

US EPA ARCHIVE DOCUMENT

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 1  
5 POST OFFICE SQUARE, SUITE 100  
BOSTON, MA 02109-3912**

**FACT SHEET**

**Northeast Gateway Energy Bridge, L.L.C  
Deepwater Port**

**Clean Air Act Permit Number  
RG1-DPA-CAA-01M**

**Permit Modification**

### **Acronyms and Abbreviations**

BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
CO	carbon monoxide
MassDEP	Massachusetts Department of Environmental Protection
DPA	Deepwater Port Act
EBRV	Energy Bridge Regasification Vessels
EPA	United States Environmental Protection Agency
g	grams
HAP	hazardous air pollutant
HHV	higher heating value
hrs	hours
kW	kilowatts
kWh	kilowatt-hour
lbs	pounds
LNG	liquefied natural gas
m <sup>3</sup>	cubic meters
MMcfd	million standard cubic feet per day
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standards
NEG Port	the DWP operated by Northeast Gateway Energy Bridge, L.L.C.
NEG LLC	Northeast Gateway Energy Bridge, L.L.C. the applicant for the Deepwater Port License Modification
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub>	oxides of nitrogen
NSPS	New Source Performance Standards
NSR	New Source Review
OTR	Ozone Transport Region
O <sub>2</sub>	oxygen
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PM <sub>2.5</sub>	Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
ppm	parts per million
ppmvd	parts per million, volumetric dry
PSD	Prevention of Significant Deterioration
SCR	selective catalytic reduction
SO <sub>2</sub>	sulfur dioxide
tpy	tons per year
USCG	United States Coast Guard
VOC	volatile organic compounds
yr	year

## I. General Information

Name of source:	Northeast Gateway Energy Bridge, L.L.C. Deepwater Port Project
Location:	Massachusetts Bay, approximately 13 miles offshore. (See <i>Section II: Project Location</i> )
Applicant's address:	1450 Lake Robbins Drive, # 200 The Woodlands, TX 77380
Application Prepared by:	Tetra Tech EC, Inc. 160 Federal Street, Floor 3 Boston, MA 02110
CAA permit number:	RG1-DPA-CAA-01M
EPA contact:	Patrick Bird U.S. Environmental Protection Agency 5 Post Office Square - Suite 100 Mail Code OEP 05-2 Boston MA 02109-3912 Telephone: (617) 918-1287 <a href="mailto:bird.patrick@epa.gov">bird.patrick@epa.gov</a>

On October 28, 2008, Northeast Gateway Energy Bridge, L.L.C. (NEG LLC) filed an application with Environmental Protection Agency's New England Regional Office (EPA) to modify its existing Clean Air Act (CAA) permit, dated May 14, 2007. NEG LLC amended its application on July 17, 2009, January 26, 2010, August 19, 2011, April 2, 2012, and October 28, 2014.

The 2007 CAA permit was issued to NEG LLC pursuant to the Deepwater Port Act (DPA) for operation of emission units at the Northeast Gateway Deepwater Port (NEG Port). The DPA requires applicable state laws of the nearest adjacent coastal state, which is Massachusetts, to be administered and enforced by the appropriate federal officials. The laws of Massachusetts apply to NEG LLC to the extent such laws are not inconsistent with any provision or regulation under the DPA or other Federal laws and regulations. See 33 U.S.C. § 1518(b). The Commonwealth of Massachusetts establishes and enforces local air pollution regulations in order to attain and maintain all state and federal ambient air quality standards. These regulations include preconstruction air permits, referred to as Plan Approvals, and other emission control strategies for the control of stationary source air pollution. EPA has determined that the Commonwealth's Plan Approval rules and other provisions for the control of air pollution that are incorporated into the SIP are consistent with the DPA and the CAA. NEG LLC will also comply with all applicable state air quality control requirements.

After reviewing the October 2008 application and subsequent amendments submitted by NEG LLC, EPA prepared this Fact Sheet and proposed amendments to CAA permit number RG1-DPA-CAA-01 as required by 40 CFR 124, Procedures for Decisionmaking.

