UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0040266

PUBLIC COMMENT PERIOD: August 24, 2007 – September 25, 2007

NAME AND MAILING ADDRESS OF APPLICANTS:

Northeast Gateway Energy Bridge, LLC
1330 Lake Robbins Drive, Suite 270
The Woodlands, TX 77380

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Northeast Gateway Energy Bridge Deepwater Port
Massachusetts Bay

RECEIVING WATER(S):

Massachusetts Bay

SIC CODE: 4491

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1.0 Proposed Action, Type of Facility, and Discharge Location

1.1 Brief Summary of Proposed Action

The above-named applicant has applied to the U.S. Environmental Protection Agency (EPA) for a NPDES permit to authorize it to withdraw seawater (for cooling) from, and discharge pollutants to, Massachusetts Bay from its proposed new deepwater port. The new port is proposed for the regasification of liquefied natural gas (LNG) and the transmission of the gas into a network of undersea natural gas transmission pipelines. The LNG will be delivered to the port by specially equipped LNG tanker vessels. The LNG tankers will connect to, and become integrated within, the deepwater port by coupling with one of the facilities two “submerged turret loading buoys.” These buoys are, in turn, connected to the existing undersea transmission pipeline network by flexible risers, subsea flowlines and pipeline laterals. Once integrated within the deepwater port, the LNG tankers will regasify their cargo of LNG using their specially designed onboard regasification equipment. Following regasification, the natural gas will be odorized and metered out, through the flexible risers and subsea flowlines, to the pipeline laterals and the undersea pipeline transmission network. Thus, the deepwater port will be the functional equivalent of a land-based or marine platform-based LNG regasification and import terminal, although the regasification and transmission of the gas will occur on the tanker vessels.

Northeast Gateway Energy Bridge, LLC’s (Northeast Gateway) NPDES permit application was deemed complete by EPA. The Northeast Gateway Energy Bridge deepwater port will be located in federal waters of Massachusetts Bay approximately 13 miles south-southeast of Gloucester, Massachusetts, as shown in Figure 1. This permit addresses cooling water withdrawals and pollutant discharges associated with operation of the deepwater port. Discharges associated with construction of the port were addressed in NPDES Permit MA0040240.

1.2 Type of Facility

Northeast Gateway will construct, own and operate the Northeast Gateway Deepwater Port (Port) to import LNG into the New England Region. The Port will support the delivery of LNG, the regasification of LNG, and the delivery of natural gas to onshore markets via the following major components.

- **Energy Bridge™ Regasification Vessels (EBRVs) -** EBRVs are purpose-built LNG carriers that incorporate onboard equipment for the vaporization of LNG and delivery of high pressure natural gas. The major components of the specialized onboard equipment include:
  - <u>High Pressure Pumps and Vaporizers</u>. High pressure pumps take LNG from the EBRV’s cargo tanks and bring it up to pipeline pressure in its liquid state. The LNG is then passed through closed-loop, shell-and-tube vaporizers to convert it back to vaporous natural gas, which is then odorized and metered out to the undersea pipeline network.
  - <u>Boilers</u>. EBRVs are equipped with oversized boilers capable of burning either natural gas or fuel oil to provide the steam and power necessary to sustain vessel operations and the shipboard regasification process.

- STL Buoy Compartment. The hull of an EBRV includes a specialized compartment to accommodate the STL Buoy system (see below).
- Reinforced LNG Containment System. The LNG containment on the EBRV is reinforced to withstand the sloshing loads encountered while at sea.

- **Two Submerged Turret Loading™ (STL) Buoy Systems** – Each STL buoy will consist of a flexible riser, pipeline end manifold, and flowline. The buoys will serve both as a single-point mooring system for the EBRVs and the delivery conduit for natural gas. Figure 2 illustrates the Port's STL buoy system.
- **Pipeline Lateral** – The Pipeline Lateral will connect the STL buoy flowlines to the existing offshore pipeline system (Hubline) and enable the transfer of natural gas from the Port to onshore markets. The Pipeline Lateral will be owned and operated by Algonquin Gas Transmission, LLC (Algonquin). Figure 1 shows the Pipeline Lateral route.

1.3 Discharge Locations

The intake of seawater and discharge of cooling and curtain water will be from the Port's EBRVs which will be connected with the two STL buoys. Therefore, the intake and discharge location will be in the Port location, approximately 13 miles south-southeast of the city of Gloucester, Massachusetts, in federal waters. The Port is also located in Minerals Management Service (MMS) Lease Blocks NK 19-04 6625 and 6675. This section of the Massachusetts Bay is commonly referred to as Block 125. Water depth in the Port area is 270 to 290 feet.

The two STL buoys will be separated by approximately one nautical mile (1,850 meters) which would allow two vessels to "weathervane" (i.e., move around their anchoring points with the currents) without interference when moored simultaneously and also provide sufficient room for maneuvering.

The Port is located outside of, but in the vicinity of, federal and state designated marine sanctuaries and the Boston Harbor traffic lanes.

1.4 Port Operation

EBRVs are expected to take approximately eight days to regasify and "send out" each cargo of LNG delivered to the Port. On the first day of regasification, the regasification process will be initiated and a steady state natural gas transmission of approximately 150 million cubic feet per day (MMcfd) will be achieved. On days two through seven, when the Port is operating in steady state, the regasification process will be a closed loop system with no intake of seawater for cooling (or warming) and no discharge of heated water (or chilled water). On days one and eight, seawater intake for cooling and related thermal discharges will be required for four hours on each day.

In addition to those associated with regasification, seawater intake and effluent discharges will be required for the day-to-day functions of the EBRV, including maintaining the vessel's main cooling systems, ballast water, a safety water curtain, the generation of fresh water, graywater and blackwater, and emergency needs as described in the following text.

To accommodate continuous delivery of natural gas, deliveries of LNG will be scheduled consecutively. As delivery into one of the two buoys is finishing, a second vessel will arrive and attach to the other buoy to commence discharge of its cargo. The port has been designed to allow for the simultaneous operation of two EBRVs. However, for the majority of all operations at Port (90 percent of total annual operations) only one EBRV is expected to be servicing the Port at any given time. Overlap between vessels is only anticipated to occur during 10 percent of all annual operations at Port.

2.0 Description of Intakes

EBRVs are expected to take approximately eight days to regasify each cargo of LNG delivered to the Port. Water use during these eight days is dependent upon the phase of regasification. Table 1 illustrates the water use for each vessel while in port.

Table 1 – Summary of Maximum Water Intake for One EBRV in Port (Flows in MGD)

Day of operation	Main Condenser Cooling	Auxilary Seawater Cooling	Ballast Water	Safety Water Curtain	Freshwater Generator	Daily Total
1	7.82	0.99	1.87	0.6	0.3	**11.58**
2	0	0	1.87	0.6	0.3	**2.77**
3	0	0	1.87	0.6	0.3	**2.77**
4	0	0	1.87	0.6	0.3	**2.77**
5	0	0	1.87	0.6	0.3	**2.77**
6	0	0	1.87	0.6	0.3	**2.77**
7	0	0	1.87	0.6	0.3	**2.77**
8	7.82	0.99	1.87	0.6	0.3	**11.58**

All water used in support of EBRV ship operations will be drawn through a total of four sea chests (cavities in the hull of a vessel which are exposed to the ocean; water is drawn into the vessel through the cavity): starboard high, starboard low, port high, and port low (see Figure 4). Each sea chest will draw water through a series of grids (see Table 2).

Table 2 - Summary of Sea Chest Grid Numbers and Open Areas

Sea Chest	Grids	Open Area per Grid (square feet)	Total Open Area (square feet)
Starboard High	4	8.2	32.8
Starboard Low	6	6.9	41.4
Port High	8	8.2	65.6
Port Low	8	6.9	55.2

Each sea chest grid will have metal gratings with 21 mm (0.83 inch) slots between the grating bars. The high sea chests will be located on the rounded portion of the hull near the bilge, approximately 23 feet below the surface of the water. The low sea chests will be located further down on the flat portion of the hull, with the centerline approximately 38 feet below the surface of the water. Seawater will be drawn horizontally through the high sea chests and vertically through the low sea chests.

3.0 Description of Discharges

Each EBRV will discharge from five different outfalls during the eight day regasification process. Table 3 summarizes all the flows from the EBRVs. More detailed descriptions of the source and characteristics of the discharge from each outfall are provided in section 6.0.

