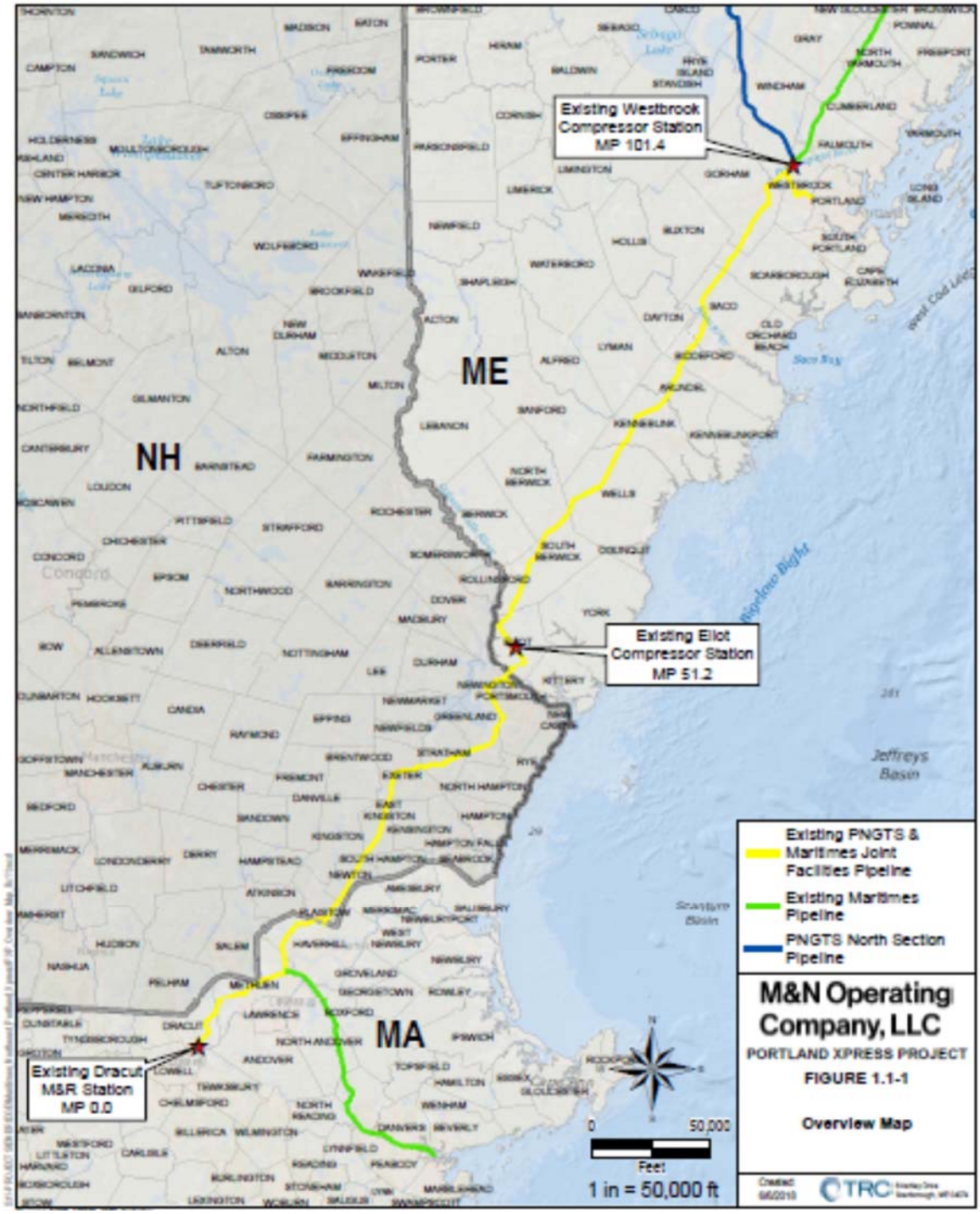

Figure 1
General Location Map

6.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

PNGTS would obtain all necessary permits, licenses, clearances, and approvals related to construction and operation of the Project, outlined in table 1 below.

Table 1 Applicable Major Federal Permits, Authorizations, and Clearances for the Portland Xpress Project		
Agency	**Permit/Approval Title**	**Status**
Federal		
FERC	Certificate of Public Convenience and Necessity	Submitted June 2018- Pending
FWS	Section 7 of the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Fish and Wildlife Coordination Act	Consultation completed March 2018
State of Maine		
Maine Department of Environmental Protection (MDEP)	Maine Stormwater Law Compliance	Submitted August 2018- Pending
MDEP	Clean Air Act Permits- Minor Permit, Westbrook CS and Eliot CS	Filed August, 2018- Pending
MDEP	National Pollution Discharge elimination system (NPDES) Hydrostatic Test Authorization to Discharge	Pending
Maine Department of Inland Fisheries and Wildlife	Threatened and Endangered Species (T&E) Consultation	Received concurrence March 21, 2018
Maine Natural Areas Program	Unique Natural Areas/ State Listed Plants Consultation	Received concurrence March 21, 2018
Maine Historic Preservation Commission	Section 106 Consultation	Received concurrence July 31, 2018
Maine Department of Marine Resources, Coastal Zone Consistency Program	Coastal Zone Management Act Consultation	Pending
Commonwealth of Massachusetts		
Massachusetts Department of Environmental Protection, Northeast Region Office	Massachusetts Environmental Results Program Certification for Emergency Generator	To be submitted within 60 days of commencing operation
Dracut Conservation Commission	Massachusetts Wetlands Protection Act, Consultation for activities adjacent to resources. Dracut Wetland Bylaws	Complete July 10, 2018
Massachusetts Division of Wildlife and Fisheries, Natural Heritage and Endangered Species Program	Massachusetts ESA Consultation	February 2008. Completed under Maritimes Phase IV project.

Table 1 Applicable Major Federal Permits, Authorizations, and Clearances for the Portland Xpress Project		
Agency	**Permit/Approval Title**	**Status**
Massachusetts State Historic Preservation Office (SHPO)	Section 106 Consultation	The current project activities are within a previously reviewed area during the February 28, 2008 consultation with the Massachusetts SHPO.

7.0 CONSTRUCTION, OPERATION, AND MAINTENANCE

PNGTS would construct, operate, and maintain the Project in compliance with all applicable federal and state permit requirements, regulations, and environmental guidelines, including the U.S. Department of Transportation (DOT) under 49 CFR 192 - *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*. During all phases of the Project, PNGTS would follow the applicable Occupational Safety and Health Administration Requirements.

PNGTS anticipates that construction of the Project would begin in April 2020 with an in-service date of November 1, 2020. PNGTS and MNOC adopted the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures). The Plan and Procedures are referred to as PNGTS's Plan and Procedures throughout this document, along with best management practices (BMPs). PNGTS would also utilize a Spill Prevention Control and Countermeasure Plan (SPCCP) to address the handling of construction fuel and other materials.

During construction, MNOC, on behalf of PNGTS, would clear and grade the sites for the aboveground facilities. Erosion control devices (ECD) would be installed as needed to prevent erosion and offsite impacts in accordance with PNGTS's Plan and Procedures, and applicable state permit requirements. All of the proposed workspace is part of the existing facilities, or was previously used as a temporary workspace to construct existing facilities as part of the Maritimes' Phase IV Project. No forest clearing or blasting is required for construction of the Project.

During construction and restoration, MNOC, on behalf of PNGTS would use at least one full-time environmental inspector (EI) during construction of the Project. The EI would be on site during construction activities to ensure compliance with the construction procedures contained in the Plan and Procedures. MNOC would conduct environmental training sessions in advance of construction to ensure that all individuals working on the Project are familiar with the environmental mitigation measures appropriate to their jobs and the EI's authority.

8.0 LAND REQUIREMENTS

Construction of the Project facilities would temporarily impact 21.6 acres of land, and of this, no new land would be permanently affected by operation of the proposed facilities as all construction activities would be conducted on existing in-use areas. Land requirements are shown in table 2 below. Construction access to each of the three sites would be from existing permanent access roads.

Table 2 Land Requirements					
Facility [a]	**County, State**	**Total Existing Station Property (Acres)**	**Land Affected by Construction [b] (acres)**	**Land Affected by Operation [c] (acres)**	**New Land Affected by Operation [d] (acres)**
Westbrook CS	Cumberland, Maine	62.0	8.4	5.9	0.0
Eliot CS	York, Maine	97.9	11.9	8.5	0.0
Dracut M&R	Dracut, Massachusetts	28.5	1.3	0.9	0.0
Total		**188.4**	**21.6**	**15.3**	**0.0**

a. Milepost references are on the existing 30-inch diameter Joint Facilities Pipeline.
b. Includes all land affected during construction and includes both temporary and permanent work areas.
c. Includes land currently within the fence at existing stations.
d. Post-construction land affected does not increase current operations area inside fence of existing facilities or size of existing property.

Approximately 40 crew members would be required during construction of the facilities at the Westbrook CS, 85 workers would be required at the Eliot CS, and 15 workers would be required at the Dracut M&R station. Areas used as temporary contractor yards would be restored to pre-construction conditions upon Project completion. Temporary workspace would all be located on property currently owned by Maritimes and previously used as temporary construction workspace for the construction of the existing facilities.

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 proposed 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 could occur because of 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. As part of the Project, PNGTS would abandon the interim capacity acquired by lease as part of Phase II of the Project, but as there are no environmental impacts for capacity abandonment, it is not analyzed further.

1.0 GEOLOGY

Project activities would be within the Seaboard Lowlands section of the New England physiographic province, which lies along the east coast between the New England Upland section and the Atlantic Ocean. The Seaboard Lowland section is lower in elevation and less hilly than the New England Upland section and roughly coincides with the area inundated by the ocean and areas of large proglacial lakes during the last glacial retreat. Topographic relief is limited to less than 200 feet in most places (U.S. Geological Service (USGS), 1989).

Bedrock geology at the Westbrook CS is mapped as Carboniferous period alkali feldspar granite with inclusions of muscovite. Surficial material underlying the Westbrook CS consists of loose to compact, poorly-sorted glacial till (Smith et al, 1999). Bedrock geology at the Eliot CS is mapped as Precambrian-age Eliot Formation (Osberg, 1985), primarily comprised of phyllite. Surficial material underlying the Eliot CS consists of glacial till comprised of a gray to gray brown, poorly sorted mixture of silt, sand, pebbles, cobbles, and boulders which reaches 90 feet in depth in some regions (Thompson, 1997). Igneous diorite and tonalite bedrock underlies the existing Dracut M&R site. Surficial geology underlying the Dracut M&R is comprised of glacial till (MassGIS, 2018).

There are no natural gas, petroleum, or coal reserves or production in Maine or Massachusetts. A review of the Maine and Massachusetts GIS databases showed that mineral resources in the Project vicinity consist largely of sand, gravel, clay, and stone. Several gravel pits and quarries are in production in Massachusetts and southern Maine; however, current and historic surface resource extraction was not identified within 0.25 mile of construction workspaces (MeGIS, 2018; MassGIS, 2018).

Because construction activities would take place entirely on previously disturbed land with limited depths of excavation, and given the distance to nearby resources, we conclude that the Project would not affect mineral resource extraction activities.

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, flood, and karst terrain; or ground subsidence hazards.

Seismicity

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake, expressed in terms of g. USGS Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, , there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 18 to 30 percent g; and a 10 percent probability of an earthquake with an effective PGA of 5 to 7 percent g being exceeded (USGS, 2014). For reference, PGA of 10 percent g (0.1g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes. Even under much higher ground vibrations, the main risk to pipelines and associated aboveground facilities would be a slip fault that displaces laterally during an earthquake. Project facilities are not underlain by this type of feature (USGS, 2006).

Since 1900, six earthquakes have occurred within 10 miles of Project facilities. None of these earthquakes had a Richter scale magnitude above 2.5 and all occurred at least 1 mile from Project workspaces. Specifically, one earthquake (magnitude 1.5) occurred approximately 6 miles northwest of the Westbrook CS in January 2014; three earthquakes occurred between 5 and 10 miles from the Eliot CS with magnitudes of approximately 2.0 in June 2007, August 2009, and July 2018; and two earthquakes occurred approximately 7 miles southwest of the Dracut M&R with magnitudes of 2.3 and 2.5 in November 1980 and July 1993 (USGS, 2018a). Earthquakes of these magnitudes have minimal to no resulting damaging (USGS, 2018b).

Based on the magnitude of recent and historic seismic activity in the region, and the absence of active faults, the Project is not likely to be adversely impacted by future seismic incidents. Furthermore, PNGTS would construct and operate Project facilities in accordance with requirements of the DOT, industry-proven practices and techniques, and other regulatory requirements, as applicable.

Soil liquefaction is a phenomena 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. Although the Project lies within an area of low to moderate seismicity, Project area soils are well-drained and would not be prone to near surface saturation. As such, the potential for soil liquefaction to occur is negligible.

Landslides and Slope Stability

Project areas are relatively flat and limits of disturbance have been previously graded; therefore, hazard posed to the Project by landslides or unstable slopes is negligible.