EPA's proposed decision to modify NEG LLC's permit have been based on the information provided by NEG LLC and analysis conducted using EPA's own technical expertise. This Fact Sheet documents the information and analysis EPA used to support the proposed CAA permit modifications. It includes a description of the proposed permit changes, the applicable CAA requirements, and an analysis demonstrating how the applicant complied with the requirements.

EPA has concluded that NEG LLC's application as amended provides the necessary information for EPA to draft a proposed permit modification consistent with CAA, DPA, and any applicable Massachusetts state air pollution regulations.

The October 2008 permit modification application and the subsequent amendments submitted on July 17, 2009, January 26, 2010, August 19, 2011, April 2, 2012, and October 28, 2014 are being made available as part of the official record for this proposed permit modification. These documents are available online at EPA New England's Web Site: [www.epa.gov/ne/communities/nsemissions.html](http://www.epa.gov/ne/communities/nsemissions.html).

## **II. Project Location**

The NEG Port is located off the coast of Massachusetts, approximately 13 miles south of Gloucester and 22 miles northeast of Boston. The exact location in latitude and longitude is:

Longitude: W 70° 35' 31.02" - 70° 37' 0.36" Latitude: N 42° 23' 38.46" - 42° 23' 56.40"

## **III. Facility Description**

The NEG Port is designed to deliver natural gas at an average annual base load send out rate of approximately 400 million cubic feet per day (MMcfd), or 11 million cubic meters (m<sup>3</sup>) per day, with a peak send out rate of 800 MMcfd, or 22 million cubic meters per day. The NEG Port itself consists of two Submerged Turret Loading™ (STL™) buoys located in federal waters, a flexible riser, and separate flow lines that are connected to shore by a subsea pipeline. Specially designed Energy Bridge™ Regasification Vessels (EBRV) deliver liquid natural gas (LNG) to the NEG Port. EBRVs are purpose-built LNG tankers that incorporate onboard equipment for the regasification of LNG and delivery of high-pressure natural gas to an offshore pipeline.

This permit applies to the following list of equipment aboard any EBRV or any Liquid Natural Gas Regasification Vessel (LNGRV) with similar equipment. For all other LNGRVs with different equipment configurations that intend to use the NEG Port, NEG

LLC must first apply for and receive approval from EPA before the LNGRV moors and regasifies at the NEG Port.

NEG LLC refers to EBRVs as 1<sup>st</sup>, 2<sup>nd</sup>, and, 3<sup>rd</sup> generation vessels. Each EBRV, regardless of generation, is equipped with;

- Two (2) main boilers that produce steam for the steam generators to produce electricity used to power the ship's electric propellers while in transit or power LNG pumps, run the regasification process, and operate other units while the ship is not in transit, and;
- One (1) emergency generator used on a limited basis and only during emergency situations.

Second (2<sup>nd</sup>) and 3<sup>rd</sup> generation vessels also have:

- One (1) auxiliary boiler used to increase the vessel's natural gas send out rate.

#### **IV. Permit Modifications Requested by NEG**

NEG LLC requested numerous changes to CAA permit RG1-DPA-CAA-01. These changes can be categorized as the following:

- Gas-Fired Auxiliary Boiler for 3<sup>rd</sup> Generation Vessels* – Add to the permit, a gas-fired auxiliary boiler (Aux2) for 3<sup>rd</sup> generation vessels with a heat input capacity rate of 157 MMBtu/hr. The existing permit does not include Aux2 boilers because 3<sup>rd</sup> generation vessels were not in use when the existing permit was issued.
- Oil Use in Main Boilers* – Revise the permit to allow the use of oil-fired pilots to light off the gas burners of the two main boilers (B1 and B2), as required by U.S. Coast Guard (USCG) and international maritime regulations. The oil-fired pilots would be used intermittently and only as initial pilots to unlit burners. Oil consumption would be capped at 800 kg per hour for each vessel and 9,600 kg per 24-hr period per vessel. NEG LLC originally requested the utilizations of oil with a 1.5% sulfur content by weight. In their supplemental submittal dated October 28, 2014, NEG LLC has proposed using low sulfur marine gas oil with a sulfur content of 0.1% by weight.
- Initial Startup Definition* – Clarify the definition of *Initial startup* to refer to the operation of permitted equipment onboard an EBRV or LNGRV *after* a vessel's initial connection and disconnection to a NEG Port buoy rather than after a "full gasification event."
- Emergency Generators* – Limit the use of engines GE1 and GE2 to emergency situations with operation not to exceed 100 hours per year. GE1 and GE2 are nonroad engines, and exempt from NSPS and NESHAP regulations. As nonroad engines, GE1 and GE2 are subject to regulations at 40 CFR 1043 (Control of NOx, SOx, and PM Emissions from Marine Engines and Vessels Subject to the Marine Pollution (MARPOL) Protocol of the International Convention for the