Table 3 – Summary of Maximum Water Discharge for One EBRV in Port (Flows in MGD)

Day of operation	Main Condenser Cooling	Auxilary Seawater Cooling	Safety Water Curtain	Freshwater Generator	Hotelling & Sanitary Treatment	Daily Total
1	7.82	0.99	0.6	0.27	0.005	9.685
2	0	0	0.6	0.27	0.005	0.875
3	0	0	0.6	0.27	0.005	0.875
4	0	0	0.6	0.27	0.005	0.875
5	0	0	0.6	0.27	0.005	0.875
6	0	0	0.6	0.27	0.005	0.875
7	0	0	0.6	0.27	0.005	0.875
8	7.82	0.99	0.6	0.27	0.005	9.685

4.0 Environmental Review under the National Environmental Policy Act

Section 511(c)(1) of the Clean Water Act (CWA), 33 U.S.C. § 1371(c)(1), expressly provides that EPA issuance of an NPDES permit under CWA § 402, 33 U.S.C. § 1341, to a facility that is a "new source" under CWA § 306, 33 U.S.C. § 1316, is one of only two types of EPA actions under the CWA that are subject to review under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321, *et seq.* Where such an action is determined to be a major federal action significantly affecting the quality of the human environment, NEPA requires that the federal agency or agencies proposing, major federal actions significantly affecting the quality of the human environment to first complete an "environmental impact statement" (EIS) evaluating the proposed action, reasonable alternatives to it and the environmental effects of the proposed and alternative actions. *See* 40 C.F.R. Part 1502. EPA regulations at 40 C.F.R. Part 6, Subparts A, B, D, and F also address the preparation of EISs in conjunction with EPA proposals to issue NPDES permits to new sources.

Several criteria must be satisfied before a facility will be deemed a new source under CWA Section 306. One of these criteria is that the facility must fall within an industrial category for which new source performance standards have been developed. *See* 33 U.S.C. § 1316(a)(2). *See also* 40 C.F.R. §§ 122.2 (definition of "new source") and 122.29(b)(2). EPA has not, however, promulgated new source performance standards for deepwater ports generally or for LNG import terminals in particular, whether based on the land or the water. Therefore, the LNG deepwater port in question here would not generally be considered a new source under CWA Section 306, and preparation of an EIS would not be required in connection with the proposed issuance of an NPDES permit for its discharges. Nevertheless, the Deepwater Port Act (DPA), 33 U.S.C. §§ 1501 *et seq.*, specifies that deepwater ports shall be considered "new sources" under the CWA. *See* 33 U.S.C. § 1502(9)(D). As a result, by operation of the DPA, NEPA applies to EPA's proposal to issue an NDPES permit to the NEG deepwater port. At the same time, the DPA also specifies that:

> [f]or all [Deepwater Port Act license] applications, the Secretary [of Transportation], in cooperation with other involved Federal Agencies and departments, shall comply with the National Environmental Policy Act of 1969 (42 U.S.C. 4332). Such compliance shall fulfill the requirement of all Federal agencies in carrying out their responsibilities under the National Environmental Policy Act pursuant to this Act.

33 U.S.C. § 1504(f). Consistent with this provision of the DPA, the United States Coast Guard (USCG) and the United States Maritime Administration (MARAD) served as lead agencies preparing an EIS to satisfy NEPA, and EPA (and other agencies) cooperated with the USCG and MARAD in the preparation of the EIS. *See* USCG's Draft and Final EISs for the Northeast Gateway Energy Bridge LLC Liquefied Natural Gas Deepwater Port License Application. Also consistent with the DPA, this EIS satisfies EPA's NEPA obligations with respect to issuance of this NPDES permit.

The EIS includes detailed discussion of the proposed project and alternatives considered to it. Many aspects of the project are discussed in the EIS, including pollutant discharges and cooling water withdrawals. This fact sheet provides additional discussion focused specifically on aspects of the proposed facility that are subject to regulation under the NPDES permit.

5.0 Limitations and Conditions

The limits on pollutant discharges and cooling water withdrawals, as well as the monitoring requirements, proposed by EPA for the Port may be found in the draft NPDES permit. The basis for these requirements is discussed below.

6.0 Permit Basis: Statutory and Regulatory Authority

6.1 Permit Requirements, Generally

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without authorization by a National Pollutant Discharge Elimination System (NPDES) permit, unless the discharge is otherwise authorized by the CWA. Technology and water quality-based effluent limitations and other requirements, including monitoring and reporting, are typically implemented by including them in NPDES permits issued to specific facilities. *See* 33 U.S.C. §§ 1311(a) and (b), 1313, 1318(a), 1326(b), 1341, 1342, 1343. The draft NPDES permit here was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. For this permit, EPA considered technology-based and water quality-based requirements under the CWA, including the CWA's Ocean Discharge Criteria. In addition, EPA considered any requirements that might arise out of any applicable statutes in addition to the CWA.

6.2 Technology-Based Requirements for Pollutant Discharges

Technology-based effluent limits represent the minimum level of pollutant discharge control that dischargers must achieve under the CWA. The CWA requires that different types of pollutant discharges be controlled to levels that reflect the capability of certain technological measures. These technology standards vary depending on the type of pollutant and facility in question. *See* 33 U.S.C. §§ 1311(b), 1314, 1316; 40 C.F.R. § 125.3. Sections 301(b) and 306 of the CWA (*see* 40 CFR §125 Subpart A) require that pollutant discharges be reduced to a level equivalent to using the best practicable control technology currently available (BPT), best conventional control technology (BCT) for conventional pollutants, the best available technology economically available (BAT) for toxics and non-conventional pollutants, and the best available demonstrated control technology (BADCT) for discharges from "new sources," as defined under the CWA. *See* 33 U.S.C. §§ 1316(a); 40 C.F.R. §§ 122.2, 122.29. BAT limits are also supposed to "result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants." 33 U.S.C. § 1311(b)(2)(A). These technology-based requirements are then to be reflected in NPDES permits issued to specific facilities. *See* 33 U.S.C. §§ 1311, 1316, 1342(a); 40 C.F.R. §§ 122.29, 125.3. In general, technology-based effluent guidelines for non-POTW facilities must have been complied with as expeditiously as practicable. *See* 40 CFR §125.3(a)(2). Any applicable new source performance standards must be complied when the new source commences operations. *See* 40 C.F.R. § 122.29(d)(4) and (5). Compliance schedules and deadlines not in accordance with the statutory deadlines of the CWA cannot be authorized by a NPDES permit.

EPA regulations found at 40 C.F.R. Part 125, Subpart A, set forth procedures, standards and criteria for the development and imposition of technology-based requirements in NPDES permits under Section 301(b) of the CWA, including the application of EPA-promulgated National Effluent Guidelines (NEGs) (i.e., technology-based effluent limitations developed for entire industrial categories which are then applied to specific facilities through NPDES permits) and, when no relevant NEGs are in effect, the development of case-by-case, Best Professional Judgment (BPJ) determinations of technology-based discharge limits under Section 402(a)(1) of the CWA. *See* 40 C.F.R. § 125.3.

EPA has not promulgated technology-based NEGs for pollutant discharges from LNG deepwater ports or any other type of deepwater port. In addition, EPA has not promulgated any new source performance standards for deepwater ports. Therefore, all technology-based effluent limits for the Port's NPDES permit have been developed on a case-by-case, BPJ basis, as discussed further below.

6.3 Ocean Discharge Criteria under CWA § 403

Point source pollutant discharges to marine waters are subject to the federal Ocean Discharge Criteria (ODC) under Section 403 of the Clean Water Act (CWA). 33 U.S.C. § 1343. The ODC apply to NPDES permits for pollutant discharges into the territorial seas, the contiguous zone and the ocean. EPA has promulgated guidelines for regulating discharges to satisfy CWA section 403 and give effect to the ODC. *See* 40 C.F.R. Part 125, Subpart M.

EPA may not issue an NPDES permit to authorize any pollutant discharge that the Agency determines will cause “unreasonable degradation of the marine environment.” 40 C.F.R. 125.123(b). EPA conducts an Ocean Discharge Criteria Evaluation (ODCE) using the guidelines in 40 C.F.R. Part 125, Subpart M to determine whether and the extent that the discharge will cause degradation of the marine environment. 40 C.F.R. 125.122(a). These guidelines define "unreasonable degradation of the marine environment" to mean:

- Significant adverse changes in ecosystem diversity, productivity, and stability of the biological community within the area of discharge and surrounding biological communities;
- Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms; or
- Loss of aesthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.

See 40 C.F.R. 125.121(e). CWA Section 403(c) guidelines require that a number of factors be considered in the determination of degradation. These factors include the amount and nature of the pollutants, the potential transport of the pollutants, the character and uses of the receiving water and its biological communities, the existence of special aquatic sites (including parks, refuges, etc.), any applicable requirements of an approved Coastal Zone Management plan, marine water quality criteria developed by EPA pursuant to CWA Section 304(a)(1), and potential impacts on water quality, ecological health and human health.[1] EPA may include limits in NPDES permits in order to ensure that discharges will not result in unreasonable degradation of the marine environment and, as stated above, discharges that would cause such unreasonable degradation may not be permitted. 40 C.F.R. §§ 125.123(a) and (b). If EPA has insufficient information to determine prior to permit issuance that there will be no unreasonable degradation of the marine environment, the Agency may not issue the permit unless, among other requirements, it finds that such discharge will not cause irreparable harm. 40 C.F.R. 125.123(c).