Ground Subsidence

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst formation due to limestone or gypsum bedrock dissolution and/or sediment compaction due to groundwater pumping and/or oil and gas extraction, and underground mining. Oil and gas extraction and subsurface mines are not present in the Project vicinity and the Project does not overlie aquifers susceptible to subsidence from excessive pumping. No karst terrain is present and the lithology that could lead to bedrock dissolution and karst development do not generally occur within the Project vicinity. As such, the potential for ground subsidence to occur is negligible.

Flood and Severe Weather

No waterbodies occur within Project workspaces and all activities would be outside of the 500-year floodplain. All three existing sites have maintained stormwater management systems to manage stormwater during high volume storm events. To protect the integrity of facilities during flood events, the Project would be designed, constructed, tested, operated, and maintained to conform with applicable federal, state, and local requirements. Project facilities would include design and equipment features, in addition to routine inspection and maintenance programs, to increase the overall safety of the system and protect the public from any system failure due to natural catastrophes, such as severe flooding. Therefore, we do not anticipate that severe weather or flooding would adversely impact the Project facilities.

We conclude that construction and operation of the Project would not result in significant impacts on geologic resources.

2.0 SOILS

The Project would be within existing facilities in Maine and Massachusetts on soils that have been graded, and in some cases mixed with fill material, during previous construction. Although these soils have been altered, pre-construction soils mapping was used to identify certain soil characteristics and limitations (i.e., erodibility, drainage characteristics, shallow bedrock conditions, and revegetation potential) in order to plan for potential mitigation during construction of the facility modifications. Native soil characteristics were identified and assessed using the Natural Resources Conservation Service (NRCS) Soil Survey geographic database (NRCS, 2017).

The majority of soils that would be disturbed by Project activities are mapped as having low to moderate susceptibility to wind erosion and moderate to high susceptibility to water erosion. Soils are generally moderately well drained to somewhat excessively drained (non-hydric), are not generally classified as having a shallow depth to bedrock (bedrock within 60 inches of the soil surface), and have poor to fair revegetation potential. Approximately 3.7 acres of soils characterized as prime farmland would be disturbed by the Project. Mapped prime farmland is within existing, developed land, and we conclude that there would be no new, permanent impacts to prime farmland.

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 within construction workspaces 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 and the transport of sediment to sensitive resource areas. If construction activities, particularly the operation of heavy equipment, occur when soils are at or near saturation, soil compaction and rutting may occur.

Soil Erosion and Poor Revegetation Potential

Soil erosion is the wearing-away of physical soil properties by wind and water, and could result in a loss of soil structure, organic matter, and nutrients, all of which, when present, contribute to healthy plant growth and ecosystem stability. Clearing, grading, and equipment movement can accelerate the erosion process and, without adequate protection, result in discharge of sediment to waterbodies and wetlands. During construction, PNGTS would minimize potential soil erosion by implementing controls outlined in its Erosion and Sedimentation Control Plan, the Plan and Procedures, and all state permit conditions and requirements. Following construction, all disturbed soils would be revegetated, or stabilized inside facility fence lines using crushed stone.

Temporary erosion controls, such as interceptor devices and sediment filter devices (including, but not limited to hay/straw bales and silt fences), would be installed immediately following the establishment of workspace boundaries or initial ground disturbance. These devices would be inspected on a regular basis and after each rainfall event of 0.5 inch or greater to ensure proper function. PNGTS would additionally utilize dust-control measures (detailed within their Fugitive Dust Plan), including routine wetting of the construction workspace as necessary where soils are exposed. Temporary ECDs would be maintained until the Project area is successfully stabilized/revegetated.

Following completion of facility installation and testing, all construction debris would be removed from the Project work areas, original contours and drainages restored, a seedbed would be prepared (where necessary), and the Project site would be revegetated or otherwise stabilized with permanent ground cover. Project restoration and revegetation would be accomplished in accordance with the FERC Plan and all permit conditions. Post-construction monitoring would ensure that revegetation is successful.

Given PNGTS's proposed mitigation measures and that disturbed areas would be returned to pre-construction conditions, stabilized with gravel or asphalt cover, or revegetated, significant or permanent impacts due to soil erosion and poor revegetation potential are not anticipated.

Shallow Bedrock

The majority of Project area soils are not mapped as having a shallow depth to bedrock; however, areas of shallow bedrock are mapped at all three existing facilities. During initial construction either blasting was performed to install facilities, or fill material was brought in to increase topographic elevations to avoid or minimize required blasting. Based on current engineering designs, blasting would not be required to install proposed Project facilities. Installation of the cooler foundations and pipe supports at the Westbrook station would be on existing bedrock and may require minor rock removal using construction equipment to prepare a level surface for installation of the foundations.

With implementation of the FERC Plan and because Project workspaces have been previously disturbed and/or are in commercial/industrial use we conclude that Project impacts on soils due to the presence of shallow bedrock would not be significant.

Soil Contamination

PNGTS reviewed state-maintained datasets to identify sites with potential or known contaminated soil and groundwater within 0.25 mile of Project workspaces. Listed sites were not identified within 0.25 mile of the Westbrook CS or the Dracut M&R. Eight sites were identified within 0.25 mile of the Eliot CS. However, based on the distance to the nearest of these sites (approximately 680 feet), Project activities are not anticipated to intercept existing soil contamination.

During Project construction, soil contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment would be minimized by implementation of PNGTS's SPCCP, which specifies preventive measures to reduce the likelihood of a spill, as well as cleanup procedures in the event of soil contamination from spills or leaks of fuels, lubricants, coolants, or other hazardous materials. PNGTS would follow their SPCCP to contain accidental spills and to ensure spills would be cleaned up and disposed of in an appropriate manner. With implementation of the SPCCP, potential impacts on soils from spills or leaks during construction would be adequately minimized.

Based on the minimization measures and previously disturbed and commercial/industrial land at each facility, significant impacts to soils are not anticipated.

3.0 WATER RESOURCES

Water resources that could occur within the Project area include groundwater, surface water and wetlands. As all Project facilities would be located within the existing fenced-in area and all temporary construction workspace would be located on property previously used as temporary construction workspace for the construction of the existing facilities, new impacts on water resources are expected to be minor. Each resource area is discussed in detail below.

3.1 Groundwater

All Project facilities overlie crystalline-rock bedrock aquifers. Water transmission through this substrate is very low and water storage capacity is generally small. The common range of well yields is 1 to 25 gallons per minute; however, some wells may exceed 100 to 500 gallons per minute (Olcott, 1995). Groundwater quality in crystalline-rock aquifer systems is generally suitable for most uses due to the following: (1) the rock is composed of nearly insoluble minerals; (2) groundwater is in contact with relatively small surface areas within the joints and fractures; and (3) water movement through the joints and fractures is generally rapid (Olcott, 1995).

Water that is stored in overlying glacial deposits (the surficial aquifer system) or water in nearby streams or other surface waterbodies is commonly connected hydraulically with the bedrock fracture system and can provide larger quantities of water. The regional surficial aquifer system in the Project vicinity consists of glacial deposits of sand and gravel that were laid down during several advances and retreats of continental glaciers that encroached from the north or northwest. These deposits comprise the regional surficial aquifer system, which is the most productive and widely used aquifer in the region (Olcott, 1995).

Existing Groundwater Supplies

Sole-source aquifer designations were defined by the U.S. Environmental Protection Agency (EPA), pursuant to Section 1424(e) of the Safe Drinking Water Act (SDWA) of 1974, for an aquifer that provides greater than 50 percent of drinking water for an area, where contamination of the aquifer could create a significant hazard to public health, and where there are no alternative water sources that could reasonably be expected to replace the water supplied by the aquifer. According to the USEPA's designated sole-source aquifer maps, Project areas would not be within designated sole-source aquifers (USEPA, 2018a).

Under an amendment to the SDWA in 1986, each state is required to develop and implement a wellhead protection program to identify the land and recharge areas contributing to public supply wells and to prevent the contamination of drinking water supplies. Based on a review of available data for Maine and Massachusetts, the Project does not overlie wellhead protection areas (MDEP, 2016; MassGIS, 2017b).

A comment was received from Michael E. Gilmore, who recommends that a residential water testing assessment be conducted. There are no public water supplies or private wells occur within 200 feet of any of the existing Project facilities (MEGIS, 2013: MDEP, 2016; MassGIS, 2017a) and no impacts are anticipated.

Contaminated Groundwater

Eight sites with potential or known contaminated soil and groundwater were identified within 0.25 mile of the Eliot CS. However, based on the distance to the nearest of these sites (approximately 680 feet), Project activities are not anticipated to intercept existing contamination. If contaminated media is discovered during construction, potential impacts would be minimized by adherence to the waste management procedures identified in the Project SPCCP, as well as all federal and state regulations.

Groundwater Impacts and Mitigation

Construction activities that could have potential to impact groundwater include shallow excavations, hydrostatic test discharges, and potential spills or leaks of hazardous liquids from the refueling of construction vehicles or storage of fuel, oil and other fluids. PNGTS would implement its SPCCP for construction to minimize the potential impacts of a hazardous material spill on groundwater resources.

Construction disturbances would be temporary, and natural ground contours would be restored following construction therefore, we find that implementation of the above construction procedures and mitigation measures would adequately protect groundwater resources. In conclusion, the Project would not result in any significant long-term or permanent impacts on groundwater.

3.2 Surface Water

The Project would be located within four watersheds as defined by the USGS including the Presumpscot River, Mill River, Porstmouth Harbor, and Merrimack Mainstem-Concord River to Swawsheen. Although the Project proposes construction and operation of facilities that fall within

these watersheds, the Project has been designed so there would be no direct impacts to surface waters or wetlands during construction or operations.

There are no specific watershed protection regulations in Maine or Massachusetts. The MDEP administers numerous land and water permit programs implementing regulations for protection of Maine's surface waters including the Site Location of Development Law and Stormwater Law. The Project would need to demonstrate compliance with the protection standards of state laws and associated regulations to receive authorization to construct.

Potential surface water resources at the Project sites were initially identified using USGS 7.5-minute topographic maps and then field verified during waterbody and wetland delineation surveys. No waterbodies occur within the Project workspaces. Based on preliminary stormwater modeling for the proposed facilities at the existing Eliot CS, the existing stormwater basin located in the northeast corner of the site may require expansion to comply with state stormwater regulations. All work performed in the vicinity of the existing stormwater basin would be performed in accordance with state regulations and the FERC Plan and Procedures.

Hydrostatic Test Water

Pursuant to DOT regulations (49 CFR 192), as piping modifications are completed within the existing stations, each would be hydrostatically or pneumatically tested to ensure its integrity prior to being placed in service. About 68,100 and 82,800 gallons of water would be needed for hydrostatic testing at the Westbrook CS and Eliot CS, respectively. Hydrostatic testing would not be necessary at the Dracut M&R Station. Hydrostatic test water would be obtained from municipal sources and trucked to the station sites. Testing of installed facilities that would need to operate under pressure would be completed by capping installed pipe segments with test manifolds, filling these segments with water, and pressurizing this water to levels beyond the maximum operating pressure of the pipe. Depending on site conditions and constraints at the time of construction, hydrostatic test water may be held in storage tanks and transported to an approved facility, discharged to the site's stormwater management system if authorized by regulatory agencies, or discharged to upland areas onsite. If discharged onsite, environmental impacts from the discharge would be minimized by using the measures prescribed in the Procedures and would be performed in compliance with all applicable permit conditions.

General Impacts and Mitigation

Construction activities associated with the Project that have the potential to impact adjacent surface waters include grading activities, hydrostatic test discharges, and spills or leaks of hazardous liquids from refueling construction vehicles or storing fuel, oil, and other fluids. The likelihood of any impacts to surface waters as a result of the Project is minimal as there are no waterbodies in the immediate vicinity of the Project area.

To minimize impacts to adjacent waterbodies during construction, operations, and maintenance, the Project would be constructed and restored in accordance with the BMPs outlined in the Project's Plan and Procedures, in addition to all applicable regulatory authorizations. Any hazardous materials, chemicals, lubricating oils, solvents, or fuels used during construction (if any) would be handled in accordance with the SPCCP to reduce the potential risk of spills, or the accidental exposure of fuels or hazardous materials to waterbodies. Construction equipment and

vehicle refueling and lubricating would occur in upland areas located more than 100 feet from the edge of a waterbody, except under limited, highly controlled circumstances and under direct supervision of the EI. Under no circumstances would refuse be discarded in waterbodies, trenches, or within the Project workspace. The SPCCP also requires routine inspections of tanks and storage areas to reduce the potential for hazardous materials spills.

As the Project would not cross or disturb any surface water resources and considering the proposed construction techniques and the implementation of minimization and mitigation measures, we conclude that construction and operation of the Project would not significantly affect surface water resources proximate to the Project area.

3.3 Wetlands

Wetlands are defined by the U.S. Army Corps of Engineers as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and bottomlands. No wetlands occur within the proposed Project workspaces; however, there are wetlands adjacent to the proposed Project workspaces. These wetlands are identified in figures 5-7 in appendix A.