Prevention of Pollution from Ships), which regulates marine engines and vessel emissions operating in U.S. navigable waters or the Exclusive Economic Zone of the United States.

- E. Particulate Matter Emission Limits* – Correct short-term PM<sub>10</sub> lbs/hr emission limits for main boilers to correspond with the more stringent short-term lbs/MMBtu limit. PM<sub>10</sub> emission limits on a lbs/hr and lbs/MMBtu basis are inconsistent with one another in the existing permit.
- F. Reporting Timelines* – NEG LLC seeks to revise the incident reporting timelines at section VII.C.1 and VII.C.2 and emission exceedance reporting timelines at VII.B of the existing permit to be consistent with Massachusetts Department of Environmental Protection state-issued permit conditions.

## **V. Proposed Permit Modifications**

After reviewing the permit modifications requested by NEG LLC, EPA proposed to revise the permit as follows:

- A. Gas-Fired Auxiliary Boiler for 3<sup>rd</sup> Generation Vessels* – EPA is incorporating the auxiliary boiler on 3<sup>rd</sup> generation vessels (Aux2) into NEG LLC's CAA permit. Aux2 solely fires on gas and has a heat input capacity rate of 157 MMBtu/hr.

NEG LLC is controlling PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> emissions from Aux2 by firing only gas. NEG LLC is controlling for CO, HAP, and VOC emissions via good combustion practices and/or firing gas.

To control NO<sub>x</sub> emissions, NEG LLC is controlling NO<sub>x</sub> emissions through the installation of low NO<sub>x</sub> burners and selective catalytic reduction (SCR). The combination of these control methods will reduce NO<sub>x</sub> emissions to 15 ppmvd @ 3% O<sub>2</sub>.

Aux2 emission limits for CO, PM, SO<sub>2</sub> and VOCs will remain the same as for Aux1 on a lbs/MMBtu basis, but due to the greater capacity of Aux2, emission limits will be higher than Aux1 on a lbs/hr basis.

Based upon a review of the application as amended, 310 CMR 7.02, and recent federal standards, EPA finds the following emission limits would constitute Best Available Control Technology (BACT) and EPA is requiring no additional controls other than those stated above. Table 1 summarizes the emission limits for boiler Aux2 in comparison to boiler Aux1.



**Table 1. Comparison of Short-term Emissions Limits for Boilers Aux1 and Aux2**

Pollutant	lbs/MMBtu (HHV)	lbs/hr	
		Aux1 (100 MMBtu/hr)	Aux2 (157 MMBtu/hr)
NO <sub>x</sub> (downstream of SCR)	0.018	1.8	2.8
CO	0.044	4.4	6.9
SO <sub>2</sub>	0.0006	0.06	0.09
VOC	0.005	0.5	0.85
PM <sub>10</sub>	0.0019	0.19	0.29
PM <sub>2.5</sub>	0.0019	0.19	0.29

*B. Oil Use in Main Boilers* – EPA is proposing to grant NEG LLC’s request to light off the burners of the main propulsion boilers (B1 and B2) with fuel oil. USCG and international maritime regulations for LNG-carrier vessels require NEG LLC to light off the burners of the propulsion boilers with fuel oil.