6.4 Section 316(b) of the Clean Water Act

CWA Section 316(b), 33 U.S.C. § 1326(b), imposes a technology standard for cooling water intake structures (CWISs) at facilities with pollutant discharges subject to NPDES permitting, where the CWIS will withdraw cooling water from the waters of the United States. CWA Section 316(b) requires “that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact” (BTA). 33 U.S.C. § 1326(b). As with technology standards for effluent discharges, EPA imposes conditions in NPDES permits to ensure that the technology standard for CWISs is met at individual facilities.

In December 2001, EPA promulgated a regulation to implement a first phase of performance standards under CWA Section 316(b). *See* 40 C.F.R. Part 125, Subpart I; 66 Fed. Reg. 65338 (Dec. 18, 2001) (Final Phase I Rule). The Phase I Rule set national performance standards for

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[1] The EPA National Recommended Water Quality Criteria, 2006, contain applicable water quality criteria for marine discharges.

CWISs at "new facilities," as defined in the regulations, that are subject to the Rule. An April 22, 2004, memorandum from EPA's Office of Water to EPA Regions and the National Oceanic and Atmospheric Administration (NOAA), confirms that CWISs offshore LNG terminals with NPDES permits would be subject to CWA Section 316(b)'s BTA standard, but also directs that such limits should be developed on a case-by-case, BPJ basis, rather than the Phase I regulations. The memorandum explains that EPA's Phase I regulations for new facilities with cooling water intake structures did not contemplate, and were not intended to be applied to, offshore facilities of this type. While the memorandum also noted that it was possible that EPA's then as yet-to-be-developed Phase III Rule under CWA Section 316(b) might provide national categorical standards applicable to offshore LNG import terminals, EPA later issued the Phase III Rule and decided not to promulgate national standards for this type of facility and to leave permit limit development under Section 316(b) for these facilities to the case-by-case, BPJ process. *See* 40 C.F.R. §§ 125.131(d), 125.133; 71 Fed. Reg. 35008 (June 16, 2006) (Final Phase III Rule). *See also* 40 C.F.R. §§ 401.14.

The operation of CWISs can cause or contribute to a variety of adverse environmental effects, such as killing or injuring fish larvae and eggs by entraining them in the water withdrawn from a water body and sent through the facility's cooling system, or by killing or injuring fish and other organisms by impinging them against the intake structure's screens, racks, or other structures. CWA Section 316(b) applies to this permit due to the presence and operation of CWISs on the EBRVs, specifically, the sea chests when the EBRVs are interconnected with the STL buoys and integrated within the Port.

6.5 Special Considerations Regarding the EBRVs and NPDES Permitting

As explained above, the EBRVs are ocean-going LNG tanker vessels that are specially equipped so that they can interconnect with the STL buoys and be integrated into the deepwater port and conduct the LNG regasification and send out operation onboard. Once connected to the STL buoy and integrated into the Port, the EBRVs are essentially anchored to the seafloor and stationary in the water (of course, they will be able to "weathervane" around their anchor points), and they will be connected to the undersea natural gas pipeline network via the flexible riser and flowlines. Thus, the Port, including the EBRVs, is functionally equivalent to both land-based and marine platform-based LNG import terminals.

CWA Section 502(14) states that "[t[he term 'point source' means . . . [, among other things, a] vessel or other floating craft, from which pollutants are or may be discharged." CWA Section 502(12)(B) defines "discharge of a pollutant" to mean any addition of any pollutant to waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft. Thus, pollutant discharges to federal waters from vessels or other floating craft generally would *not* be considered to constitute a "discharges of pollutants" subject to NPDES permitting requirements under the CWA. Longstanding EPA regulations, however, have interpreted the reference in CWA Section 502(12)(B) to "vessels or other floating craft" as inapposite to discharges when the vessel is operating in a capacity other than as a means of transportation. *See* 40 C.F.R. § 122.3. NPDES permits have been required for discharges associated with various types of vessel-based or otherwise floating industrial facilities (e.g., seafood processing vessels, offshore oil and gas extraction extraction facilities). *See* Technical Development Document for the Final Section 316(b) Phase III Rule, p. 1-2 (EPA-821-R-06-003) (EPA, 2006).

For these reasons, EPA does not assert NPDES jurisdiction over discharges of pollutants (or cooling water withdrawals) from the EBRVs when they are in transit and, therefore, are operating primarily as a means of transportation. When the EBRVs are interconnected to the STL buoys and integrated into the Port, however, NPDES permitting requirements do apply to the associated discharges (and CWISs). Therefore, the draft permit's pollutant discharge and cooling water intake requirements discussed below all apply to discharges from/intakes into the EBRVs when they are interconnected with the STL buoys and integrated within the Port.

7.0 Explanation of the Permit's Effluent Discharge Limits

The operation of the Port will entail the operation of two LNG regasification and transmission units, each consisting of an EBRV interconnected with one of the two in-place STL Buoy systems (referred to here as Buoy A and Buoy B). Up to ten percent of the total annual port operations will involve having separate EBRVs interconnected with Buoys A and B simultaneously. Outfalls marked "A" represent the outfalls of an EBRV connected with Buoy A and outfalls marked "B" represent the outfalls of an EBRV connected with Buoy B.

7.1 Outfall 01A and 01B – Main Condenser Cooling

The EBRVs utilize steam (from the onboard boilers) to drive the main propulsion turbine and turbo generators that provide power for the vessel's propulsion, auxiliaries, and electric power generation. As part of the steam vessel's normal propulsion systems, seawater is used to cool exhaust steam in the main condenser. While at port, the EBRVs' main condenser cooling system will operate under normal capacity water intake and discharge conditions during two 4-hour periods at the beginning and end of the regasification sequence. During each of these 4-hour periods of normal capacity water use, this system will require the intake and discharge of approximately 7.82 million gallons of seawater for cooling for each EBRV, with discharge temperatures 2.6ºC (5ºF) greater than the ambient seawater.

Seawater to support this system will enter into the EBRV via both high and low starboard and port sea chests. When interconnected to Buoys A and B and integrated into the Port, EPA considers these sea chests to constitute CWISs for the purposes of CWA Section 316(b). Water will circulate through the engine condenser cooling system at a flow rate of approximately 7,400 m^3/hr, and then be discharged through a 55-inch diameter pipe 17 to 24 feet below the sea surface. No chemicals will be added to the seawater as it circulated through the system, but the water will have been warmed prior to discharge. Thus, heat is the primary pollutant being discharged and this discharge of heat is a point source discharge of pollutants subject to regulation under CWA Section 301.

When the EBRV is regasifying under steady-state discharge conditions equal to or greater than 150 MMcfd of natural gas, the EBRV will be operating in the closed-loop recovery and exchange mode. When operating in this mode, no seawater will be required for vessel condensing cooling and no water will be discharged through outfalls 01A and 01B.

7.1.1 Flow

In accordance with NPDES regulations in 40 C.F.R. § 122.45(d), continuous industrial discharge flows must be limited as maximum daily and average monthly maximums, unless specific facility operations make this approach impracticable. Since the use of the deepwater port, and the resulting frequency of discharge, will be dependent on both seasonal demand and market conditions for LNG in the New England region and elsewhere, EPA has found the use of a monthly average flow limit to be impracticable. In order to provide for maximum seasonal and market flexibility in port operation, NEG requested that instead of using a monthly average, the discharge flow be limited by total number of hours of discharge per calendar year for the port. rather than an average monthly maximum flow. EPA agrees with this approach and finds that a limit on the total hours of discharge per year, in combination with the maximum daily flow limit at each buoy, will ensure that the flows do not cause unreasonable degradation of the marine environment and are consistent with the flows evaluated in the FEIS.