Westbrook Compressor Station

Wetlands adjacent to the Westbrook CS were previously delineated as part of the Maritimes' Phase IV Project and field verified by surveys in the spring of 2018. None of the wetlands delineated occur within the proposed construction workspace. Two of these wetlands are isolated wetlands located at the southwestern edge of the existing facility within the fence line but outside of the proposed workspace. Wetlands B15-WBCS-2-W (A & B) are small emergent wetlands. The other two wetlands occur outside of the fence line. Wetland A05-58 is located southwest of the Westbrook CS and includes narrow swales that extend to the north and south. The majority of the wetland is comprised of mixed scrub-shrub/forest.

A portion of wetland A05-58 consists of scrub-shrub and emergent vegetation within a topographic depression that functions as a vernal pool. Following three appropriately timed spring 2018 amphibian breeding season surveys, this pool did not meet the definition of significant wildlife habitat based on Maine significant wildlife habitat regulations. The Project would have no direct impacts to this vernal pool and the closest proposed temporary construction workspace would be located approximately 215 feet from the vernal pool basin. Wetland A05-58A is a small mixed scrub-shrub/forest wetland located east of and directly adjacent to the existing station fence line. This wetland also functions as a vernal pool during the spring amphibian breeding season but did not meet the criteria for protected wildlife habitat in Maine based on surveys.

Eliot Compressor Station

Wetlands adjacent to the Eliot CS were previously delineated as part of the Maritimes' Phase IV Project and field verified by surveys in the spring of 2018. None of the wetlands delineated occur within the proposed construction workspace. Wetland ELT-1 is a forested wetland located southeast of the existing facility access road. ELT-2 is a forested wetland located northwest of the existing facility access road and is hydrologically connected to ELT-1 by a culvert underneath the access road. Wetland ELT-3 is located north of the Eliot CS, west of ELT-

2. This forested wetland is associated with a stream located south of Route 236 and down slope from the station. ELT-3 has a small emergent component at the toe-of-slope of the station dominated by broad-leaved cattail, common reed and soft rush. A portion of ELT-3 functions as a vernal pool meeting the definition for protected wildlife habitat based on spring 2018 amphibian breeding season surveys and Maine regulations. Therefore, ELT-VP1 would be considered a significant vernal pool and the adjacent Wetland ELT-3 would be considered a Maine wetland of special significance. The Project would have no direct impacts to vernal pool ELT-VP1 and no tree clearing or conversion of existing land use is proposed within its regulated 250 foot adjacent terrestrial habitat. Wetlands ELT-4, ELT-5 and ELT-6 are all small wetlands located to the south of the Eliot CS. These wetlands are primarily emergent wetlands with some scrub-shrub vegetation

Dracut M&R Station

Four wetlands occur in proximity to the Dracut M&R Station and boundaries were field verified for the Project in February 2018. None of these wetlands occur within the proposed construction workspace. Wetland A111 is located to the west of the existing station and is a primarily forested wetland with a small portion of emergent wetland. Wetland A98-1 is an emergent wetland located within a cleared right-of-way south of the Dracut M&R Station. Wetland B181 is a forested wetland located to the east of the existing facility. Wetland A112 is an emergent wetland that occurs to the northeast of the station along both sides of the existing access road to the Dracut M&R Station.

General Impacts and Mitigation

Construction of the Project would not result in any direct wetland impacts, as there are no wetlands within the proposed Project workspace. Construction could increase the potential for erosion and sedimentation impacts on adjacent wetlands. Prior to ground disturbing activities, boundaries of wetlands located within 100 feet of the Project workspaces would be clearly marked in the field and maintained until construction related ground-disturbing activities are complete. Silt fences and/or straw bales would be installed at the edges of the construction work area adjacent to wetlands to prevent the potential for erosion and sedimentation to enter adjacent wetland resources.

Adjacent wetlands would be protected from impacts through proper installation of ECDs. Wetlands are located within 10 feet from the workspace limits at both the Eliot and Westbrook CSs and directly adjacent to workspace at the Dracut M&R Station, particularly along the edge of the existing access road to the M&R station. Prior to the start of construction, in addition to marking the boundaries of all wetlands within 100 feet of the construction workspace, the actual 100-foot setback from wetlands would be clearly marked through the use of flagging and/or signage indicating the no storage/refueling zone. PNGTS and MNOC would provide Environmental Training to all personnel prior to the start of construction, covering the Plan and Procedures, Project-specific permit conditions, company policies, cultural resource procedures, threatened and endangered species restrictions, the Project E&SCP, the SPCCP, and any other pertinent information related to the Project. Construction equipment and vehicle refueling and lubricating would occur in upland areas located more than 100 feet from the edge of wetlands, except under limited, highly controlled circumstances and under direct supervision of the EI.

The Project would be constructed and operated in accordance with the mitigation and restoration measures identified in the Project's Plan and Procedures, the Project SPCCP, and in compliance with conditions of regulatory permit authorizations. We conclude that because the Project would not result in any direct impacts on wetlands and that adjacent wetlands would be adequately protected, there would be no adverse impacts on wetlands.

4.0 VEGETATION, WILDLIFE, AND THREATENED AND ENDANGERED SPECIES

This section discusses wildlife habitats and existing vegetation resources at each of the Project sites, and the federally- and state-protected wildlife species that are known to occur or may potentially occur in the Project vicinity. The Project would not impact waterbodies and, therefore would not result in impacts to fishery resources. Additionally, operation and routine maintenance of the Project would not impact fishery resources adjacent to the Project. As such, fishery resources are not discussed further in this EA.

4.1 Vegetation

All Project facilities would be installed inside the fence at existing stations and, therefore, would occur in areas classified as industrial/commercial land use. The Project would include temporary construction workspace located outside of existing station fences and within previously disturbed areas located within the existing station property boundaries. These upland areas are classified as open land and are sited on land previously disturbed as part of construction of the stations. Open land for the Project would include maintained existing pipeline right-of-way, utility rights-of-way, open fields, vacant land, herbaceous and scrub-shrub uplands, and non-forested lands. The vegetation types in the open uplands include grassland, meadows, and shrubland, and no forested areas would be disturbed. Wetlands, discussed in section 3.3 above, would occur outside of the Project area and would not be directly disturbed.

Based on agency reviews with the FWS, Maine Natural Areas Program (MNAP) and the Massachusetts Division of Fisheries and Wildlife, no unique, sensitive, or protected vegetation was identified in the vicinity of the Dracut M&R Station. MNAP identified a Pitch Pine Woodland abutting the Westbrook CS and concluded that, because, the work would occur within the fenceline, this habitat would not be affected. MNAP identified rare swamp white oak at the Eliot CS, with two trees located outside of the fenceline and one located within the existing station boundaries. MNAP recommends that the swamp white oaks at the Eliot CS be flagged to prevent disturbance during construction from vehicles or equipment, and if the new facilities are to be placed in currently vegetated areas that MNAP be contacted. PNGTS has agreed to provide additional signage and flagging to ensure that the identified trees are avoided during construction and operation of the station.

General Impacts and Mitigation

Vegetation impacts would be minimized for construction of the Project since much of the Project workspace (15.3 acres) is located within the fence limits of the three existing facilities. Construction of the Project would also include temporary impacts to previously disturbed vegetation for a total of 6.3 acres (2.5 acres at the Westbrook CS, 3.4 acres at the Eliot CS, and 0.4 acre at the Dracut M&R Station).

Revegetation would be completed in accordance with permit requirements and the Project Plan and Procedures and all applicable site-specific regulatory permit conditions. Vegetation within the areas temporarily disturbed by construction is expected to recover quickly following restoration and stabilization of Project workspaces. The Project would not require that any currently vegetated areas located outside of the fence to be permanently maintained for operations and maintenance of the Project facilities; therefore, there would be no permanent impacts to vegetation as a result of the proposed Project.

4.2 Wildlife

Wildlife habitat in the Project area include the vegetative communities discussed in section 4.1. The early successional habitat types in the Project temporary workspace include scrub-shrub habitats and disturbed and/or maintained areas such as existing utility right-of-ways or other open space areas. Early successional and grassy areas offer habitat for ground-nesting birds and small mammal species. Species such as the eastern cottontail frequently prefer shrubby, overgrown open habitats and may be found in these early successional areas as well. Edge habitats adjacent to open spaces and low-growing areas can create habitat that is used by forest edge specialists and raptors hunting for small mammals and birds. Industrial/commercial land use, however, is typically characterized as areas with low diversity of wildlife species that are tolerant of human development and activity.

Sensitive Wildlife Habitat

Sensitive habitat within the Project area includes vernal pools. Vernal pools are natural, temporary to semi-permanent bodies of water occurring in shallow depressions that typically fill during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. Characteristic animals of vernal pools include species of amphibians, reptiles, crustaceans, mollusks, annelids, and insects.

At the Eliot CS, ELT-VP1 would be considered a significant vernal pool and the adjacent Wetland ELT-3 would be considered a Maine wetland of special significance. The Project would have no direct impacts to vernal pool ELT-VP1 and no tree clearing or conversion of existing land use is proposed within its regulated 250 foot adjacent terrestrial habitat.

There are two vernal pools in the vicinity of the Westbrook CS including one small pool located just outside the eastern fence line (Wetland A05-58A) and a larger vernal pool located southwest of the existing station (Wetland A05-58), which meets the criteria for significant wildlife habitat. PNGTS has indicated that it would maintain access for amphibian movement during the spring breeding season at the vernal pools. The workspace located to the east of the vernal pool at wetland A05- 58A at the Westbrook CS would be used primarily for material staging. PNGTS indicated that grading would not be required and limited soil disturbance would occur in the vernal pool area. The area to the west of the pool inside the station fenceline would require minimal disturbance and erosion control measures would be installed as needed for spoil containment. However, the erosion controls that are needed to prevent potential sedimentation into the area surrounding wetland A05-58A would be installed in a manner that creates gaps, including overlapped gaps where necessary that would prevent sediment from reaching the vernal pool area but also allows for amphibian movement to and from the vernal pool. The EI for the

Project would provide guidance on the installation that would take into account the need for amphibian movement to and from the vernal pool. With these measures in place, we conclude that vernal pool habitat would remain available for amphibian use.

Due to the Project being located in existing facilities with workspace that was previously disturbed as part of past construction activities, it is not anticipated there would be an impacts to significant or sensitive wildlife habitat.

General Impacts and Mitigation

During construction, noise and increased activity in work areas could result in temporary indirect wildlife impacts such as displacement, abandoning reproductive efforts, and disrupting daily routines. Direct mortality to smaller mammals, reptiles, and amphibians that are less mobile, or which take refuge underground in the work area could also occur during Project construction and maintenance activities. While there may be some temporary, short-term impacts to wildlife species during construction of the Project, these wildlife habitats would be restored to previous conditions after construction. Given that the Project would not result in any permanent impacts to vegetation, combined with the small scale of the proposed Project, we conclude that construction and operation of the Project is not expected to adversely affect the distribution or regional abundance of wildlife species in the area.

4.3 Threatened and Endangered Species

Federal agencies are required under Section 7 of the Endangered Species Act (ESA), as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. As the lead federal agency authorizing the project, the FERC is required to consult with the FWS and/or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the project, and to evaluate the proposed action's potential effects on those species or critical habitats.

PNGTS, acting as FERC's non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, initiated consultations with the FWS New England Field Office and Maine Field Office, Massachusetts Division of Fisheries and Wildlife, MNAP, and the Maine Department of Inland Fisheries and Wildlife (MDIFW) to determine if any federally-listed or state-listed threatened or endangered species, as well as federal candidate and/or federal and state species of special concern or their designated critical habitats occur in the Project area. According to federal and state resource agencies, one federally-listed threatened species, the northern long-eared bat, and two state-listed species, New England cottontail and Blanding's turtle, may occur in the Project area, as identified in table 3.

Table 3 Federal and State Listed Species Potentially Occurring within the Project Area			
Species	**State Status**	**Federal Status**	**Comments**
MAMMALS			
Northern Long-Eared Bat *(Myotis septentrionalis)*	MA – Endangered ME – Endangered	Threatened a/	Forest dwellers that prefer a deciduous forest habitat.
New England Cottontail (*Sylvilagus transitionalis*)	MA – n/a ME – Endangered	-	Prefers early successional forest with a dense, shrubby understory.
REPTILES			
Blanding's Turtle (*Emydoidea blandingii*)	MA – n/a ME – Endangered	-	Typically occur in small, acidic wetlands and vernal pools.
a/ There is no federally-designated critical habitat for northern long-eared bat (USFWS, 2016).			

The northern long-eared bat is listed as federally-threatened and state endangered in both Massachusetts and Maine. During the summer, northern long-eared bats hunt and roost in forests, roosting in stands of dead hardwoods with large vertical cavities. Suitable winter hibernacula for this species includes underground caves and cave-like structures (such as mines or railroad tunnels), typically with large passages and significant cracks and crevices for roosting. Northern long-eared bats emerge in the spring, traveling to summer roost sites in wooded or semi-wooded habitats and typically occupy their summer habitat from early April through mid-September each year.