A February 21, 2011 letter from M.A Prescott, Chief of the Deepwater Ports Standards Division, U.S. Coast Guard, included in the official record for this permit modification, cites three overlapping U.S. and international requirements stipulating the use of oil-fired pilots when lighting off burners of propulsion boilers of LNG-carrier vessels. These requirements are as follows:

- Title 46 of the Code of Federal Regulations § 154.705(c)
- Title 46 of the Code of Federal Regulations § 154.1854(a)
- International Maritime Organization’s International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk under Chapter 16, Section 5, Part 4

Boilers B1 and B2 have three burners each. Oil will be used on an intermittent basis to light off the burners depending on the load required by the vessel and its regasification processes. Once a flame is stabilized, burners will shift to gas-only mode. NEG LLC estimates a typical re-lighting of burners to involve about 10 minutes of oil firing.

EPA is requiring NEG LLC to follow good combustion practices when firing oil and is restricting the amount of fuel oil used and the sulfur content of fuel oil. Oil will have a sulfur content no greater than 0.1% by weight. Oil use will be limited to 800 kg per hour for each vessel, 9,600 kg per 24-hr period per vessel, and 640,000 kg per year for the entire facility (i.e., all propulsion boilers operating at both buoys of the NEG Port).

*C. Initial Startup Definition* – The existing definition relies on the concept of a “full regasification event,” which provides a new vessel (one that has never called on the NEG Port) the opportunity to complete one full regasification event prior to *Initial startup* being triggered. The rationale behind this definition is that ERBVs or LNGRVs, while similar in many respects, are not exact replicas. Allowing vessels a full regasification event prior to *Initial startup* provides an opportunity



to ensure vessel operations are working according to specifications. This period of operation is similar to, shakedown periods not to exceed 180 days, as provided in NSR permits for land-based stationary sources.

Some vessels regasified only a portion of their cargo at the NEG Port during their first visit and ambiguity arose as to what constituted a full regasification event.

EPA has amended the definition to allow an EBRV or LNGRV that has never called on the NEG Port to connect to the buoy, regasify LNG, and disconnect from the buoy without triggering *Initial startup*. Upon its second connection to a NEG Port buoy, *Initial startup* will commence the moment at which the first piece of permitted equipment is set in operation regardless of how much cargo was previously regasified.

EPA has amended the definition of *Initial startup* to read as follows:

*“Initial startup: The moment at which the first piece of permitted equipment on ~~the a particular~~ EBRV or LNGRV is set in operation at the NEG Port after that particular EBRV or LNGRV’s second connection to the buoy regardless of how much cargo was previously regasified. ~~first full regasification event for that particular EBRV or LNGRV at NEG.~~*

According to EPA records, all EBRVs in NEG LLC’s existing fleet have called on the NEG Port. All EBRVs have had their shakedown period at the NEG Port, and have satisfied the definition of *Initial startup*, as amended.

- D. *Emergency Generators* – EPA is proposing to grant the operational limitations NEG LLC has set forth for engines GE1 and GE2. The engines will operate only under *emergency situations*, as defined in the permit, and for a period not to exceed 100 hours per year on a 12-month rolling average while operating at the NEG Port. GE1 and GE2 are currently permitted to operate 370 hours per year in undefined circumstances.

NEG LLC provided EPA with an April 11, 2013 letter from Steven C. Riva, Chief of the Permitting Section, Air Programs Branch, EPA Region 2, addressed to Mr. Mike Trammel, Director of Environmental Affairs, Excelerate Energy, L.P. entitled “Re: NSPS-NESHAP Applicability to the Proposed Aguirre GasPort Emissions Units.”

The letter states that at the proposed Aguirre GasPort facility, located within the Puerto Rico territorial sea, all reciprocating internal combustion engines located on LNGRVs will not be considered stationary sources for the purpose of NSPS and NESHAP applicability because the engines are on a piece of equipment that is self-propelled and meet the definition of nonroad engine at 40 CFR 1068.30. The letter states reciprocating internal combustion engines located on LNGRVs are subject to the applicable nonroad engine regulation. The LNGRVs referred to in EPA Region 2’s applicability determination are owned by Excelerate Energy,

L.P. and permitted to operate at the NEG Port. The Aguirre GasPort facility is not subject to the DPA or Outer Continental Shelf regulations.