Each regasification visit will result in four hours discharge from outfalls 01A and 01B only on the first and last days of regasification, or a total of 8 hours of flow per visit. NEG anticipates no more than 65 visits per year to the port. Therefore, the draft permit provides for a maximum of 520 hours of discharge per year at a maximum rate of 32,700 gallons per minute (gpm). EPA proposes to include a limitation on flow consistent with NEG's proposed port operation and to ensure compliance with the permit's proposed thermal discharge and cooling water intake limits**.**

7.1.2 Temperature

Heat is a non-conventional pollutant subject to the BAT standard under the CWA.[2] Because there are neither ELGs nor new source performance standards for thermal discharge from deepwater LNG regasification port facilities, EPA determines the BAT technology-based standards for pollutant discharges from such facilities on a case-by-case, BPJ basis.[3] When imposing BAT limits using BPJ, a permit writer applies the statutory BAT factors, 33 U.S.C. § 1314(b)(2)(B), and the factors specified in 40 C.F.R. § 125.3(d)(3), and considers both the "appropriate technology for the category of point sources of which the applicant is a member, based on all available information," and "any unique factors relating to the applicant."[4] The factors considered under 40 C.F.R. 125.3(d)(3) are the age of the equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process change, the cost of achieving effluent reduction, and non-water quality environmental impact (including energy requirements).[5]

EPA developed the thermal discharge limits in the Draft permit based on the discharge volumes and temperature change (or "delta-T") values specified above in order to satisfy the BAT standard on a BPJ basis. As stated above, BAT limits should "result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants." Alternative LNG regasification technologies were evaluated in the FEIS for the NEG deepwater port. In addition to the closed loop shell and tube vaporization technology (STV) proposed by the

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[2] *See* 33 U.S.C. §§ 1311(b)(2), 1314(a)(4), 1362(6); 40 C.F.R. §§ 125.3(a)(2)(v).

[3] *See* 33 U.S.C. §§ 1342(a)(1)(B) and 1316; 40 C.F.R. § 125.3. *See also* April 3, 2006, Memorandum from Benjamin H. Grumbles, EPA Assistant Administrator for Water, to EPA Regional Administrators, "Subject: Deepwater Liquefied Natural Gas Terminals and Clean Water Act Technology-Based Limitations and Conditions."

[4] *See also* 40 C.F.R. § 125.3(c)(2).

[5] *See also* 33 U.S.C. § 1314(b)(2)(B).

applicant, the FEIS considered open rack vaporizers, submerged combustion vaporizers, and intermediate fluid vaporizers. These alternatives were evaluated based on the BAT factors listed above, including consideration of the engineering feasibility of installing them on existing NEG LNG vessels, the environmental effects of the technologies (including temperature impact on the marine environment) and whether the technologies being considered were proven. The closed loop STV system was identified as the alternative resulting in the least thermal discharge and smallest thermal impact on the Massachusetts Bay marine environment. [6] Therefore, EPA concludes that the closed loop STV system represents the BAT for the NEG Port and that the effluent limits in the draft permit, which are based on the operation of that system, represent reasonable further progress toward the national goal of eliminating the discharge of all pollutants. EPA also concludes, based on the information discussed in the EIS and NEG's NPDES permit application, that the effluent temperature limits in the draft permit are technologically and economically feasible for NEG and that any potentially negative non-water environmental or energy effects that might result from taking these steps would be inconsequential and should not stand in the way of imposing these limits.

As discussed above, EPA has also applied the Ocean Discharge Criteria (ODC) under CWA Section 403 in setting the permit's thermal discharge limits. Under 40 C.F.R. 125.122(a), EPA may not issue an NPDES permit if it determines the effects of a discharge to the ocean will cause "unreasonable degradation" to the marine environment as defined in 40 CFR 125.121(e).

If EPA determines that "unreasonable degradation" will not occur, then it may issue a discharge permit. The permit may be conditioned as necessary to assure that the discharge will not cause unreasonable degradation of the marine environment (40 C.F.R. 125.123(a)). Based on our consideration of the above factors, EPA concludes that, if the Port's thermal discharges comply with the thermal limit in the Draft NPDES permit, the discharge will not cause unreasonable degradation of the marine environment. The small thermal discharge authorized by the permit will ensure that neither water quality nor local biological communities nor any other aspect of the marine environment will suffer any significant adverse impacts from the facility's thermal discharges. These water quality and other environmental effects are also assessed and discussed in the above-referenced FEIS for the NEG Port.

In determining whether a discharge may cause unreasonable degradation of the marine environment, any applicable EPA marine water quality criteria are among the factors to be considered. EPA issued guidelines for assuring protection of marine aquatic life from the thermal discharges in the Quality Criteria for Water 1986, otherwise known as the "Gold Book" (EPA, 1986). The Water Quality Criteria state that:

> In order to assure protection of the characteristic indigenous marine community of a water body segment from adverse thermal effects:
>
> a. the maximum acceptable increase in the weekly average temperature resulting from artificial sources is 1ºC (1.8 F) during all seasons of the year, providing the summer maxima are not exceeded; and
>
> b. daily temperature cycles characteristic of the water body segment should

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[6] US Coast Guard, *Northeast Gateway Deepwater Port Final Environmental Impact Statement Final Environmental Impact Report, Volume I: Impact Analysis*, pp 2-38 – 2-41, October 2006.

not be altered in either amplitude or frequency.

Summer thermal maxima, which define the upper thermal limits for the communities of the discharge area, should be established on a site specific basis.

In its NPDES permit application, NEG has requested permission to discharge non-contact cooling water from outfalls 01A and 01B at temperatures which are 2.6ºC (5ºF) greater than the ambient seawater. NEG then used a commonly utilized hydrodynamic model developed at Cornell University, the CORMIX model, to make projections of the thermal plume's behavior including the initial mixing transport and dilution in the near-field plus 500 meters. The near-field was defined as the region in which the plume rises to the ocean surface under the influence of buoyancy. The CORMIX model estimated that although the discharge would not meet the water quality criteria at the discharge port, the change in temperature at the water surface would meet the criteria of less than 1ºC. Table 4 summarizes the CORMIX model results.

Based on our review of the results of the thermal modeling and the more complete analysis contained in the permit application, EPA is requiring quarterly monitoring of the thermal discharge plume to ensure that the predictions of the computer model are accurate, but otherwise determines that the discharge will not cause unreasonable degradation of the marine environment.

Table 4 – CORMIX Estimated Temperature Difference at the Surface[7]

	Summer		**Winter**	
Discharge	Max Surface Temperature Elevation (ΔTº)	Surface Temperature Elevation 500 m Downdrift (ΔTº)	Max Surface Temperature Elevation (ΔTº)	Surface Temperature Elevation 500 m Downdrift (ΔTº)
Outfall 01A, 01B	0.61	0.10	0.12	<0.01
Outfall 02A, 02B	0.46	0.04	0.12	<0.01

7.2 Outfalls 02A and 02B – Auxiliary Seawater Service Cooling

As described in section 7.1, the EBRVs must operate under normal capacity water use and discharge to support the start-up and shut-down of the regasification operations – it takes approximately 4 hours from the initiation of the closed-loop regasification mode for the process to achieve steady state and allow for the system to begin operation in the heat recovery and exchange mode.

During each of these 4-hour start-up and shut-down periods, the EBRVs moored at the Port will require the use of approximately 0.99 million gallons of seawater, which will be discharged at temperatures which are 5.5ºC (10ºF) greater than the ambient seawater. Water will circulate through the evaporation system at approximately 4,100 gallons per minute (gpm) and then be discharged through a 16-inch diameter pipe 21 to 28 feet below the sea surface. No chemicals

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[7] Batelle, *Northeast Gateway Deepwater Port Project – Assessment of Thermal Plume of Cooling Water Discharge During Energy Bridge Regasification Vessel Operations* (provided at Appendix A to the Northeast Gateway Deepwater Port NPDES Permit Application), December 22, 2005.

will be added to the water as it circulates through the system.

7.2.1 Flow

As described in section 7.1.1, flow limits in the draft permit will limit the maximum daily flow and total annual hour of discharge from each outfall. Each regasification visit will result in four hours discharge from outfalls 02A and 02B only on the first and last days of regasification, or a total of 8 hours of flow per visit. NEG anticipates no more than 65 visits per year to the port. So, the draft permit provides for a maximum of 520 hours of discharge per year at a maximum rate of 4,200 gpm. EPA proposes to include a limitation on flow consistent with NEG's proposed port operation and to ensure compliance with the permit's proposed thermal discharge and cooling water intake limits**.**

7.2.2 Temperature

EPA has determined that the thermal discharge limits in the Draft permit, which are based on the discharge volumes and temperature change (or "delta-T") values specified above, satisfy the BAT standard as applied on a BPJ basis to the NEG Port. The basis for this is essentially identical to the BAT analysis presented in section 7.1.2, above, for thermal discharges from Outfalls 01A and 01B.

NEG used the Cornell hydrodynamic model, CORMIX, to make projections of the thermal plume behavior including the initial mixing transport, and dilution in the near-field plus 500 meters. The near-field was defined as the region in which the plume rises to the ocean surface under the influence of buoyancy. (Battelle, 2007). The CORMIX model estimated that although the discharge would not meet the water quality criteria at the discharge port, the change in temperature at the water surface would meet the criteria of less than 1ºC. The results of the CORMIX model are summarized in Table 4 above.