PNGTS generated an official species list using the FWS Information for Planning and Conservation online review tool. The official species lists identified northern long-eared bat within the vicinity of all three existing stations. However, no tree clearing would occur at any of the facilities, therefore, we have determined that the Project would have *no effect* on northern long-eared bats. With this determination, no further ESA consultation with the FWS is required for the northern long-eared bat.

The MDIFW identified two state-listed species in the vicinity of the Eliot CS site – the New England cottontail and the Blanding's turtle. New England cottontail occur in early successional habitats such as brushy fields, young forests, thickets, transmission line corridors, and dense scrub-shrub wetlands (USFWS, 2017b). Optimal habitat for this species is 25 acres or more of continuous early successional habitat within a larger landscape that includes shrub wetlands and dense thickets. During consultations for Maritimes' Phase IV Project, the MDIFW requested that Maritimes establish and maintain an area on the Eliot CS site dedicated to the growth and management of low, dense, woody vegetation. All modifications proposed at the Eliot CS would occur within the existing fence line of the facility, and the proposed workspace does not occur

within the identified New England cottontail habitat areas. Therefore, no impacts to New England cottontail or associated habitat would occur as a result of the proposed Project.

The Blanding's turtle is a state-endangered species that occurs at the northern edge of its range in New England in southern Maine (MDIFW, 2003). In Maine, Blanding's turtles are found most frequently in complexes of small, acidic wetlands and vernal pools located in large blocks of forested habitat (over 500 acres). They are also occasionally found in large marshes, forested and shrub swamps, and slow moving rivers. Blanding's turtles spend most of their time in the water, but they do move over land during the spring and summer between wetland habitats. Due to human alterations of the landscape, most Blanding's turtles nest in yards, pastures, and along roadsides. Hatching occurs from late August to October with the hatchlings most likely overwintering in nearby wetlands.

The MDIFW indicated that while all proposed expansion would occur inside the existing fence at the Eliot CS, the possibility of turtles entering the Project area is a concern. Therefore, they recommend the Project area be visually examined for Blanding's turtles immediately prior to the beginning of construction, including within the laydown area. In addition, given the recent documentation of a Blanding's turtle at the perimeter fence, MDIFW would like to explore ways to enhancing the perimeter fence to ensure that turtles are not capable of entering the facility and, if one inadvertently enters, exploring means of to allow turtles to exit the facility. In addition, MDIFW requested the continuation of recent efforts to create and enhance nesting areas for Blanding's turtles in the Project area (Perry, 2018). Coordination with MDIFW would be required as part of the Maine's Site Law application and authorization. PNGTS has agreed to incorporate MDIFW's suggestions for avoidance and minimization of potential impacts to Blanding's turtle as part of the state Site Law permitting process. Therefore we conclude that the Project would not significantly affect any state-listed species.

5.0 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act, as amended, requires the FERC to take into account the effect of its undertakings on properties listed, or eligible for listing, on the National Register of Historic Places, and to afford the Advisory Council on Historic Preservation an opportunity to comment. PNGTS, as a non-federal party, is assisting the FERC in meeting our obligations under section 106 and its implementing regulations at 36 CFR Part 800.

PNGTS contacted the Maine State Historic Preservation Office (SHPO) regarding the proposed project activities at the Westbrook and Eliot CSs, providing a project description, mapping, and documentation of previous consultations conducted under Docket No. CP06-335-000. On July 31, 2018, the SHPO indicated that there would be no historic properties affected by the Project. We agree. Cultural resources/section 106 compliance review for the Dracut M&R Station was previously completed under Docket No. CP06-335-000. On February 28, 2008, the Massachusetts SHPO indicated the project was unlikely to affect significant historic or archaeological resources. The current project activities would be within the previously reviewed area.

PNGTS provided a plan to address the unanticipated discovery of cultural resources and human remains during construction. We requested revisions to the plan. PNGTS provided a revised plan which we find acceptable.

PNGTS contacted the Mashpee Wampanoag Tribe, Passamaquoddy Tribe, Penobscot Nation, and Wampanoag Tribe of Gay Head - Aquinnah regarding the project. The Penobscot Nation indicated that the Project appeared to have no impact on structures or sites of significance to the Penobscot Nation, but requested to be contacted if cultural materials were encountered during construction. The Passamaquoddy Tribe indicated the Project would not have any adverse impact on cultural and historical concerns of the tribe. No other responses have been received to date. We sent our NOI to the same tribes. No responses to our NOI have been received.

6.0 LAND USE, RECREATION AND VISUAL RESOURCES

Land use in the Project area would consist of open land and industrial/commercial land. Open land for the Project would include maintained existing pipeline right-of-way, utility rights-of-way, open fields, vacant land, herbaceous and scrub-shrub uplands, and non-forested lands. Industrial/commercial lands would include developed and paved areas, existing roads, and commercial facilities. Installation and operation of these facilities would occur within the fence of existing facilities, and all proposed temporary construction workspace would be on property currently owned by Maritimes. Land use impacts are quantified in table 4.

Table 4 Land Use Acreage Affected by Construction and Operation of the Project						
Facility	**Open Land**		**Industrial/Commercial**		**Total**	
	Construction	**Operation**	**Construction**	**Operation**	**Construction[a]**	**Operation[b]**
Westbrook Compressor Station, Cumberland County, Maine						
Existing Permanent Workspace[c]	0.0	0.0	4.3	4.3	4.3	4.3
Temporary Construction Workspace	2.5	0.0	0.0	0.0	2.5	0.0
Existing Permanent Access Road	0.0	0.0	1.6	1.6	1.6	1.6
Subtotal	2.5	0.0	5.9	5.9	8.4	5.9
Eliot Compressor Station, York County, Maine						
Existing Permanent Workspace[c]	0.0	0.0	7.7	7.7	7.7	7.7
Temporary Construction Workspace	3.4	0.0	0.0	0.0	3.4	0.0
Existing Permanent Access Road	0.0	0.0	0.8	0.8	0.8	0.8
Subtotal	3.4	0.0	8.5	8.5	11.9	8.5
Dracut M&R Station, Middlesex County, Massachusetts						
Existing Permanent Workspace[c]	0.0	0.0	0.7	0.7	0.7	0.7
Temporary Construction Workspace	0.4	0.0	0.0	0.0	0.4	0.0
Existing Permanent Access Road	0.0	0.0	0.2	0.2	0.2	0.2
Subtotal	0.4	0.0	0.9	0.9	1.3	0.9
PROJECT TOTALS	**6.3**	**0.0**	**15.3**	**15.3**	**21.6**	**15.3**

a. Total construction workspace includes the total of land affected during construction and includes both temporary and permanent works areas.
b. Operation includes all areas that would be maintained after construction of the Project.
c. Includes land currently within the fence at existing stations.

Recreation

The Project would not cross nor would be located within 0.25 mile of any National Park System Unit, which includes national parks, monuments, preserves, historic sites, historical parks, memorials, battlefields, military parks, cemeteries, recreation areas, seashores, lakeshores, rivers, parkways, trails, and other designations.

Residential Areas

No residences would occur within 50 feet of Project workspaces. The closest residence would be approximately 1200 feet east of the Eliot Compressor Station. Therefore, we conclude the Project would not impact residences.

Visual Resources

The proposed Project would not be located within any federal, state, or locally designated scenic areas. The Project's aboveground facilities would consist of modifications to two existing compressor stations and one M&R station. The permanent modifications proposed at each facility, including new buildings, piping, and equipment, would be similar in size and character to the existing infrastructure currently located at the stations. Furthermore the modified facilities would be consistent with surrounding developments within an existing industrial area. Temporary impacts on visual resources include construction equipment and storage within designated temporary workspaces. We conclude that impacts on visual resources would be minimal due to the similar characteristics of the Project area.

Coastal Zones

The Eliot CS is approximately eight miles inland of the Atlantic Coast, and entirely within Maine's coastal zone. PNGTS sent its consistency determination request August 27, 2018 to the Maine Department of Marine Resources, and was deemed acceptable for processing.

Work proposed at the Eliot CS would occur within the fenced limits of the existing facility or on adjacent land owned by Maritimes. No land outside of the facility would be permanently acquired to expand the existing facility footprint or permanently maintained for operation of the Project facilities. Temporary workspaces within the coastal zone would require 3.4 acres for the Eliot Compressor Station. Given the temporary requirements of the workspaces, we conclude that impacts on coastal zones would be minimal. However, because the Coastal Zone consistency determination is pending, **we recommend that**:

- **PNGTS should not begin construction of the Eliot CS until it files with the Secretary of the Commission (Secretary) a copy of the determination of consistency with the Coastal Zone Management Plan issued by the Maine Department of Marine Resources.**

Hazardous Waste Sites

No hazardous waste sites were identified within 0.25 mile of the Westbrook CS or the Dracut M&R Station. However, PNGTS identified eight sites within 0.25 mile of the Eliot CS using the Maine DEP Bureau of Remediation and Waste Management online database February 2018. Table 5 depicts the sites within 0.25 mile of the Eliot CS.

Table 5 Environmental Sites within 0.25 Mile of Project				
County	**Site ID**	**Direction from Facility**	**Distance**	**Facility type**
Eliot	37680	North	1,157	Sand/Salt storage
Eliot	37243	North	687	N/A
Eliot	34442	North	911	Underground Injection Site
Eliot	35385	North	1,286	Transfer Station
Eliot	34449	North	1,132	N/A
Eliot	27756	East	1,176	Landfill
Eliot	70670	East	1,255	Underground Injection Site

None of the sites listed in the table would be within 100 feet of the proposed construction areas, and no contaminated areas were identified during the construction of the Eliot CS in 2008. With this information, we conclude that the Project construction and operational activities would not adversely affect hazardous waste sites.

7.0 AIR QUALITY AND NOISE

7.1 Air Quality

Air quality would be affected by construction and operation of the Project. During construction, short-term emissions would be generated by from the usage of equipment, land disturbance, and increased traffic from worker and delivery vehicles for all locations. Operation of the modified Eliot CS would result in minimal air emissions, as presented in table 6. Other operational emissions for the proposed facility components would be negligible.

Ambient air quality is protected by federal and state regulations. Under the Clean Air Act (CAA) and its amendments, the EPA has established National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO,) ozone, particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and sulfur dioxide (SO_2). MDEP and the Massachusetts Department of Environmental Protection have the authority to implement permit programs under the CAA for the proposed Project facilities.

These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic exposures to the pollutants, as appropriate. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health. Maine has adopted all of the NAAQS along with additional state regulated standards.

Massachusetts has adopted ambient air quality standards that differ in some respects from the current NAAQS. Table 6 presents the NAAQS, and table 7 summarizes the current Ambient Air Quality Standards for the Commonwealth of Massachusetts.

Air quality control regions (AQCRs) are areas established by the EPA and local agencies for air quality planning purposes, in which State Implementation Plans describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions such as large metropolitan areas where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or smaller portion within an AQCR (such as a county), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant by-pollutant basis. Areas in compliance or below the NAAQS are designated as attainment, while areas not in compliance or above the NAAQS are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory requirements to ensure continued attainment of the NAAQS. Areas that lack sufficient data to determine attainment status are designated unclassifiable and treated as attainment areas. Cumberland and York Counties, Maine are in the Metropolitan Portland Intrastate AQCR and are designated as in attainment for all criteria pollutants. Middlesex County, Massachusetts is located in the Metropolitan Boston Intrastate AQCR and is designated as attainment for all criteria air pollutants. However, both Maine and Massachusetts are currently part of the ozone transport region. This region, established under the CAA, includes 11 northeastern states in which ozone transports from one or more states and contributes to a violation of the ozone NAAQS in one or more other states. Emissions in this region are subject to more stringent permitting requirements and various regulatory thresholds are lower for the pollutants that form ozone, even if they meet the ozone NAAQS. As a result, nonattainment new source review requirements associated with moderate nonattainment areas would apply for ozone.