EPA Region 1 agrees with the determination made by Region 2 on reciprocating internal combustion engines for the purpose of NSPS and NESHAP applicability and should be applied to NEG LLC's CAA permit, as ERBVs and LNGRVs are self-propelled and meet the definition of nonroad engine at 40 CFR 1068.30. As such, we have reviewed the nonroad engine regulations and propose to apply the requirements of 40 CFR 1043 - Control of NO<sub>x</sub>, SO<sub>x</sub>, and PM Emissions from Marine Engines and Vessels Subject to the MARPOL Protocol.

Forty CFR 1043 requires engines constructed on or after January 1, 2000 to be covered by a valid Engine International Air Pollution Prevention (EIAPP) certificate. Pursuant to 40 CFR 1043.30, engines GE1 and GE2 must be covered by a valid EIAPP certificate certifying the engine meets the applicable emission standards of Annex VI (NO<sub>x</sub> emission standard of 12.1 g/kWh (based on 720 RPM).

Forty CFR 1043.30 requires applicable engines to combust a fuel sulfur limit of 1% by weight through calendar year 2015 and 0.1% by weight from 2016 onward. The existing permit requires GE1 and GE2 to combust fuel oil not exceed 0.5% sulfur by weight. NEG LLC has met this requirement since 2007, and we propose to continue to include the more stringent limit of 0.5% sulfur by weight through calendar year 2015. We are proposing to include the 0.1% sulfur fuel oil limit from 2016 onward.

- E. Particulate Matter Emission Limits* – EPA has revised the existing permit limits for the amount of PM<sub>10</sub> each unit can emit to reflect allowable emissions when taking into account a unit's emission concentration limit and physical size. The change in PM<sub>10</sub> lbs/hr emission limits is reflected in Table 2.

**Table 2. Revised PM<sub>10</sub> Emission Limits for Boilers B1, B2, and Aux1**

<b>Boiler</b>	<b>Existing PM<sub>10</sub> Permit Limit (lbs/MMBtu)</b>	<b>Existing PM<sub>10</sub> Permit Limit (lbs/hr)</b>	<b>Proposed PM<sub>10</sub> Permit Limit (lbs/hr)</b>
B1	0.0019	1.7	0.42
B2	0.0019	1.7	0.42
Aux1	0.0019	0.7	0.19

When the existing permit was finalized, guidance allowed a permitting authority to use emission limits for PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> emissions. This policy is no longer in effect and CAA construction permits must specifically address PM<sub>2.5</sub> emissions.

Due to the operational change that allows burners to be ignited on oil, EPA proposes to address PM<sub>2.5</sub> emission limits during operations at the NEG

Port. PM<sub>2.5</sub> from fuel combustion is primarily the result of non-combustible constituents (ash) in the fuel and sulfates. With a higher sulfur content in the fuel oil than natural gas, EPA is proposing to limit the duration and amount of fuel oil NEG LLC can burn. We are making this determination based on the fact that if NEG LLC had applied for oil firing in its original application from 2006, EPA would have determined oil firing should be limited due to the fact that short term emissions for PM<sub>2.5</sub> would be higher during oil firing than natural gas.

EPA proposes to limit the firing of fuel oil only when lighting burners and discontinue the firing of fuel oil when the burner flame has been stabilized at which point the burner will switch to firing solely natural gas or BOG. The amount of fuel oil and the maximum sulfur content in fuel oil for boilers B1 and B2 will also be limited.

When firing solely gas, PM<sub>2.5</sub> emission limits will be based on a 1-hour averaging period. PM<sub>2.5</sub> emission limits for boilers B1, B2, and Aux1 are listed in Table 3.

**Table 3. PM<sub>2.5</sub> Emission Limits for Boilers B1, B2, and Aux1**

<b>Boiler</b>	<b>PM<sub>2.5</sub> Permit Limit (lbs/MMBtu)</b>	<b>PM<sub>2.5</sub> Permit Limit (lbs/hr)</b>
B1	0.0019	0.42
B2	0.0019	0.42
Aux1	0.0019	0.19

- F. Reporting Timelines* – EPA is proposing to approve NEG LLC’s request to revise the emissions exceedance reporting timelines at section *VII.B* and incident reporting timelines at sections *VII.C.1* and *VII.C.2* of the existing permit.