EPA also determines that the thermal discharge from these outfalls will not cause unreasonable degradation of the marine environment. The intermittent thermal discharge volume requested by NEG for outfalls 02A and 02B, and proposed to be authorized by EPA, adds only a small fraction by volume (approximately 13 percent on an annual basis) to the discharge allowed for outfalls 01A and 01B. EPA concludes that the thermal discharges from Outfalls 02A and 02B will not, individually or in combination with thermal discharges from outfalls 01A and 01B, cause unreasonable degradation of the marine environment based on evaluation of the ODC. EPA is requiring quarterly monitoring of the thermal discharge plume to ensure that the predictions of the computer model are accurate.

7.3 Outfalls 03A and 03B – Water Curtain

For safety purposes the EBRVs will maintain a constant flow of water, referred to as a "water curtain", over the deck and hull of the vessel during the regasification process. In the event of a leak of LNG during regasification, the presence of the water curtain will help protect the metal hull from any potential cracking or stress. The seawater used to support this system will enter into the vessel via both high and low starboard and port sea chests. Water will then be pumped onto the deck of the EBRV at a flow rate of 0.6 MGD and discharged over the sides of the vessel.

The water used for the water curtain will undergo no temperature change and no chemicals will be added to the water as it circulates through the system. Whether operating at full water use capacity or under the closed-loop heat recovery and exchange system, the quantity of water required for this regasification safety measure will remain the same. In addition, no alternative safety system to the water curtain has been identified. Once regasification is complete and EBRV cargo has been completely unloaded, the water curtain will be shut off prior to the vessel leaving the Port.

Because the water for the water curtain is not being withdrawn for cooling, these withdrawals are not subject to any CWIS requirements under CWA Section 316(b) However, EPA finds that, similar to stormwater flowing over an industrial facility, the curtain water could carry pollutant spills, if any, into the marine environment. To prevent that from occurring, the draft permit includes requirements that the permittee identify potential sources of pollution that may reasonably be expected to affect the quality of the curtain water discharges, and ensure implementation of best management practices (BMPs) which will be used to eliminate or minimize any exposure of the curtain water to pollutants. EPA finds that, with the implementation of the BMPs, the water curtain will not cause any unreasonable degradation of the marine environment under 40 C.F.R. Part 125, Subpart M, so that the ODC will be satisfied.

7.3.1 Flow

As described in section 7.1.1, flow limits in the draft permit will limit the maximum daily flow and total annual hour of discharge from each outfall. The water curtain will be activated for the entire time that the vessel is regasifying, including the initialization and departure periods (4 hours each). NEG estimates that there will be 65 cargoes per year delivered to the port and that, while regasification may take up to 8 days, there will only be one vessel in the port at a time, except for 10 percent of the time. Therefore, the draft permits allows maximum total of 9,640 hours of discharge per year from both buoys at a maximum flow rate of 400 gpm at each buoy. EPA proposes to include a limitation on flow consistent with NEG's proposed port operation.

8.0 316(b) Cooling Water Intake Requirements

Section 316(b) of the CWA addresses the adverse environmental impact of CWISs at facilities requiring NPDES permits. EPA has assessed the four factors set forth in Section 316(b), i.e., location, design, construction, and capacity of the CWIS at this facility which may contribute to adverse impacts. Information used in this assessment includes, but is not limited to, the following: the application for re-issuance of the permit; the NEG EIS; EPA's Technical Development Document for the Phase III CWA Section 316(b) Rule; and supplemental information submitted by the permittee.

Location: The location of the CWIS on the vessel is judged to be a factor that affects the potential for impingement and entrainment at the facility. The high sea chests will be located on the rounded portion of the hull near the bilge, approximately 23 feet below the surface of the water. The low sea chests will be located further down on the flat portion of the hull, with the centerline approximately 38 feet below the surface of the water. Seawater will be drawn horizontally through the high sea chests and vertically through the low sea chests.

EPA finds that the sea chest locations, below the water surface, are a BTA factor which minimizes harm due to entrainment and impingement by avoiding withdrawing seawater close to the ocean surface where the planktonic life stage of many aquatic organisms are more numerous.

Capacity: The "capacity" of the CWIS refers to the volume of cooling water that it withdraws. ("Capacity" has also been used at times to refer to the CWIS's water intake velocity, but in this document intake velocity is discussed as a function of CWIS design further below.) Because the NEG regasification system will operate on a closed-loop system, seawater will not be directly used to warm and vaporize the LNG. Heated freshwater will be used to warm and vaporize the LNG, and the chilled water will then be re-heated in the closed loop system, and used for regasification of additional LNG. Although seawater intake will be necessary to provide cooling water for the engines powering the regasification process, NEG has minimized its cooling water withdrawals needs by selecting open loop STV technology that minimizes the need for seawater withdrawal.[8] Moreover, as discussed above, cooling water use will be intermittent at each buoy, with entirely closed-loop operations prevailing during the vast majority of each 8-day regasification operation. In addition, NEG's operations will alternate between the two buoys the large majority of the time. As indicated in the permittee's application, the maximum cooling water withdrawal at each buoy will be 8.81 MGD.

EPA has determined that the use of the closed-loop heat recovery and exchange regasification system is a significant BTA factor which minimizes harm due to entrainment by minimizing the volume of seawater withdrawn for cooling because the proportion of eggs, larvae and juvenile fish entrained from a population is roughly directly proportional to the volume of water withdrawn from the habitat and pumped through the cooling system. The use of this intermittent, closed loop system will also minimize impingement because of the limited flow and intake duration during events with the potential to cause impingement. Because NEG will use existing EBRVs, it should be clear that shifting to the closed-loop STV system will involve retrofitting or reconfiguring existing facilities and/or altering existing operational protocols. EPA is unaware of any practicable method of further reducing cooling water withdrawals from these existing EBRVs.

Design and Construction: Water used for cooling, ballast and other needs will be withdrawn from Massachusetts Bay through the EBRV's CWISs. Design measures for minimizing adverse impacts from the impingement and/or entrainment of marine life through these CWISs may involve, for example, installing screens and reducing intake velocity so that fewer organisms will be drawn into the CWIS.[9] Physical exclusion occurs when the mesh size of the screen is smaller than the organisms susceptible to entrainment. The EBRVs are expected to use screens with openings of 0.83 inches on their sea chests and should be capable of physically excluding most adult and juvenile fish.

In addition, EPA's research supporting its Phase I, Phase II and Phase III regulations has indicated that CWIS intake velocities of 0.5 feet/second or less should enable most motile marine organisms, including fish, to swim away from the CWIS and avoid being impinged. While the Phase III Rule is not applicable to the Port, it is nevertheless noteworthy that the Phase III Rule

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[8] US Coast Guard, *Northeast Gateway Deepwater Port Final Environmental Impact Statement Final Environmental Impact Report, Volume I: Impact Analysis*, pp 2-38 – 2-41, October 2006.

[9] EPA, *Technical Development Document for the Proposed Section 315(b) Phase III Rule,* Document Number EPA-821-R-04-015, 2004; and *Technical Development Document for the Final Section 315(b) Phase III Rule,* Document Number EPA-821-R-06-003, 2006.

requires new offshore oil and gas extraction facilities to have CWISs designed to ensure a maximum through-screen design intake velocity not to exceed 0.5 feet/second. Additionally, as noted in the TDD, other applicants for offshore LNG import terminals seeking Deepwater Port Act licenses have proposed cooling water intakes to ensure a maximum through-screen design intake velocity not to exceed 0.5 feet/second. Given the similarity of location, design, construction and capacity of these other cooling water intake structures (e.g. both industrial sectors use sea chests for cooling water withdrawals above 2 MGD), EPA proposes to require that a maximum through-screen design intake velocity not to exceed 0.5 feet/second, which represents an appropriate component of the BTA for minimizing adverse environmental impacts from impingement.

NEG certified in the NPDES permit application that when operating in the closed-loop heat recovery and exchange mode, the intake velocity will be below 0.5 ft/second. During the 4 hour initialization period, intake velocity will slow from 0.82 ft/second to less than 0.5 ft/second. During the 4 hour departure period, intake velocity will rise from less than 0.5 ft/second to the normal intake velocity of 0.82 ft/second. Because port visits will range in length from four to eight days, intake velocity will exceed the maximum 0.5 ft/sec four to eight percent of the time.