Table 6

National Ambient Air Quality Standards

Pollutant	Averaging Period	Standards	
		Primary	Secondary
Sulfur dioxide (SO_2)	1-hour [l,m]	75 ppb 196 µg/m^3	0.5 ppm 1300 µg/m^3
	3-hour [b]	--	--
	Annual [a,m]	0.03 ppm 80 µg/m^3	--
	24-hour [b,m]	0.14 ppm 365 µg/m^3	--
PM_{10}	24-hour [d]	150 µg/m^3	150 µg/m^3
$PM_{2.5}$ (2012 Standard)	Annual [e]	12.0 µg/m^3	15.0 µg/m^3
$PM_{2.5}$ (2006 Standard)	24-hour [f]	35 µg/m^3	35 µg/m^3
Nitrogen Dioxide (NO_2)	Annual [a]	0.053 ppm (53 ppb) 100 µg/m^3	0.053 ppm (53 ppb) 100 µg/m3
	1-hour [c]	100 ppb 188 µg/m^3	--
Carbon Monoxide (CO)	8-hour [b]	9 ppm 10,000µg/m^3	--
	1-hour [b]	35 ppm 40,000 µg/m^3	--
Ozone (2008 Standard)	8-hour [g,h]	0.075 ppm	0.075 ppm
Ozone (2015 Standard)	8-Hour [i]	0.070 ppm	0.070 ppm
Ozone (O_3)	1-hour [j,k]	0.12 ppm	0.12 ppm
Lead (Pb)	Rolling 3-month [a]	0.15 µg/m^3	0.15 µg/m^3

Table 6 National Ambient Air Quality Standards
Notes: a. Not to be exceeded. b. Not to be exceeded more than once per year. c. Compliance based on 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area. d. Not to be exceeded more than once per year on average over 3 years. e. Compliance based on 3-year average of weighted annual mean $PM_{2.5}$ concentrations at community-oriented monitors. f. Compliance based on 3-year average of 98th percentile of 24-hour concentrations at each population-oriented monitor within an area. g. Compliance based on 3-year average of fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area. h. The 2008 8-hour ozone standard would remain in effect until one year after an area is designated for the 2015 8-hour ozone standard, which corresponds with January 16, 2019 based upon attainment designations for the 2015 ozone standard issued on January 16, 2018. i. Permit applications that have not met EPA's grandfathering criteria would have to demonstrate that the proposed project does not cause or contribute to a violation of any revised ozone standards that are in effect when the permit is issued, including the 2015 revised standards. j. Maximum 1-hour daily average not to be exceeded more than one day per calendar year on average. k. The 1-hour ozone standard has been revoked in all areas in which Project activities would occur. l. Compliance based on 3-year average of 99th percentile of the daily maximum 1-hour average at each monitor within an area. m. The 24-hour and annual average primary standards for SO_2 have been revoked. ppm = parts per million by volume. ppb = parts per billion by volume. $\mu g/m^3$ = micrograms per cubic meter.

Table 7
Massachusetts Primary and Secondary Standards

Pollutant	Averaging Period	Standard	
		Primary	Secondary
Sulfur dioxide (SO_2)	Annual [a]	80 µg/m^3 0.03 ppm)	--
	24-hour [b]	365 µg/m^3 (0.14 ppm)	--
	3-hour [b]	--	1,300 µg/m^3 (0.5 ppm)
PM10	Annual [c]	50 µg/m^3	50 µg/m^3
	24-hour [d]	150 µg/m^3	150 µg/m^3
Nitrogen Dioxide (NO_2)	Annual [a]	100 µg/m^3 (0.05 ppm)	100 µg/m^3 (0.05 ppm)
Carbon Monoxide (CO)	8-hour [b]	10 mg/m^3 (9 ppm)	10 mg/m^3 (9 ppm)
	1-hour [b]	40 mg/m^3 (35 ppm)	40 mg/m^3 (35 ppm)
Ozone (O_3)	1-hour [e]	235 µg/m3 (0.12 ppm)	235 µg/m3 (0.12 ppm)
Lead (Pb)	Calendar Quarter[a]	1.5 µg/m^3	1.5 µg/m3

Notes:
a. Not to be exceeded.
b. Not to be exceeded more than once per year.
c. Standard attained when expected annual arithmetic mean is less than indicated value.
d. Standard attained when expected days per calendar year exceeding value is less than or equal to 1.
e. Standard attained when expected number of days per calendar year with maximum hourly average concentration exceeding limit is less than or equal to 1.

ppm= parts per million by volume
µg/m^3= micrograms per cubic meter
mg/m3= milligrams per cubic meter

Greenhouse Gases

Greenhouse gases (GHGs) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are gases that absorb infrared radiation in the atmosphere, and an increase in emissions of these gasses has been determined by the EPA to endanger public health and welfare by contributing to human-induced global climate change. The most common GHGs emitted during fossil fuel combustion and natural gas transportation are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Emissions of GHGs are typically expressed in terms of CO_2 equivalents (CO_2e), where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO_2 over a specific

timeframe, or its global warming potential (GWP). The 100-year GWP of CO_2 is 1, CH_4 is 25, and N_2O is 298. During construction and operation of the Project, these GHGs would be emitted from non-electrical construction and operational equipment, as well as from fugitive CH_4 leaks from the pipeline and aboveground facilities.

On November 8, 2010, the EPA signed a rule that finalizes reporting requirements for the petroleum and natural gas industry under 40 CFR 98. Subpart W of 40 CFR 98 requires petroleum and natural gas facilities that emit 25,000 metric tons or more of CO_2e per year to report annual emissions of specified GHGs from various processes within the facility. Construction emissions are not covered under the GHG Reporting Rule, but those related to the proposed Project are expected to be well below the 25,000 metric tons reporting threshold. Operational emissions from the proposed facilities are likewise not expected to exceed this threshold and be reported to the EPA. The EPA has expanded its regulations to include the emission of GHGs from major stationary sources under the Prevention of Significant Deterioration (PSD) program. The EPA's current rules require that a stationary source that is major for a non-GHG-regulated New Source Review pollutant must also obtain a PSD permit prior to beginning construction of a new or modified major source with mass-based GHG emissions equal to or greater than 100,000 tons per year (tpy) and significant net emission increases in units of CO_2e equal to or greater than 75,000 tpy. There are no NAAQS or other significance thresholds for GHGs.

7.1.1 Permitting/Regulatory Requirements

New Source Performance Standards (NSPS)

The EPA promulgates NSPS to establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for stationary source types or categories that cause or contribute significantly to air pollution.

Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines) would apply to the emergency generators at the Westbrook CS and Eliot CS, and the Dracut M&R Station.

Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) would apply to the stationary combustion turbine at the Eliot CS.

Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production Transmission and Distribution) would apply to pneumatic controllers, reciprocating compressors, and the collection of fugitive emissions components at compressor sites. PNGTS would be required to develop a fugitive emissions monitoring plan and performance of emissions monitoring surveys of fugitive emissions components at the Eliot CS.

General Conformity

The EPA promulgated the General Conformity Rule to implement the conformity provision of Title I, Section 176(c)(1) of CAA. Section 176(c)(1) requires that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to, an approved CAA implementation plan.

The General Conformity Rule is codified in Title 40 CFR Part 51, Subpart W and Part 93, Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the conformity threshold (*de minimis*) levels of the pollutant(s) for which an air basin is in nonattainment or maintenance. According to the conformity regulations, emissions from sources that are subject to any NNSR or PSD permitting/licensing (major or minor) are exempt and are deemed to have conformed.

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. The lead federal agency must conduct a conformity determination if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the General Conformity Applicability threshold levels of the pollutant(s) for which an air basin is designated nonattainment or maintenance. Section 176(c)(1) states that a federal agency cannot approve or support any activity that does not conform to an approved State Implementation Plan. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if deemed necessary. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

As noted earlier, the Project facilities would be in attainment areas within AQCR's, and would have to meet the nonattainment new source review requirements for ozone. As shown in tables 8 and 9 below, the construction and operational emissions would be below the general conformity applicability thresholds in non-attainment or maintenance area for the Project. Therefore, a General Conformity Determination is not required.

Construction of the Project would result in short-term increases in emissions of some pollutants from the use of fossil fuel-fired equipment and the generation of fugitive dust due to earthmoving activities. Some temporary indirect emissions, attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur. Large earth-moving equipment and other mobile equipment are sources of combustion-related emissions, including criteria pollutants (i.e., NO_x, CO, VOC, SO_2, and PM_{10}).

PNGTS would mitigate exhaust emissions from construction equipment by requiring contractors to meet all air quality regulations and emission standards associated with each piece of equipment, use low-sulfur diesel fuel in non-road construction equipment, and limit idling of diesel and gasoline powered on-road vehicles and non-road construction equipment operating at, or visiting, the construction site to less than five consecutive minutes. Fugitive dust emissions during construction would be mitigated by measures outlined in the Fugitive Dust Control Plan, such as

spraying water on unpaved areas subject to frequent vehicle traffic. Construction of the Project is estimated to occur between April and November 2020. These emissions present the combined emissions for each facility of construction equipment combustion, on-road vehicle travel, off-road vehicle travel, and earthmoving fugitives.

Construction related emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for each area of the Project. These emission-generating activities would include earthmoving, construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. PNGTS conservatively utilized emission factors from EPA's AP-42, along with EPA's NONROAD2008a and MOVES2014 emission modeling software.

Construction is estimated to occur between April and November 2020. The air quality impacts of Project construction are considered short-term and would be further minimized by PNGTS's implementation of fugitive dust control measures outlined in the Fugitive Dust Control Plan such as watering exposed soil surfaces, applying temporary mulch, and expediting restoration and revegetation activities. Following construction, air quality would revert back to previous conditions. Construction emissions for the Project are presented in table 8.

Given the temporary nature of construction, and the intermittent nature of construction emissions, we find that emissions from construction-related activities for the Project are not expected to cause or significantly contribute to a violation of any applicable ambient air quality standard, or significantly affect local or regional air quality.

Emission generating modifications at the Eliot CS include a new 6,300 hp Centaur-50 gas-fired compressor unit, gas cooling equipment and ancillary equipment. Emissions at the Westbrook CS and Dracut M&R Station would be less than one ton per year (tpy). Operational emissions for the Project facilities are presented in table 9.

	Table 8 Estimated Construction Emissions (tons per year)[a]								
County	**Activity**	**NO_x**	**CO**	**VOC**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**Total HAPs**	**GHG[a] (CO_{2e})**
Cumberland, ME Westbrook CS									
	Non-Road and On-Road Construction Vehicles	1.1	3.6	0.20	0.08	0.06	0.003	0.034	486.6
	Fugitive Dust	0.00	0.0	0.00	2.11	0.22	0.000	0.000	0.0
	Blowdown and Purge	0.00	0.0	3.62	0.00	0.00	0.000	0.000	1.8
	County Total	**1.1**	**3.6**	**3.82**	**2.19**	**0.29**	**0.003**	**0.034**	**488.5**
York, ME Eliot CS									
	Non-Road and On-Road Construction Vehicles	3.7	10.2	0.62	0.30	0.23	0.011	0.113	1,677.2
	Fugitive Dust	0.00	0.0	0.00	5.99	0.64	0.000	0.000	0.0
	Blowdown and Purge	0.00	0.0	6.25	0.00	0.00	0.000	0.000	3.1
	County Total	**3.7**	**10.2**	**6.87**	**6.29**	**0.87**	**0.011**	**0.113**	**1,680.3**
Middlesex, MA Dracut M&R									
	Non-Road and On-Road Construction Vehicles	0.2	0.3	0.03	0.02	0.01	0.001	0.007	115.8
	Fugitive Dust	0.00	0.0	0.00	0.25	0.03	0.000	0.000	0.0
	Blowdown and Purge	0.00	0.0	0.01	0.00	0.00	0.000	0.000	0.01
	County Total	**0.2**	**0.3**	**0.04**	**0.26**	**0.04**	**0.001**	**0.007**	**115.8**
	Project Total	**5.0**	**14.0**	**10.73**	**8.75**	**1.19**	**0.015**	**0.154**	**2,284.6**
General Conformity Thresholds		**50**	**100**	**50**	**100**	**100**	**100**	**-**	**-**

a. All construction is estimated to be completed between April and November, 2020.

Table 9 Estimated Operational Emissions (tons per year)									
Facility	**County**	**NO_x**	**CO**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**Total HAPs**	**GHG**
Westbrook CS	Cumberland, ME								
Project Emissions		0.2	0.4	0.4	<0.1	<0.1	<0.1	0.1	352.4
Eliot CS	York, ME								
Project Emissions		11.1	30.2	9.5	1.5	1.8	1.8	1.7	38,642
Dracut M&R Station	Middlesex, MA								
Project Emissions		<0.01	0.04	0.02	<0.01	<0.01	<0.01	<0.01	24.2
Total		**11.3**	**30.64**	**10.01**	**1.5**	**1.8**	**1.8**	**1.8**	**39,018.6**

Considering the minimal operational emissions associated with the Project, we conclude that operational emissions would not have a significant impact on air quality.

7.2 NOISE

Construction and operation of the Project would affect the local noise environment in the Project area. The ambient sound level of a region, which is defined by the total noise generated within the specific environment, is usually comprised of sounds emanating from both natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week, in part due to changing weather conditions and the impacts of seasonal vegetative cover.

Two measurements used by some federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same sound 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, in the calculation of the L_{dn}, late night to early morning (10:00 p.m. to 7:00 a.m.) noise exposures are penalized +10 decibels (dB), to account for people's greater sensitivity to sound during the nighttime hours. The A-weighted scale (dBA) is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is approximately 6.4 dB above the measured L_{eq}.

In 1974, the EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Noise levels are expressed as decibels on the A-weighted scale (dBA) to put more emphasis on frequencies in the range that humans hear best. Because noise levels are perceived differently, depending on length of exposure and time of day, the day-night sound level (L_{dn}) takes into account the duration and time the noise is encountered. Specifically, the L_{dn} adds 10 dBA to nighttime sound levels between the hours of 10 p.m. and 7 a.m. to account for a people's greater sensitivity to sound during the night. 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), such as residences, schools, or hospitals. Also, in general, a person's threshold of perception for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

Construction of the facilities would involve operation of general construction equipment and noise would be generated during the installation of the Project components. Measures to mitigate construction noise would include compliance with federal regulations limiting noise from trucks, proper maintenance of equipment, and ensuring that sound muffling devices provided by the manufacturer are kept in good working condition.