*VII.B* states emission exceedances must be reported to EPA in writing within 96 hours of each occurrence. Section *VII.C.1* requires breakdown conditions to be reported to EPA by fax or email within four hours of detection. Section *VII.C.2* states a written report is to be submitted one week after a breakdown condition has been corrected.

Based on a review of applicable federal regulations, Massachusetts Plan Approval regulations at 310 CMR 7.02, and recently approved Massachusetts Plan Approvals, EPA proposes to revise reporting timelines as follows:

- NEG LLC shall notify EPA by fax, email, or telephone no later than three days after the occurrence of a breakdown condition or emissions exceedance;
- NEG LLC shall submit a written report no later than seven days after the occurrence of an emissions exceedance, and;
- NEG LLC shall submit a written report no later than seven days after the breakdown condition has been corrected.

- G. Other Proposed Permit Modifications* –EPA is proposing grammatical and formatting changes to the existing permit to improve the clarity of permit conditions and continuity with the current operations of the NEG Port. For example, several sections in the existing permit are written in future tense, as some elements of the NEG Port and ERBV fleet were yet to be constructed when the permit was written. The grammatical and formatting changes proposed in this modification correct such issues.

## **VI. Monitoring, Recordkeeping, and Reporting Requirements**

The following monitoring, recordkeeping, and reporting provisions are being required as a result of the permit modification proposed in section V. of this Fact Sheet.

### *A. Monitoring*

1. Aux2 - Boiler Aux2 will follow identical monitoring specifications as those required in the existing permit for boiler Aux1.
2. GE1 & GE2 - Requirements to monitor engines GE1 and GE2 electricity output have been removed from the proposed permit, and operating limits of 100 hours per year on a 12-month rolling average while operating at the NEG Port have been added and will be monitored through the use of a non-resettable elapsed operating hour meter for engines GE1 and GE2.
3. B1 & B2 - Limiting the use of fuel oil consumption for boilers B1 and B2 necessitated the addition of a requirement to install and operate a non-resettable totalizing flow meters to measure the volume of fuel oil used by each vessel while moored at the NEG Port.
4. NO<sub>x</sub> Cap - A decrease in potential annual emissions of NO<sub>x</sub> for the NEG Port alleviated the need for a NO<sub>x</sub> cap. Monitoring required to demonstrate compliance with the NO<sub>x</sub> cap is removed from the proposed permit.

### *B. Recordkeeping*

1. Aux2 - Boiler Aux2 will follow identical recordkeeping specifications as those required in the existing permit for boiler Aux1.
2. GE1 & GE2 - Engines GE1 and GE2 must keep records of each engine's valid EIAPP certificate.
3. B1 & B2 - Boilers B1 and B2 require recordkeeping of oil use and the retention of purchase receipts while EBRVs or LNGRVs are moored at the NEG Port.

### *C. Reporting*

1. Aux2 - Boiler Aux2 will follow identical reporting specifications as those required in the existing permit for boiler Aux1.

2. Incident and Emission Exceedance Reporting - See the subsection entitled “Reporting Timelines” of section V. of this Fact Sheet for information on incident and emission exceedance reporting amendments in the proposed permit modification.

## VII. DPA and CAA Review

In evaluating NEG LLC’s application as amended, EPA reviewed requirements of DPA and CAA to ensure the proposed modifications did not trigger new requirements and all existing permit conditions would continue to be met. EPA ensured all revisions were consistent with NEG LLC’s requirements to meet 310 CMR 7.02; 310 CMR 7.00, Appendix A; and the CAA.

- A. *Changes to NEG Port Emissions* – The changes proposed by NEG LLC will not result in a significant emissions increase as defined by 40 CFR 51.165 and 51.166 and, therefore, this permit modification is not being considered a major modification for CAA permitting purposes. In fact, the proposed permit modification decreases allowable emissions of NO<sub>x</sub>, SO<sub>2</sub>, VOC, and PM<sub>10</sub>. By proposing restrictions on engines GE1 and GE2, NEG Port potential emissions decreased despite adding the larger gas-fired Aux2 boiler and allowing oil to be used as pilot fuel on an intermittent basis in the B1 and B2 boilers.