Components of BTA for the CWIS: In making this determination, EPA considered the adverse environmental effects from operation of the facility's CWIS and technology options for minimizing these adverse effects by altering the CWIS location, design, construction, and capacity. This site-specific, BPJ determination of BTA for NEG is based on the following considerations:

1. The location of the CWIS well below the water surface is a component of BTA which minimizes adverse effects, due to the less likely habitat for eggs, larvae, and juvenile fish at that elevation.
2. The design and construction of the CWIS is a component of BTA which minimizes impingement of fish by using small screen openings and the controlled intake velocity.
3. The capacity of the CWIS is also a component of BTA which minimizes entrainment and impingement of adult fish because of relatively low and intermittent intake flows.

To minimize adverse impact of cooling water intake associated with the operation of the NEG deepwater port, the draft permit requires that the EBRVs be constructed, maintained and operated to ensure that:

- CWISs are located at least 23 feet below the surface of the water,
- cooling water intake systems (including the structure and associated intake pumps) maintain a controlled intake velocity no greater than 0.5 feet per second during the regasification process, except during the 4 hour start-up and shut-down periods when the intake velocity may not exceed 0.82 feet per second.
- CWISs maintain screen openings no greater than 0.83 inches, and
- the EBRVs use the proposed closed-loop heat STV system to regasify LNG.

9.0 Thermal Discharge and Cooling Water Intake Monitoring Requirements

EPA reviewed the projected impacts in the EIS resulting from impingement of fish, entrainment of eggs and larvae and the impact of the discharge of water with elevated temperature. An estimate of entrainment losses can be generated by sampling icthyoplankton density in near proximity to the buoys and tracking water usage, and the permit requires implementation of this type of an entrainment assessment. While EPA has concluded that Northeast Gateway has minimized cooling water intake flow to the extent that is practicable, the vessels will still require large volumes of seawater. This facility represents a new source of mortality for fish eggs and larvae in this area and thus EPA believes it warrants close scrutiny. Therefore, EPA proposes to require entrainment monitoring as described in the monitoring plan attached to the draft permit (Attachment A).

The FEIS predicts that impingement losses should be minimal. This is largely due to the fact that pelagic species tend to be less susceptible to impingement than demersal ones, because they are stronger swimmers, because intake volumes are low, and because intake velocities are not high. Logistically, there is no readily available access point to sample the intake screens. Thus, due to the limited environmental impact and the great logistical challenge, EPA is not proposing to require impingement monitoring at this time.

Finally, the EIS assessed the potential impact of the thermal plume. Computer modeling suggested that the area affected by elevated water temperature would be fairly small. Monitoring of water temperature around the buoys during operations is proposed in the permit to verify the conclusions of this modeling effort.

10.0 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.(1998)), federal agencies are required to consult with the National Marine Fisheries Service (NMFS) if proposed actions that are funded, permitted, or undertaken "may adversely impact any essential fish habitat" (EHF) as: "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity", 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. §600.910(a). Adverse effects may include direct (e.g., contamination of 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.

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. A listing of the essential fish habitat designation for the 10 minute by 10 minute square coordinates containing the discharge locations for Outfalls 01, 02 and 03 are provided in Attachment B.

During the EIS process for the proposed Port, NOAA conducted a formal EFH consultation with the federal agencies issuing licenses or permits for the Port, including EPA. The U.S. Coast Guard (USCG) was the lead federal agency in this consultation. NOAA issued conservation recommendations on November 27, 2006. USCG completed the consultation process on the DPA license with a response to NOAA dated February 6, 2007. The NPDES permit that EPA proposes today is consistent with the recommendations resulting from that the USCG consultation on the DPA license.

11.0 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) 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 the Interior or Commerce, as appropriate, 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. The United States Fish & Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Oceanic and Atmospheric Administration (NOAA) administers Section 7 consultations for marine species and anadromous fish.

The following listed species are known to inhabit (seasonally) the Massachusetts Bay in the area of the proposed discharge: North Atlantic right whale, blue whale, humpback whale, fin whale, sei whale, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, hawksbill sea turtle and green sea turtle.

EPA, the other permitting agencies, and NEG all consulted with the NMFS during the planning stages of this project to minimize impacts to marine and anadromous species. Specifically, the federal agencies issuing permits and licenses for this Deepwater Port Act project engaged in a formal consultation under Section 7 of the Endangered Species Act (ESA) with the National Oceanic and Atmospheric Administration (NOAA). The Maritime Administration (MARAD) served as the lead agency for this consultation on behalf of the other involved federal agencies, including EPA.

On February 5, 2007, NOAA issued a Biological Opinion under Section 7 of the ESA (the NOAA B.O) concluding that deepwater port project would neither likely jeopardize the continued existence of any listed species nor affect any designated critical habitat (NOAA B.O. at 118). NOAA also found, however, that the construction and operation of the deepwater port is likely to result in the take, in the form of acoustic harassment, of certain endangered whales (*Id.* at 118-119). On May 14, 2007, NOAA also issued an Incidental Take Statement (ITS) under Section 7 of the ESA, as an amendment to the B.O. previously issued to MARAD and the other federal agencies, including EPA. The ITS includes Reasonable and Prudent Measures (RPMs) and Term and Conditions to be implemented to "minimize the potential for and the impact of any incidental take that might otherwise result from the proposed action."

NOAA's ITS expressly exempts EPA for one year from the take prohibitions of Section 9 of the ESA. As a result, EPA has added a provision to the Final NPDES permit indicating that the permit will remain effective only as long as a NOAA ITS remains in effect for this project.

EPA's permit for the Port conditions the Port's operation in a manner consistent with the terms of the project reviewed and evaluated by NOAA in the ESA consultation. Further, EPA's permit is consistent with the conservation recommendations in NOAA's Biological Opinion. As a result, EPA's permit action here complies with the ESA and no further consultation is required with NOAA at this time.

12.0 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. In light of this proximity, the Federal agencies issuing permits or licenses for the proposed NEG Port consulted with NOAA under Section 304(d) of the NMSA, 16 U.S.C. § 1434(d), regarding the potential effects of the Port on the resources of the SBNMS. This consultation was conducted in connection with the National Environmental Policy Act (NEPA) review of the federal actions necessary to authorize the proposed Port. As with the NEPA and Endangered Species Act (ESA) reviews, the United States Maritime Administration (MARAD) and the United States Coast Guard (USCG) were the lead agencies for the NMSA consultation.

As part of the consultation, NOAA's National Marine Sanctuaries Program (NMSP) recommended "reasonable and prudent alternatives" for the federal action agencies to pursue in order to protect sanctuary resources. One of the NOAA/NMSP recommendations relates to the EPA's draft permit for the Port. Specifically, NOAA/NMSP recommended that monitoring of the entrainment of marine organisms from seawater intake during facility operations be required. As discussed above, EPA has considered CWIS entrainment effects in connection with its analyses under CWA Section 316(b), and in the context of the consultation under the ESA, NMSA and the Magnuson Act. EPA's proposed permit includes entrainment monitoring requirements consistent with NOAA's recommendations under the NMSA. Of course, the permit also contains cooling water withdrawal limits that should minimize any adverse effects from entrainment. The monitoring should, nevertheless, help to characterize the entrainment that results from Port operations.

13.0 Comment Period, Hearing Requests, and Procedures for Final

All persons, including applicants, who believe any condition of the Draft Permit 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 Ellen Weitzler, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch (CIP), 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023 or to the presiding officer at the scheduled public hearing. In reaching a final decision on the Draft Permit, 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 comment period, and after any public hearings, if such hearings are held, 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 Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

14.0 EPA and MassDEP 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:

Ellen Weitzler

Industrial Permits Branch
U.S. Environmental Protection Agency
One Congress Street (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1582
Email: weitzler.ellen@epa.gov

________ **Stephen S. Perkins, Director**
Office of Ecosystem Protection
U.S. Environmental Protection Agency

REFERENCES

Batelle, *Northeast Gateway Deepwater Port Project – Assessment of Thermal Plume of Cooling Water Discharge During Energy Bridge Regasification Vessel Operations,* (provided as Appendix A to the *NPDES Northeast Gateway Deepwater Port Permit Application*), December 22, 2005.

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Ghiloni, Jennifer, Tetra Tech EC, *NEG Proposal for NPDES Permit Limits on Volume,* Boston, MA, July 2, 2007.

US Coast Guard, *Northeast Gateway Deepwater Port Final Environmental Impact Statement Final Environmental Impact Report, Volume I: Impact Analysis*, pp 2-38 – 2-41, October 2006.