Construction noise would be highly variable because the types of equipment in use at a construction site changes with the construction phase and the types of activities. Noise from construction activities may be noticeable at nearby NSAs. However, construction equipment would be operated on an as-needed basis during the short-term construction period. Further, PNGTS would limit construction activities to occur during daytime hours, except when required for activities such as hydrostatic testing that requires continuous work. FERC staff considers daytime hours to be 7:00

AM to 7:00 PM. If night time construction is required, advanced notice would be provided to the residents informing them of the planned activities and duration. A 24-hour hotline would be provided for residents and abutters to work with landowners to promptly resolve any concerns.

Because construction of the Project would mostly be limited to daytime hours and intermittent, we conclude that construction noise would not have a significant impact on the environment.

The modified Project facilities would generate operational noise. Hoover and Keith, Inc. (H&K) completed a pre-construction sound survey and noise analysis on June 6, 2018 for the Westbrook CS, Eliot CS and Dracut M&R Station using baseline sound surveys, sound level data for the specific equipment planned for the facility, and calculations for the noise attenuation over distance and proposed noise control measures. The existing (ambient) noise sound levels, estimated sound levels from the proposed sources, total noise sound levels, and noise increases were calculated.

Westbrook CS

H&K identified 4 NSAs within 0.5 mile from the facility which are residences. As shown in table 10, the estimated noise from the modifications at the compressor station is below the FERC's noise criterion of 55 dBA and the potential noise increase for the minor Project modifications at this facility would be well below perceptible levels.

Table 10
Noise Quality Analysis – Westbrook CS

NSA	Distance/ Direction	Existing facilities + ambient Ldn (dBA)	Estimated noise from new equipment Ldn (dBA)	Total L_{dn} (dBA)	Potential Noise Increase (dBA)
1	2,100 feet/ NW	47.8	30.4	47.9	0.1
2	2,900 feet/ N	48.5	26.7	48.5	0.0
3	2,300 feet/ SW	23.8	29.4	44.0	0.2
4	2,150 feet/ E	47.9	30.1	48.0	0.1
Existing station sound levels at NSAs present lower than measured sound levels, as they were influenced by other environmental noise sources not associated with the station.					

Eliot CS

H & K identified 3 NSAs associated with this location; one daycare and two residences. The results of the noise analysis for the Eliot CS are summarized in table 11 for the impacts at the nearest NSAs. Measurements show existing noise levels and noise from the proposed new equipment at the compressor station would be below 55 dBA at all NSA's for the Eliot CS. In addition, the modeling shows that potential noise increase due to Project modifications at this facility would be below 3dB, which is the threshold of perceptible difference for humans.

Table 11 Noise Quality Analysis – Eliot CS					
NSA	**Distance/ Direction**	**Existing facilities + ambient Ldn (dBA)**	**Estimated noise from new equipment Ldn (dBA)**	**Total L_{dn} (dBA))**	**Potential Noise Increase (dBA)**
1	1,200 feet/ SE	52.5	45.6	53.4	0.8
2	1,500 feet/ NW	44.6	43.3	47.0	2.4
3	2,000 feet/ SE	42.3	40.2	44.4	2.1
Existing station sound levels at NSAs present lower than measured sound levels, as they were influenced by other environmental noise sources not associated with the station.					

However, to ensure that the actual noise produced as a result of the proposed modifications to the Eliot CS meets our criteria, **we recommend that**:

- **PNGTS should file noise surveys with the Secretary no <u>later than 60 days</u> after placing the authorized unit at the Eliot Compressor Station in service. If a full load condition noise survey is not possible, PGNTS should file an interim survey at the maximum possible horsepower load and file the full load survey <u>within 6 months</u>. If the noise attributable to the operation of the station at any load exceeds an L_{dn} of 55 dBA at any nearby NSAs, PNGTS should file a report on what changes are needed and install additional noise controls to meet that level <u>within 1 year</u> of the in-service date. PNGTS should confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary <u>no later than 60 days</u> after it installs the additional noise controls.**

Dracut M&R Station

There were 3 identified NSAs, all residencies, associated with this location. Measurements show existing noise levels to be above 55 dBA at NSA 1. Existing noise levels are shown to be below 55 dBA at the remaining NSA's for the Dracut M&R Station. The Project would not add noise generating equipment to this facility, with the exception of an emergency generator that would only operate on an intermittent basis. There are no other noise sources associated with the Project. The results of the noise analysis for the Dracut M&R Station are summarized in table 12 for the impacts at the nearest NSAs.

Table 12 Noise Quality Analysis – Dracut M&R Station					
NSA	**Distance/ Direction**	**Existing facilities + ambient Ldn (dBA)**	**Estimated noise from new equipment Ldn (dBA)**	**Total L_{dn} (dBA)**	**Potential Noise Increase (dBA)**
1	350 feet/ N	56.4	0.0	56.4	0.0
2	450 feet/ NE	47.0	0.0	47.0	0.0
3	650 feet/ SW	46.2	0.0	46.2	0.0
Existing station sound levels at NSAs present lower than measured sound levels, as they were influenced by other environmental noise sources not associated with the station.					

MNOC is considering methods to mitigate sound levels at the Dracut M&R Station to reduce the noise levels to below 55dBA at NSAs. Implementing sound attenuation on the heaters

blowers and stacks, as well as a possible noise barrier are being considered. A determination would be made once additional noise studies are completed during the heating season. MNOC has committed to additional noise studies.

Since the noise generated from the modifications would not cause an increase to the existing noise, we conclude that the Project would not result in significant noise impacts on residents and the surrounding communities.

8.0 RELIABILITY AND SAFETY

A natural gas compressor station or aboveground interconnect site involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a leak, or rupture at the facility. 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.

The modifications to the Project facilities must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent facility accidents and failures, including emergency shutdowns and safety equipment. The DOT's Pipeline and Hazardous Materials Safety Administration ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level.

The DOT provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. DOT federal inspectors perform inspections and enforce the pipeline safety regulations for interstate gas pipeline facilities.

The DOT also defines area classifications, based on population density in the vicinity of the pipeline facility, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

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

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. The existing facilities are located in Class 1 locations. Modifications to existing facilities would be designed to meet existing Class requirements.

Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in an emergency. Additionally, the operator must establish a continuing education program to enable the public, government officials, and others to recognize an emergency at the facility and report it to appropriate public officials. PNGTS would provide the appropriate training to local emergency service personnel before the facilities are placed in service.

High Consequence Areas

Under 49 CFR 192.903, operators must develop integrity management programs for natural gas transmission pipelines located in High Consequence Areas (HCAs). Definitions and identification of HCAs as defined in 49 CFR 192.903 are as follows:

"High consequence area" means an area may be defined in one of two ways. In the first method an HCS includes:

- A Class 3 location under §192.5; or
- A Class 4 location under §192.5; or
- Any area in a Class 1 or Class 2 location where the potential impact radius is greater than 660 feet (200 meters), and the area within a potential impact circle contains 20 or more buildings intended for human occupancy; or
- Any area in a Class 1 or Class 2 location where the potential impact circle contains an identified site.

In the second method, and HCS includes any area within a potential impact circle which contains:

- 20 or more buildings intended for human occupancy, unless the exception in paragraph (4) applies; or
- An identified site.

Where a potential impact circle is calculated under either method to establish a high consequence area, the length of the high consequence area extends axially along the length of the pipeline from the outermost edge of the first potential impact circle that contains either an identified site or 20 or more buildings intended for human occupancy to the outermost edge of the last contiguous potential impact circle that contains either an identified site or 20 or more buildings intended for human occupancy.

Identified site means each of the following areas:

- An outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period (days need not be consecutive). Examples include but are not

limited to, beaches, playgrounds, recreational facilities, camping grounds, outdoor theaters, stadiums, recreational areas near a body of water, or areas outside a rural building such as a religious facility; or

- A building that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period (days and weeks need not be consecutive). Examples include but are not limited to, religious facilities, office buildings, community centers, general stores, 4-H facilities, or roller skating rinks; or

- A facility occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate. Examples include but are not limited to hospitals, prisons, schools, daycare facilities, retirement facilities, or assisted-living facilities.

There are no HCAs located near the Project.

Facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with PNGTS standards, including the provisions for written emergency plans and emergency shutdowns. PNGTS would provide the appropriate training to local emergency service personnel before the facilities are placed into service. The construction and operation of the modified facilities would represent a minimum increase in risk to the nearby public and we are confident that with implementation of the required design criteria for the design of these facilities, that they would be constructed and operated safely.

9.0 CUMULATIVE IMPACTS

In accordance with NEPA and FERC policy, we evaluated the cumulative impacts of the Project and other projects in the area. Cumulative impacts represent the incremental effects of a proposed action when added to impacts associated with past, present, and reasonably foreseeable future projects, regardless of what agency or person undertakes such other actions. Although the individual impact of each separate project may be minor, the additive or synergistic effects of multiple projects could be significant.

The purpose of this analysis is to identify and describe cumulative impacts that would potentially result from implementation of the Project. This cumulative impacts analysis uses an approach consistent with the methodology set forth in relevant guidance by the Council on Environmental Quality (CEQ). The first step in our analysis is to identify the relevant resource areas to assess for cumulative impacts; then establish a geographic scope for possible cumulative effects; and then to identify other projects that may impact the same resources within the same geographic and temporal scope as the proposed Project.

As described in section B of this EA, constructing and operating the Project would temporarily and permanently impact the environment. However, all of ground-disturbing activities would be within existing facilities. Based on this, along with the proposed minimization and mitigation measures described in PNGTS's construction procedures, we have concluded that most of the Project impacts would be limited to workspaces and adjacent areas.

For example, erosion control measures included in the Plan and Procedures would keep disturbed soils within the work areas. For other resources, the contribution of regional cumulative impacts is lessened by the expected recovery of ecosystem function. For example, vegetation communities would be cleared, but restoration would proceed immediately following construction. Land use impacts are negligible as all of the impacts would occur on paved, industrial, or previously used areas and within existing PNGTS owned facilities. Additionally, we determined that there would be no significant noise impacts during operation of the Project as the increase in operational noise levels would be minor and imperceptible. Furthermore, no cultural resources were identified. Because the Project would have no or only minimal, localized, and/or temporary impacts impact on these resources, cumulative impacts have not been assessed for geology and soils, wetlands, surface water, groundwater, vegetation, wildlife, cultural resources, land use, visual impacts, and operational and construction noise for the Project.

Based on the impacts of the Project as identified and described in this EA and consistent with CEQ guidance, we have determined that the resource-specific geographic scope described below are appropriate to assess cumulative impacts.

- Impacts on air quality, including fugitive dust, would be largely limited to areas immediately around active construction. We searched for other projects and actions that overlap in time and are located within 0.25 mile of construction activities.
- Impacts on operational air quality. We searched for other projects and actions that overlap in time and located within a 50 kilometer radius.

The actions considered in our cumulative impact analysis may vary from the Project in nature, magnitude, and duration. These actions are included based on the likelihood of their impacts

coinciding with the Project, meaning the other actions have current or ongoing impacts or are "reasonably foreseeable." The actions we considered are those that could affect similar resources during the same timeframe as the Project; they are listed in appendix B. The majority of projects are upgrades to existing manufacturing facilities, and construction of the Atlantic Bridge Project. Multiple projects were identified as possible contributors to cumulative impacts in the area. The anticipated cumulative impacts of the Project and these other actions are discussed below.

9.1 Air Quality

The Atlantic Bridge project was identified within the vicinity of the Project that could contribute to cumulative impacts to air quality during construction. The Atlantic Bridge project, which is currently under construction, has construction activities near the Westbrook CS. Construction of these projects would involve the use of heavy equipment that would generate emissions of air pollutants and fugitive dust. Fugitive dust emissions would settle quickly and dust suppression measures would be implemented at the Project site as necessary to ensure the Project-related effects from fugitive dust are intermittent and temporary and would occur within or very near the construction area. Furthermore, none of the other listed projects indicate construction concurrent with Project construction.

The potential cumulative impacts from the proposed Project and recently completed, current, and reasonably foreseeable projects in the vicinity would be temporary and minor. Primary factors associated with the Project that would minimize the contribution to cumulative impacts are that all proposed construction workspaces would be located on MNOC property and all proposed facilities would be located within the limits of the existing stations. Due to the timing of construction, minimization of fugitive dust as a result of the dust suppression measures, and the highly localized nature of construction emissions, there would be no significant cumulative impacts on air quality during construction.

Several projects were identified within the vicinity of the Project that could contribute to cumulative impacts to air quality during operation which include: new portable crushed stone and gravel facilities, new boilers, new cogeneration facilities, new processing facilities, expansion or replacement of existing process lines, new wood pellet manufacturing facilities, and new emergency and non-emergency engines. Each of these projects would be required to meet applicable state and federal air quality regulations to avoid significant impacts on air quality, and therefore we conclude there would be no significant cumulative impacts on air quality during operation of the Project.