Table 4 contains NEG Port potential emissions in tons per year for the existing permit and the proposed permit. For reference, each pollutant’s NSR and PSD major source threshold is provided.

**Table 4. Comparison of NEG Port Potential Emissions (in tons per year) between Existing and Proposed Permit**

Pollutant	Existing Permit	Proposed Permit	NSR Major Source Threshold <sup>a</sup>	PSD Major Source Threshold <sup>b</sup>
NO <sub>x</sub>	49.0	43.8	50	N/A (OTR <sup>c</sup> )
CO	99.0	99.0	N/A (Attainment Area)	100
SO <sub>2</sub>	4.9	3.4	N/A (Attainment Area)	100
VOC	16.1	16.0	50	N/A (OTR <sup>c</sup> )
PM <sub>10</sub>	20.6	5.5	N/A (Attainment Area)	100
PM <sub>2.5</sub>	N/A	5.4	N/A (Attainment Area)	100

<sup>a</sup> From 310 CMR 7.00, Appendix A.

<sup>b</sup> From 40 CFR 52.21(b)(1)(i); these thresholds apply to fossil-fuel boilers (or combinations thereof) totaling more than 250 MMBtu/hr heat input.

<sup>c</sup> Massachusetts is still designated and classified as a moderate nonattainment area state-wide under EPA’s 1997 ozone National Ambient Air Quality Standards (NAAQS). Massachusetts is also located in the Ozone Transport Region (OTR).

- B. *Operational Impacts*

1. Emission Caps – NEG LLC will continue to meet the facility’s rolling 12-



month emissions caps of 99 TPY CO (as required in the existing permit) and the monthly emission limits set for the first 11 months of a vessel's operation at the NEG Port.

By proposing to limit the use of engines GE1 and GE2 to emergency situations with operations not to exceed 100 hours per year, NEG Port emissions decreased for NO<sub>x</sub>, SO<sub>2</sub>, VOC, and PM. Due to the reduction in NO<sub>x</sub> emissions, the NO<sub>x</sub> cap of 49 TYP (as required in the existing permit) is no longer applicable as NEG Port potential annual emissions are lower than the major source threshold. As such, EPA is removing the NO<sub>x</sub> cap and the monthly emission limits set for the first 11 months of a vessel's operation at the NEG Port.

2. Oil Use – Boilers B1 and B2 were designed to fire oil during burner light-off events. Oil-firing capabilities were designed into B1 and B2 to comply with USCG and international regulations. Oil use will be limited to 800 kg per hour for each vessel, 9,600 kg per 24-hr period per vessel, and 640,000 kg per year for the entire facility (i.e., all propulsion boilers operating at both buoys of the NEG Port).

- C. *Air Quality Impacts* – Prior to the issuance of the existing permit, EPA conducted an ambient air quality analysis, per conditions for Massachusetts 310 CMR 7.02 regulations for Plan Approvals. EPA's analysis demonstrated that the emission limits satisfied the requirement to protect the NAAQS and increment consumption.

NEG LLC's October 2008 modification application included air quality modelling pursuant to Massachusetts Plan Approval regulations at 310 CMR 7.02(c). The changes NEG LLC sought in its October 2008 submittal predicted an emissions increase in PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub>. EPA conducted an analysis on NEG's modelling and found that despite the emissions increases, emissions would not result in air quality exceeding any NAAQS. Since 2008, NEG has amended its permit modification request such that annual potential emissions will decrease from the existing permit. Since projected emissions are decreasing, modeling is not required.

Nonetheless, EPA's analysis from the earlier modeling exercise demonstrates protection of the NAAQS under a less stringent emissions scenario than is being proposed for approval in this permit modification.

- D. *Endangered Species Act and Marine Mammals Protection Act* – Section 7(a) of the Endangered Species Act (ESA) of 1973, as amended grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of

Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat.