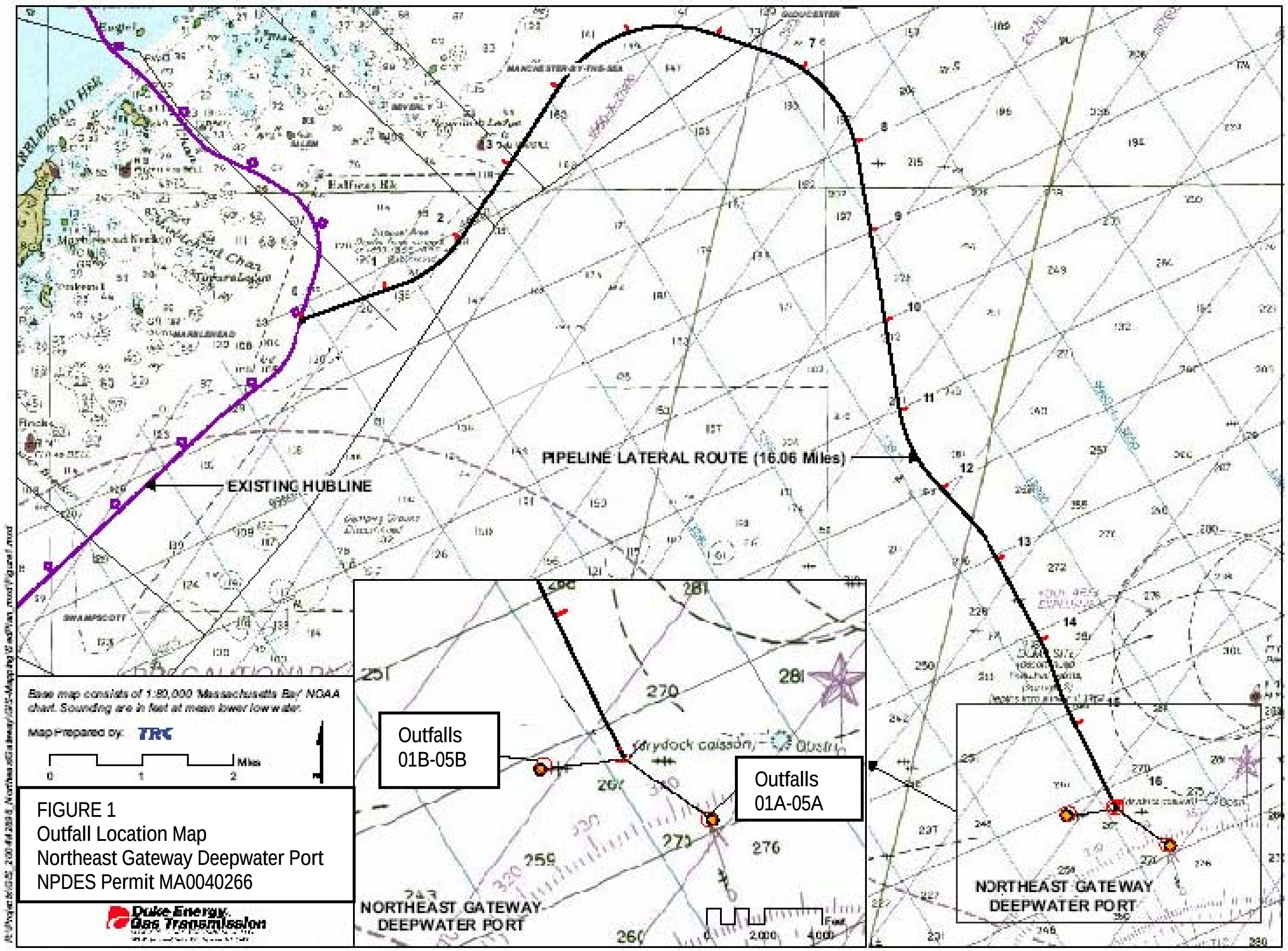

FIGURE 1
Outfall Location Map
Northeast Gateway Deepwater Port
NPDES Permit MA0040266

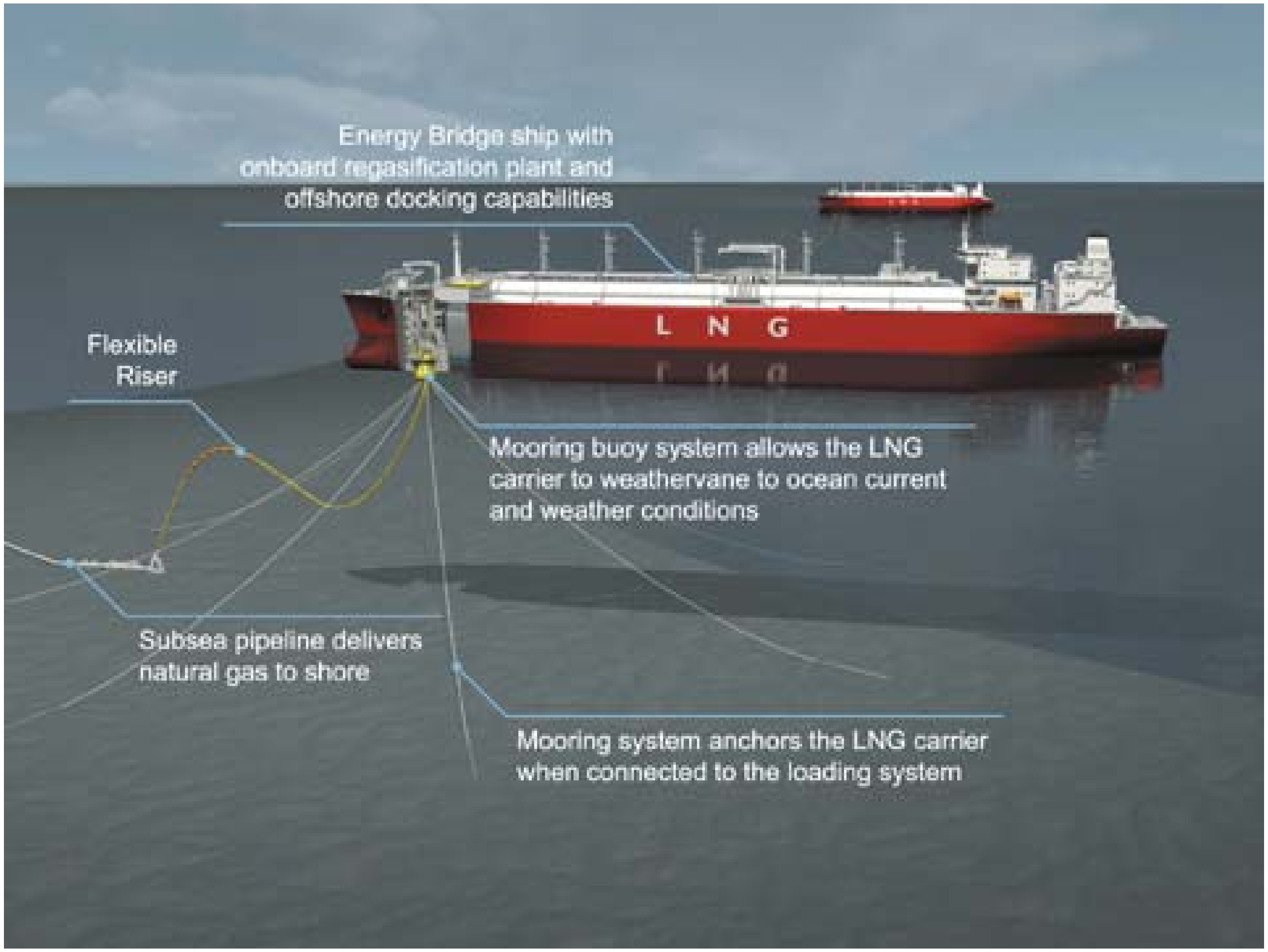

FIGURE 2
Submerged Turret Loading™ System
Northeast Gateway Deepwater Port
NPDES Permit MA0040266