9.2 Climate Change

Climate change is the change in climate over time and cannot be represented by single annual events or individual anomalies. For example, a single large flood or particularly hot summer are not indications of climate change, while a series of floods or warm years that statistically change the average precipitation or temperature over years or decades may indicate climate change.

Climate change has resulted in a wide range of impacts across every region of the country. Impacts extend beyond atmospheric climate change alone and include changes to water resources, transportation, agriculture, ecosystems, and human health. These changes are driven by accumulation of GHGs in the atmosphere through combustion of fossil fuels (coal, petroleum, and

natural gas), combined with agriculture and clearing of forests. These impacts have accelerated throughout the end 20th and into the 21st century. Although climate change is a global concern, for this analysis, we focus on the potential cumulative impacts in the Project area. The FERC staff has presented the GHG emissions associated with construction and operation of the Project in section B.7.1 of this EA.

The U.S. national energy-related CO_2 emissions were 5,411.4 million metric tons in 2015, which is the most recently available data from the U.S. Energy Information Administration (EIA, 2017). For a more localized analysis, the 2015 state-level GHG emissions for Maine and Massachusetts is 82.4 million metric tons of CO2e (EIA, 2017). The GHG emissions from other nearby projects are unknown. Emissions of GHGs from the proposed Project would not have any direct impacts on the environment in the area. Currently, there is no standard methodology to determine how a project's relatively small incremental contribution to GHGs would translate into physical effects on the global environment.

Conclusion

The cumulative impacts review as part of the NEPA process evaluates the incremental effects of a proposed project and multiple similar projects in the same region at the same time, or in a similar timeframe, to determine whether the additive effect of those projects would result in significant impacts to the regional environment. As discussed previously, the Project and other projects in the area would have or have had minimal cumulative impacts because the other projects are predominately outside the cumulative impact area and those projects in the area are likely to occur in areas that are already developed. As a result, no significant cumulative impacts are anticipated when combining the Project with other identified projects.

Additionally, we identified planned activities in the Project area that met the criteria for inclusion in the cumulative impact analysis. Implementation of BMPs and proposed mitigation plans would minimize environmental impacts and when the impacts of the Project are added to the impacts from the other identified projects, the cumulative impacts would be minimal. We conclude that impacts would be temporary in nature and no significant cumulative impacts would be incurred from the Project.

C. ALTERNATIVES

1.0 INTRODUCTION

In accordance with NEPA and Commission policy, we considered and evaluated alternatives to the proposed action, including the no-action alternative, system alternatives, and aboveground facility alternatives. These alternatives were evaluated using a specific set of criteria. The evaluation criteria applied to each alternative include a determination whether the alternative:

- meets the objective of the proposed Project;
- is technically and economically feasible and practical; and
- offers a significant environmental advantage over the proposed Project.

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. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage) and uses common comparative factors such as total length, amount of collocation, and land requirements.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the project. An alternative that cannot achieve the purpose for the project cannot be considered as an acceptable replacement for the project. Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical.

Alternatives that would not meet the Project's objective or were not feasible were not brought forward to the next level of review (i.e., the third evaluation criterion). Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact

these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Project when considered against the cost of relocating the facilities to a new set of landowners was also factored into our evaluation.

2.0 NO ACTION ALTERNATIVE

The no-action alternative would consist of not constructing the Project and continuing with the facilities as-is. If the proposed facilities are not constructed, the impacts identified would be avoided. The no action alternative does not meet the purpose and need of the Project to improve system reliability by adding 24,375 Mcf/d of incremental capacity to PNGTS owned facilities and 22,339 Mcf/d to PNGTS and Maritimes jointly owned facilities, and shippers would not receive the capacity and services contracted. If the purpose and need of the Project is not met under the no-action alternative, other projects and activities would be needed to meet the market energy needs and these projects could result in their own environmental impacts that would be equal to or greater than the proposed action and might not meet the Project's objectives. Therefore, we do not recommend the no-action alternative.

3.0 SYSTEM ALTERNATIVES

The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with the construction and operation of the Project could be avoided or reduced by using existing, modified, or other proposed facilities rather than constructing new facilities. System alternatives are alternatives that are able to meet the objectives of the Project, but use a different facility (existing or proposed), or are able to otherwise use existing infrastructure to eliminate the need for the proposed facility. However, a viable system alternative must be technically and economically feasible and practicable, and must satisfy interconnect requirements and the anticipated in-service date to fulfill commitments made to the Project customers.

We could not identify any other existing pipeline system that would be able to provide the incremental supply that is to be provided under the Project without the construction of additional facilities. Furthermore, the proposed Project already entails modifications to existing facilities. Therefore, we do not recommend the use of any other existing systems.

System modifications such as added looping or a new aboveground facility would require more land disturbance and use, increasing overall impacts. To meet the purpose and need of the Project and satisfy current pressure commitments and requirements at interconnects on the PNGTS and Maritimes joint facilities would require the addition of a greenfield compressor station at another location or pipeline looping on the north or joint facilities. This alternative would not be environmentally preferable as it yields many additional environmental impacts that do not exist with the proposed upgrades to the existing facilities, therefore, we do not recommend this option.

Renewable alternative measures such as electric, wind and solar were eliminated from further consideration as they would not meet the Project objectives to transport natural gas supplies from supply basins to customers in New England and Atlantic Canada markets. .

Aboveground Facility Alternatives

Locations of the proposed facilities were chosen to produce minimum environmental impacts. The modifications are limited to modifications to the existing facilities, to be constructed within the existing fence lines. There are no other alternatives that would provide fewer impacts for the aboveground facilities.

In summary, we have determined that PNGTS's proposed Project would be the preferred alternative than can meet the Project objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

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

1. PNGTS 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. PNGTS 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 the Office of Energy Projects (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 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 construction and operation.

3. **Prior to any construction**, PNGTS shall each file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel would 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 figures. **As soon as they are available, and before the start of construction**, PNGTS shall file with the Secretary any revised detailed survey maps/figures 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 Project figures.

PNGTS's exercise of eminent domain authority granted under the Natural Gas Act (NGA) section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. PNGTS's right of eminent domain granted under the NGA section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. PNGTS shall file with the Secretary detailed figures and aerial photographs identifying all 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/figures/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 workspace allowed by FERC's Plan and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

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

   a. implementation of cultural resources mitigation measures;

   b. implementation of endangered, threatened, or special concern species mitigation measures;

   c. recommendations by state regulatory authorities; and

   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

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

   a. how PNGTS 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 PNGTS 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, 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 the company 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 the company's organization having responsibility for compliance;

g. the procedures (including use of contract penalties) the company 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. PNGTS shall employ at least one EI for the Project. 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, PNGTS shall file updated status reports for the Project 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 PNGTS's efforts to obtain the necessary federal authorizations;

   b. the construction status of the Project, work planned for the following reporting period;

   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 the company from other federal, state, or local permitting agencies concerning instances of noncompliance, and PNGTS response.

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

10. PNGTS must receive written authorization from the Director of OEP **before placing the modified Project facilities 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**, PNGTS 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 PNGTS 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. PNGTS shall not begin construction of the Eliot CS until it files with the Secretary a copy of the determination of consistency with the Coastal Zone Management Plan issued by the Maine Department of Marine Resources Coastal Zone Consistency Program.

13. PNGTS shall file noise surveys with the Secretary **no later than 60 days** after placing the authorized unit at the Eliot CS in service. If a full load condition noise survey is not possible, PNGTS shall file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of the station at any load exceeds an L_{dn} of 55 dBA at any nearby NSAs, PNGTS shall file a report on what changes are needed and install additional noise controls to meet that level **within 1 year** of the in-service date. PNGTS shall 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.

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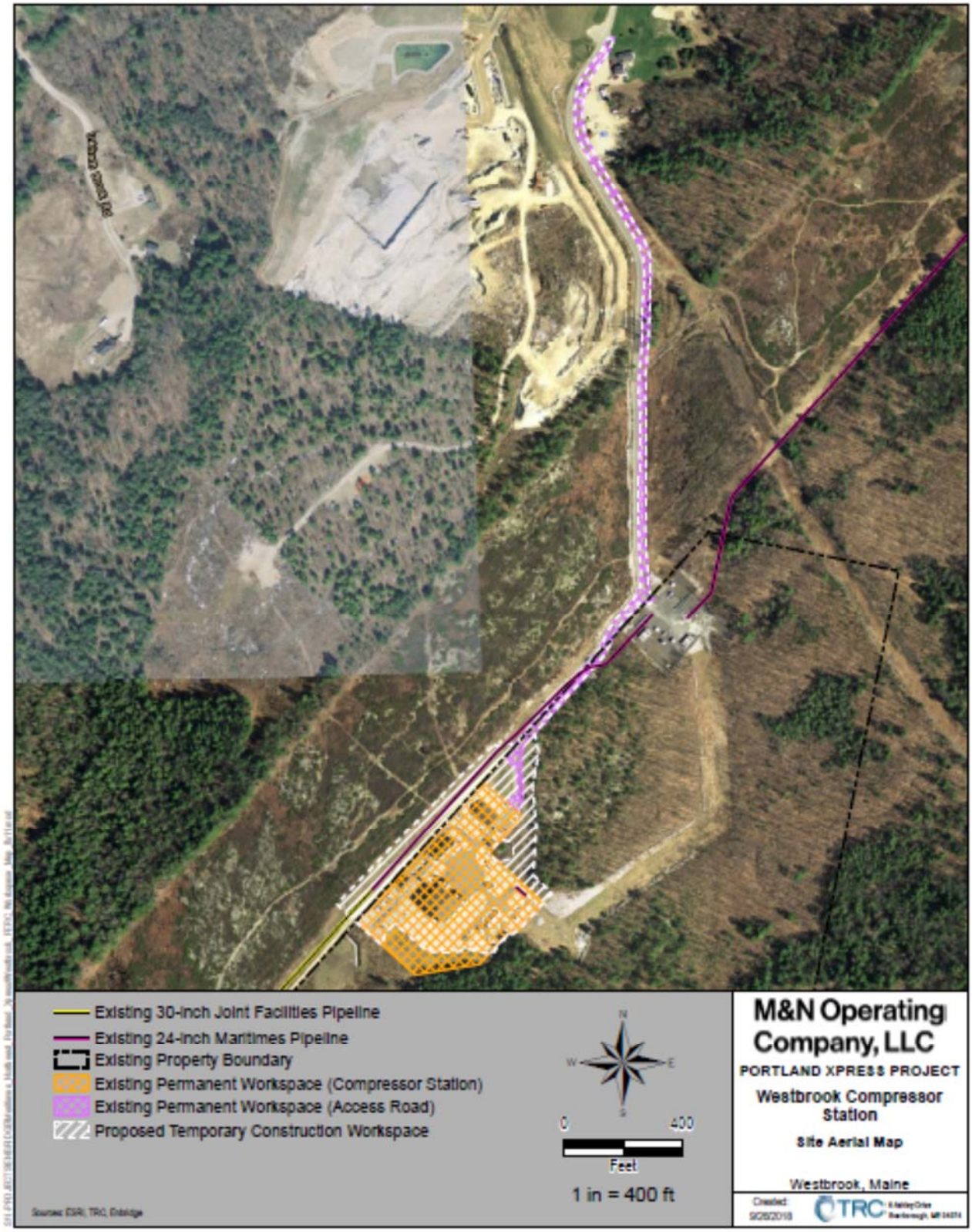
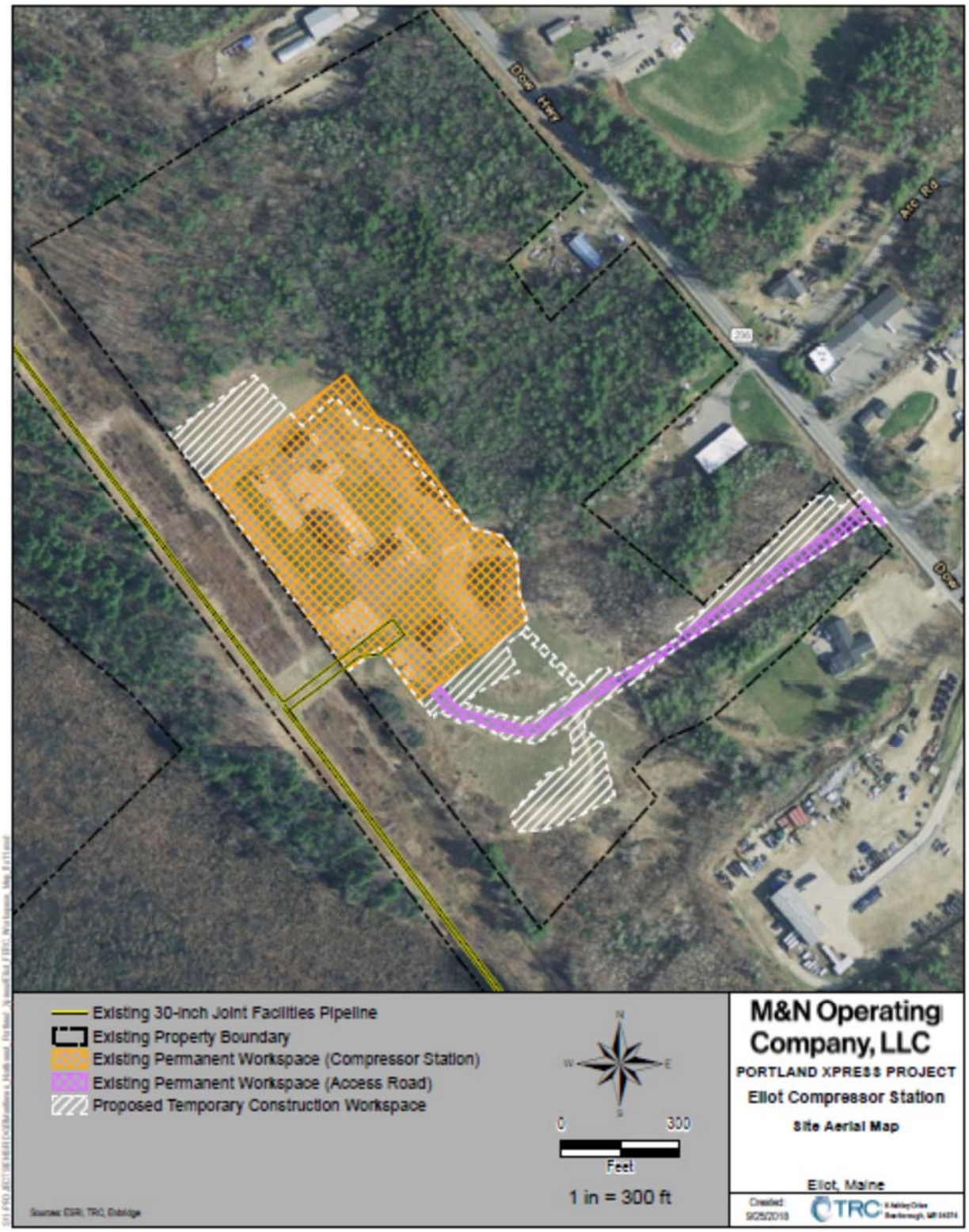
Appendix A