To comply with the ESA, EPA consulted with Mr. Dan Tierney of the U.S. National Oceanic and Atmospheric Administration (NOAA) to determine if the proposed changes to NEG LLC's CAA permit pose any risk to listed endangered species or result in the destruction or adverse modification of critical habitat in areas surrounding the Port. EPA concluded air emissions associated with the proposed CAA permitting action will have no effect on any endangered or proposed endangered species or critical habitat in areas surrounding the NEG Port. EPA submitted this determination to Mr. Tierney on November 14, 2014.

- E. *National Marine Sanctuaries Act* – The Stellwagen Bank National Marine Sanctuary (SBNMS) was designated in 1992 and encompasses approximately 842 square miles in the Gulf of Maine and overlapping the eastern edge of Massachusetts Bay. The NEG Port is located 2 to 3 nautical miles from the western edge of the SBNMS. Section 304(d) of the National Marine Sanctuaries Act (NMSA), 16 U.S.C. § 1434(d), requires federal agencies to consult with the Secretary of Commerce, through NOAA, regarding any action or proposed action, including private activities authorized by licenses, leases, or permits, that is likely to destroy, cause the loss of, or injury any sanctuary resource. For the SBNMS, under Section 2202 of Public Law 102-587, the requirement to consult is triggered by any federal or federally-licensed activity that “may affect sanctuary resources.”

EPA consulted on November 12, 2014 with Ms. Leila Hatch of SBNMS. EPA described the changes proposed in NEG LLC's modified CAA permit and the impact these changes may have on SBNMS resources. Ms. Hatch agreed with EPA that the proposed CAA permit modification would not impact SBNMS resources. It was determined no further information was needed from EPA regarding NEG LLC's proposed CAA permit modification.

- F. *Magnuson-Stevens Fishery Conservation and Management Act* – Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's actions or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat, such as: waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (16 U.S.C. § 1802(10)). “Adversely impact” means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910(a)). Adverse impacts may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. EPA is consulting with NMFS regarding any



potential impacts associated with its proposed National Pollutant Discharge Elimination System (NPDES) permit for the NEG Port. The proposed CAA permit modification for the NEG Port does not pose adverse impacts to essential fish habitat, and thus the modifications to NEG LLC's CAA permit are not being included the consultation process with NMFS.

- G. National Historic Preservation Act* – Section 106 of the National Historic Preservation Act of 1966, as amended, requires that, prior to the issuance of a federal license, any federal department or independent agency must take into account the effect of the license on any district, site, building, structure, or object that is included in or is eligible for inclusion in the National Register of Historic Places.

Prior to the construction of the NEG Port, the United States Coast Guard published its October 2006 Final Environmental Impact Statement (EIS) for Northeast Gateway Energy Bridge, L.L.C. Liquefied Natural Gas Deepwater Port License Application. Cultural resources were evaluated at Section 4.6. The report states, "Operation of the NEG Project would have no impact on cultural resources since no new areas of seafloor would be impacted by operational activities." The report further concludes, "Given that no know resources are located within the area to be affected by Project construction and the fact that a Plan exists that would protect resources, if discovered, it is anticipated that construction of the NEG Project, as proposed, would have no effect on cultural resources."

It is EPA's opinion that the analysis and conclusions described in the EIS satisfies National Historic Preservation Act requirement for NEG LLC's proposed CAA permit modification.

## **VIII. Comment Period, Hearings and Procedures for Final Decisions**

All persons, including applicants, who believe any condition of the proposed CAA permit modification is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Mr. Patrick Bird at:

U.S. Environmental Protection Agency, Region 1  
5 Post Office Square - Suite 100  
Mail Code OEP 05-2  
Boston, MA 02109-3912.

A public hearing will be held during the public comment period. See the public notice for details. EPA will consider requests for extending the public comment period for good cause. In reaching a final decision on the proposed CAA permit modification, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston Office.

Following the close of the public comment period, and after the public hearing, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the permit decision, any interested parties may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 CFR 124.19.

## **IX. EPA Contacts**

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Patrick Bird  
U.S. Environmental Protection Agency  
5 Post Office Square - Suite 100  
Mail Code OEP 05-2  
Boston MA 02109-3912  
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