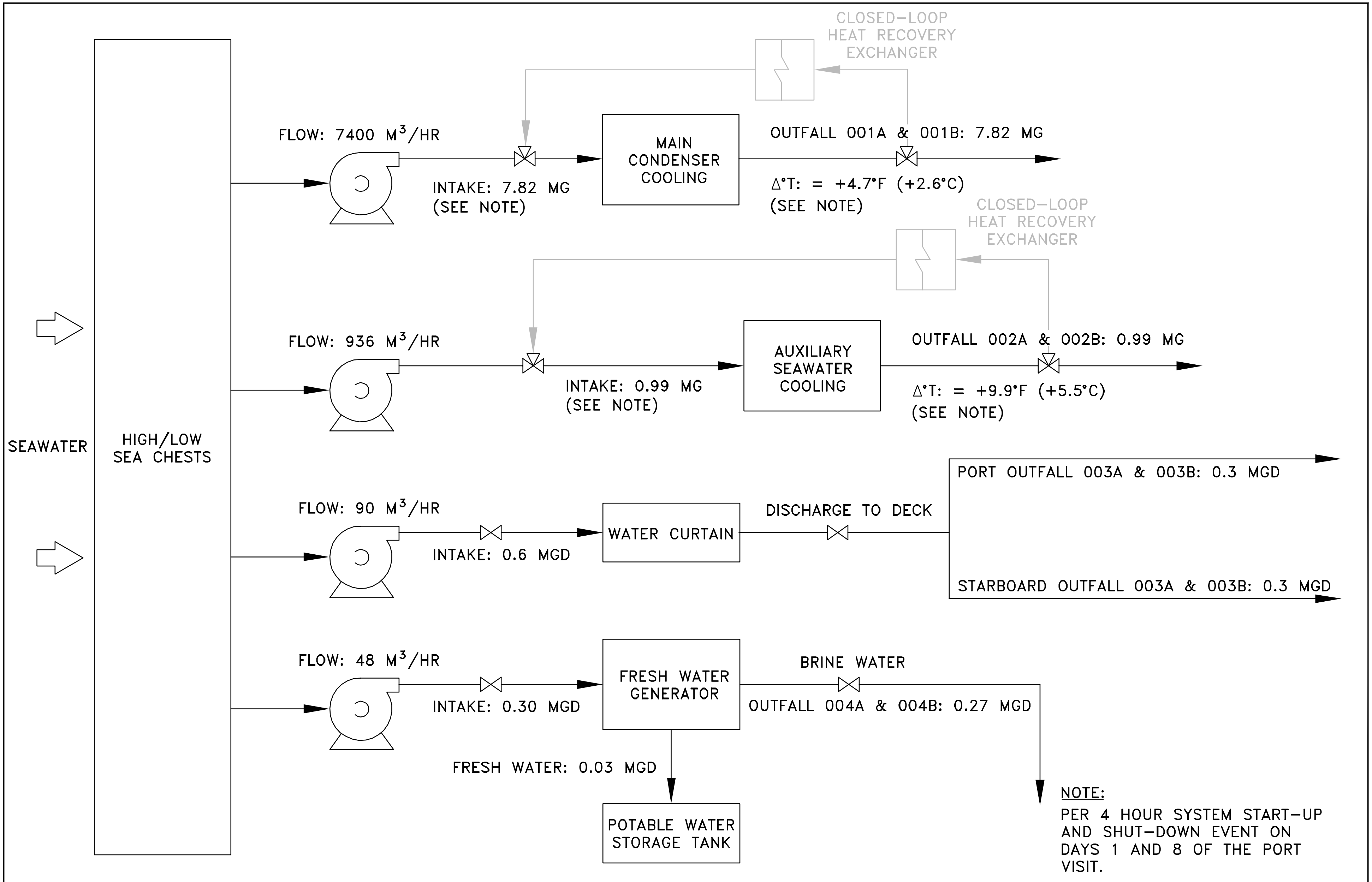

FIGURE 3
EBRV WATER BALANCE
REGASIFICATION START-UP AND SHUT-DOWN

TETRA TECH EC, INC.

Northeast Gateway

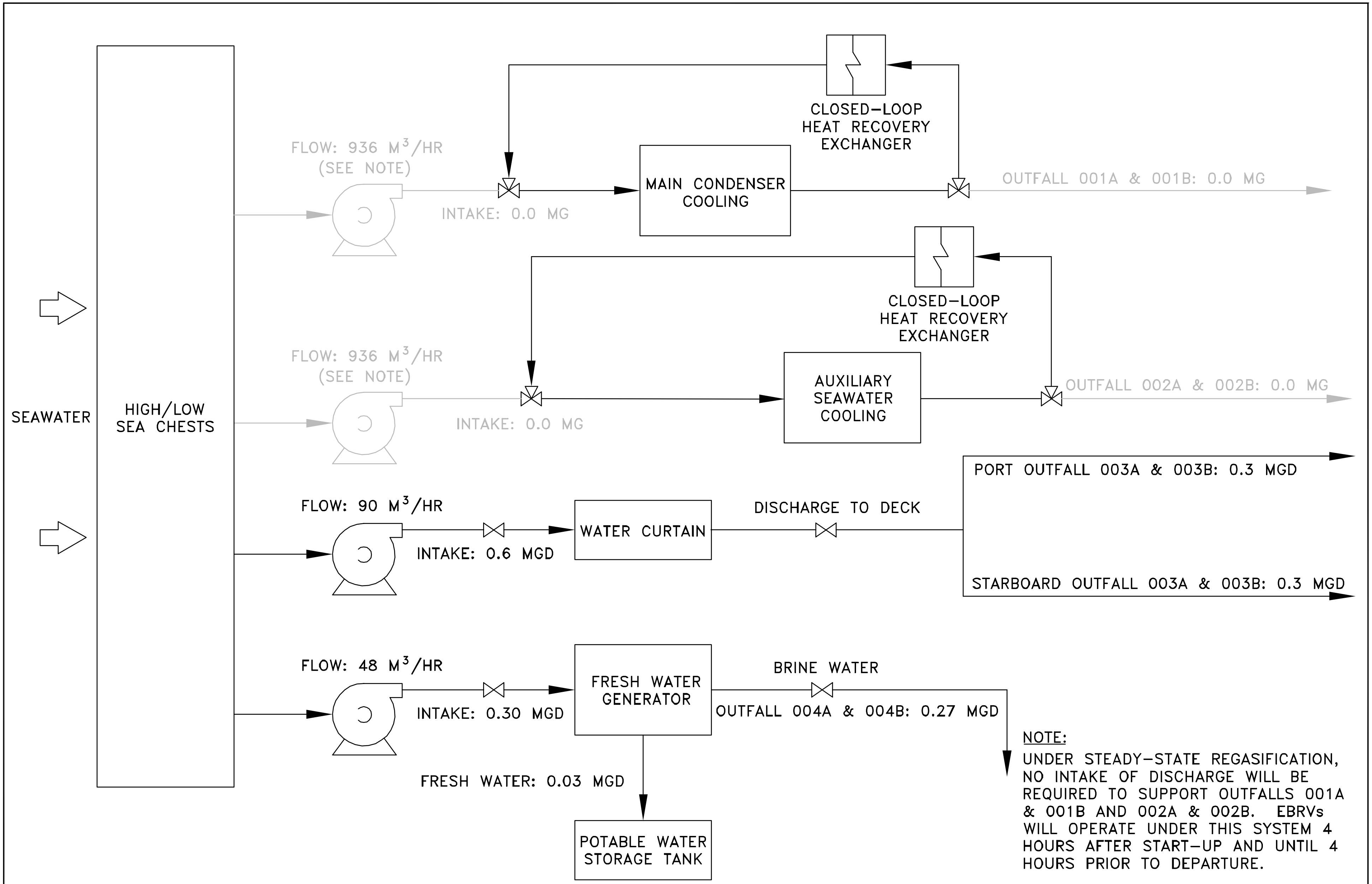

FIGURE 4

EBRV WATER BALANCE

STEADY–STATE REGASIFICATION

TETRA TECH EC, INC.

Northeast Gateway

ATTACHMENT A

Summary of Essential Fish Habitat (EFH) Designation

NEG Deepwater Port - 10’ x 10’ Square Coordinates:

Boundary	North	East	South	West
Coordinate	42° 30.0’ N	70° 30.0’ W	42° 20.0’ N	70° 40.0’ W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within Massachusetts Bay within the square one square northeast of Scituate, MA. and Cohasset, MA., and three squares east of Boston, MA. There are three overlapping dump sites within this square, two of which are for dredged material, and one of which is a discontinued site that had industrial wastes dumped in it, all of which are approximately in the middle of the square. Also, on the southwest corner, part of the Boston Harbor Shipping Traffic Lane is affected.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X
haddock *(Melanogrammus aeglefinus)*	X		X	
pollock *(Pollachius virens)*				
whiting *(Merluccius bilinearis)*	X	X	X	X
offshore hake *(Merluccius albidus)*				
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*	X	X	X	X
redfish *(Sebastes fasciatus)*	n/a	X	X	X
witch flounder *(Glyptocephalus cynoglossus)*	X	X	X	X
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*	X	X	X	X
windowpane flounder *(Scopthalmus aquosus)*	X	X		
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*		X	X	X
monkfish *(Lophius americanus)*	X	X	X	X
bluefish *(Pomatomus saltatrix)*				
long finned squid *(Loligo pealei)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*				
scup *(Stenotomus chrysops)*	n/a	n/a		
black sea bass *(Centropristus striata)*	n/a			
surf clam *(Spisula solidissima)*	n/a	n/a		
ocean quahog *(Artica islandica)*	n/a	n/a		
spiny dogfish *(Squalus acanthias)*	n/a	n/a		
tilefish *(Lopholatilus chamaeleonticeps)*				
bluefin tuna *(Thunnus thynnus)*			X	B