Project Maps

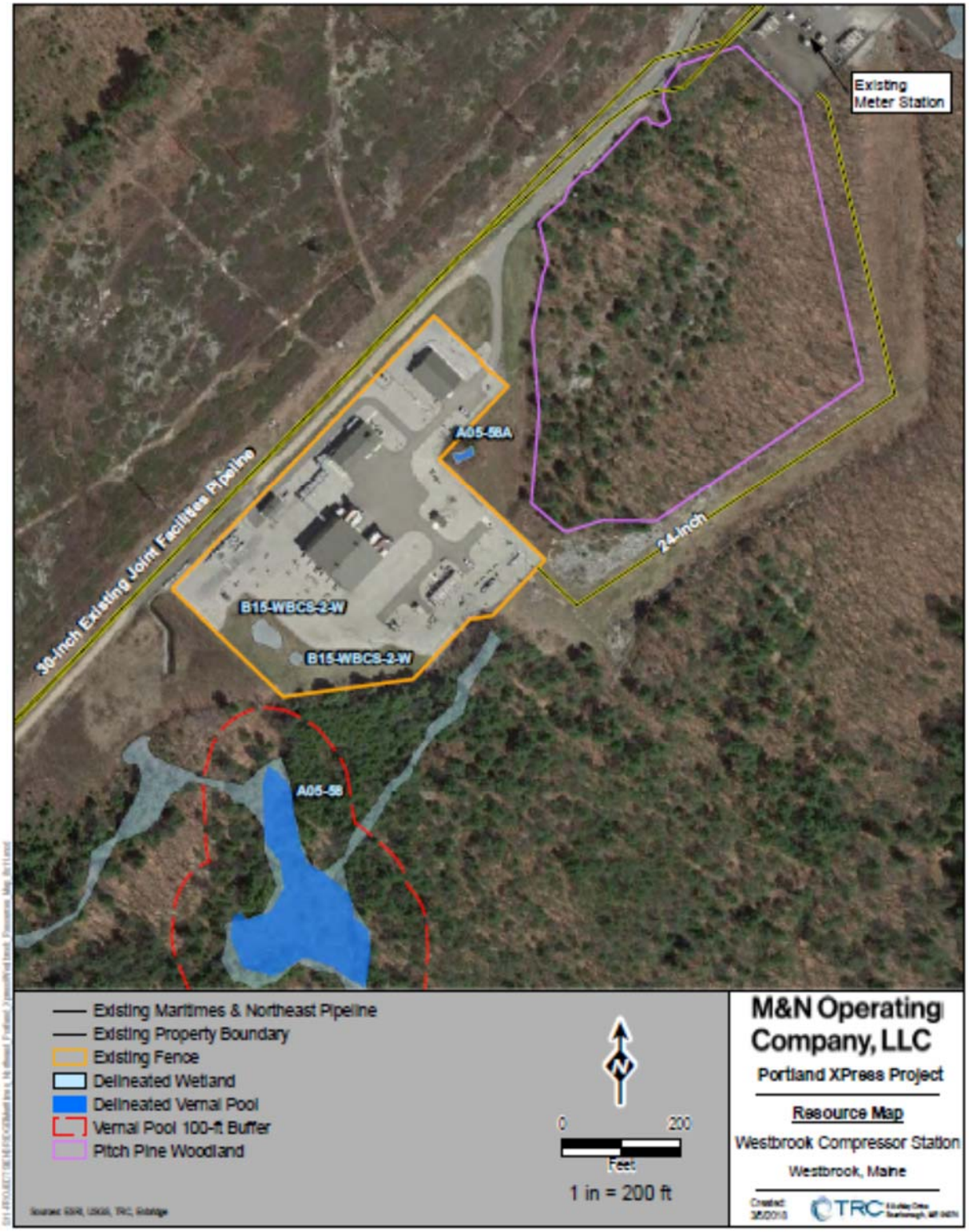


Westbrook CS Site Map



Eliot CS Site Map

Dracut M&R Site Map



Westbrook CS Wetland Delineation Map

Elliot CS Wetland Delineation Map

Dracut M&R Wetland Delineation Map

Appendix B

Cumulative Impact Table

Table 13 Projects with Potential Cumulative Impacts				
Project	**Description**	**Distance from Nearest Project Facility**	**Status**	**Potentially Affected Resource Areas**
Atlantic Bridge Project/ Cumberland County, Maine	Resizing existing valves and associated piping from 23-inch to 24-inch within the existing Westbrook Meter Station	At existing Westbrook M&R and CS site	Under construction	Vegetation, wildlife, land use, noise and air quality
232 River Road Windham/ Cumberland County, Maine	Potential future Maine Dept. of Transportation highway rehabilitation/construction	1.5 miles west of Westbrook CS	Planned for 2019-2020	Vegetation, wildlife, and land use
717 Bridge Street/ Cumberland County, Maine	Potential future commercial building construction	2 miles west of Westbrook CS	Unknown	Groundwater, vegetation, wildlife
Doles Bridge Replacement Project/ Cumberland County, Maine	Doles Bridge replacement	2 miles west of Westbrook CS	Planned for 2019- 2020	Vegetation, wildlife, and land use
341 Mosher Road/ Cumberland County, Maine	Addition of two portable jaw rock crushers and generator sets	2.5 miles southwest of Westbrook CS	Unknown	Air
Westbrook Energy Center/ Cumberland County, Maine	Addition of two 4-megawatt black start emergency engines	4.6 miles south of Westbrook CR	Unknown	Air
23-47 Nash Road, Route 302/ Cumberland County, Maine	Potential project to operate a wood waste processing facility at Busque Pit quarry	5.1 miles northwest of Westbrook CS	Under review by planning board. Start date unknown	Groundwater, vegetation, wildlife
Hancock Lumber Company, Inc./ Cumberland County, Maine	New replacement biomass-fired boiler	20.1 miles northwest of Westbrook CS	Unknown	Air
Oldcastle Lawn and Garden, Inc./ Androscoggin County, Maine	New screening unit and associated engine	21.1 miles north of Westbrook CS	Unknown	Air
Tambrands, Inc./ Androscoggin County, Maine	Boiler natural gas conversion and addition of process lines	22.1 miles north of Westbrook CS	Unknown	Air

Table 13 Projects with Potential Cumulative Impacts				
Project	**Description**	**Distance from Nearest Project Facility**	**Status**	**Potentially Affected Resource Areas**
Pioneer Plastics Corporation/ Androscoggin County, Maine	New high-pressure laminate double belt press, thermal oil heater, and 2 resin storage tanks	24.4 miles north of Westbrook CS	Unknown	Air
Auburn Aggregates, LLC./ Androscoggin County, Maine	Portable crushed stone and gravel facilities	24.5 miles north of Westbrook CS	Unknown	Air
Crooker Construction, LLC./Sagadahoc County, Maine	2 additional rock crushers at non-metallic mineral processing plant	24.6 miles northeast of Westbrook CS	Unknown	Air
The Dingley Press, Inc. / Androscoggin County, Maine	Installation of new printing press	25.4 miles northeast of Westbrook CS	Unknown	Air
T&D Wood Energy, LLC./ York County, Maine	New wood pellet manufacturing facility	26 miles southwest of Westbrook CS	Unknown	Air
Evonik Cyro, LLC./ York County, Maine	Addition of new framing operation and space heaters	28.1 miles southwest of Westbrook CS, 18.5 miles northeast of Eliot CS	Unknown	Air
Central Main Community College/ Androscoggin County, Maine	2 new boilers and conversion to natural gas of existing boilers	29.1 miles north of Westbrook CS	Unknown	air
Maine Dept. of Transportation/ York County, Maine	Intersection improvements	0.95 mile northwest of Eliot CS	Planned for 2018-2019	Vegetation, wildlife, land use, and construction noise and air quality
Sprague Operating Resources, LLC/ York County, Maine	Replacement boiler	2.3 miles southwest of Eliot CS	Unknown	Air

Table 13 Projects with Potential Cumulative Impacts				
Project	**Description**	**Distance from Nearest Project Facility**	**Status**	**Potentially Affected Resource Areas**
Newington Energy/ York County, Maine	Fuel transition modifications	2.7 miles south of Eliot CS	Unknown	Air
Sig Sauer, Inc./ Rockingham County, New Hampshire	Install control device on existing firing range ventilation system	4.1 miles southwest of Eliot CS	Unknown	Air
High Lier Foods, Inc./ Rockingham County, New Hampshire	Install control device on existing frying operations and natural gas fired water heater	5.5 miles south of Eliot CS	Unknown	Air
Turbocam Energy Solutions, LLC/ Strafford County, New Hampshire	Install control device on existing plasma spray process	6.7 miles northwest of Eliot CS	Unknown	Air
University of New Hampshire/ Strafford County, New Hampshire	Install one pyrotech dry wood chip boiler	7.5 miles west of Eliot CS	Unknown	Air
Waste Management of New Hampshire, Inc./ Strafford County, New Hampshire	New emergency diesel engine	11.5 miles northwest of Eliot CS	Unknown	Air
Turbocam, Inc./Strafford County New Hampshire	Two non-emergency diesel engines	12.6 miles northwest of Eliot CS	Unknown	Air
Phillips Exeter Academy/ Rockingham County, New Hampshire	New emergency diesel engines	14 miles southwest of Eliot CS, 27.3 miles northeast of Dracut M&R	Unknown	Air
T&D Wood Energy, LLC./ York Count, Maine	New wood pellet manufacturing facility	20.3 miles northeast of Eliot CS	Unknown	Air

Table 13 Projects with Potential Cumulative Impacts				
Project	**Description**	**Distance from Nearest Project Facility**	**Status**	**Potentially Affected Resource Areas**
Torromeo Industries, Inc./ Rockingham County, New Hampshire	Replacement non-emergency diesel engine	24.2 miles southwest of Eliot CS, 17.1 miles northeast of Dracut M&R	Unknown	Air
Avilite Corp./ Hillsborough County, New Hampshire	Expandable polystyrene manufacturing process	14.7 miles northwest of Dracut M&R	Unknown	Air
DiaCom Corporation/ Hillsborough County, New Hampshire	Down draft table and spray booth at fabric/rubber adhesive operation	18 miles northwest of Dracut M&R	Unknown	Air
Textiles Coated International/ Hillsborough County, New Hampshire	Control device on firl extrusion process	20.4 miles north of Dracut M&R	Unknown	Air
City of Manchester, Water Treatment Plant, Hillsborough County, New Hampshire	One non-emergency diesel engine	23.5 miles north of Dracut M&R	Unknown	Air
Hitchiner Manufacturing Co./ Hillsborough, New Hampshire	Three emergency natural gas-fired engines	25 miles northwest of Dracut M&R	Unknown	Air
Veterans Affairs Medical Center, Hillsborough County, New Hampshire	Two dual fuel boilers, two temporary dual fuel boiler, threw new emergency diesel engines, one natural gas-fired combined heat and power generator engine	25.7 miles northwest of Dracur M&R	Unknown	Air