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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XC228

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Operation, Maintenance, and Repair of the Northeast Gateway Liquefied Natural Gas Port and the Algonquin Pipeline Lateral Facilities in Massachusetts Bay

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received an application from Tetra Tech EC, Inc. (Tetra Tech), on behalf of the Northeast Gateway® Energy Bridge™, L.P. (Northeast Gateway or NEG) and Algonquin Gas Transmission, L.L.C. (Algonquin), for authorization to take marine mammals, by harassment, incidental to operating, maintaining, and repairing a liquefied natural gas (LNG) port and the Algonquin Pipeline Lateral (Pipeline Lateral) facilities by NEG and Algonquin, in Massachusetts Bay. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an authorization to Northeast Gateway to incidentally take, by harassment, small numbers of marine mammals for a period of 1 year.

DATES: Comments and information must be received no later than [insert date 30 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: Comments should be addressed to P. Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315

East-West Highway, Silver Spring, MD 20910. The mailbox address for providing email comments on this action is ITP.Guan@noaa.gov. Comments sent via email, including all attachments, must not exceed a 10-megabyte file size. A copy of the application and a list of references used in this document may be obtained by writing to this address, and is also available at: http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications.

Instructions: All comments received are a part of the public record and will generally be posted to http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

The Maritime Administration (MARAD) and U.S. Coast Guard (USCG) Final Environmental Impact Statement (Final EIS) on the Northeast Gateway Energy Bridge LNG Deepwater Port license application is available for viewing at http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications.

FOR FURTHER INFORMATION CONTACT: Shane Guan, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce (Secretary) to allow, upon request, the incidental, but not intentional taking of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and regulations are issued or, if

the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the U.S. can apply for a one-year authorization to incidentally take small numbers of marine mammals by harassment, provided that there is no potential for serious injury or mortality to result from the activity. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Summary of Request

On January 18, 2013, NMFS received an application from Excelerate Energy, L.P. (Excelerate) and Tetra Tech EC, Inc., on behalf of Northeast Gateway and Algonquin, for an authorization to take 14 species of marine mammals by Level B harassment incidental to operations, maintenance, and repair of an LNG port and the Pipeline Lateral facilities in Massachusetts Bay. They are: North Atlantic right whale, humpback whale, fin whale, sei whale,

minke whale, long-finned pilot whale, Atlantic white-sided dolphin, bottlenose dolphin, short-beaked common dolphin, killer whale, Risso's dolphin, harbor porpoise, harbor seal, and gray seal. Since LNG Port and Pipeline Lateral operation, maintenance, and repair activities have the potential to take marine mammals, a marine mammal take authorization under the MMPA is warranted. NMFS previously issued an IHA to Northeast Gateway and Algonquin to allow for the incidental harassment of small numbers of marine mammals resulting from the construction and operation of the NEG Port and the Algonquin Pipeline Lateral (72 FR 27077; May 14, 2007). Subsequently, NMFS issued four one-year IHAs for the take of marine mammals incidental to the operation of the NEG Port activity pursuant to section 101(a)(5)(D) of the MMPA (73 FR 29485, May 21, 2008; 74 FR 45613, September 3, 2009; 75 FR 53672, September 1, 2010; and 76 FR 62778, October 11, 2011). The most recent IHA expired on October 6, 2012. Unlike the previous IHAs, which only covered incidental harassment during standard operations of the deepwater port, the new IHA application from Excelerate requests take coverage during standard operations, as well as during planned and unplanned maintenance and repair. Marine mammals could be affected by noise generated by operating the dynamic positioning system during the docking of LNG vessels at the NEG Port, and noises generated from maintenance and repair of the LNG Port and Pipeline Lateral facilities.

Description of the Activity

The Northeast Gateway Port is located in Massachusetts Bay and consists of a submerged buoy system to dock specially designed LNG carriers approximately 13 mi (21 km) offshore of Massachusetts in federal waters approximately 270 to 290 ft (82 to 88 m) in depth. This facility delivers regasified LNG to onshore markets via the Algonquin Pipeline Lateral (Pipeline Lateral). The Pipeline Lateral consists of a 16.1-mile (25.8-kilometer) long, 24-inch (61-centimeter)

outside diameter natural gas pipeline which interconnects the Port to an offshore natural gas pipeline known as the HubLine.

The Northeast Gateway Port consists of two subsea Submerged Turret Loading™ (STL) buoys, each with a flexible riser assembly and a manifold connecting the riser assembly, via a steel Flowline, to the subsea Pipeline Lateral. Northeast Gateway utilizes vessels from its current fleet of specially designed Energy Bridge™ Regasification Vessels (EBRVs), each capable of transporting approximately 2.9 billion ft^3 (82 million m^3) of natural gas condensed to 4.9 million ft^3 (138,000 m^3) of LNG. Northeast Gateway has recently added two vessels to its fleet that have a cargo capacity of approximately 151,000 m^3 (5.3 million ft^3). The mooring system installed at the Northeast Gateway Port is designed to handle each class of vessel. The EBRVs would dock to the STL buoys, which would serve as both the single-point mooring system for the vessels and the delivery conduit for natural gas. Each of the STL buoys is secured to the seafloor using a series of suction anchors and a combination of chain/cable anchor lines.

NEG Port Operations

During NEG Port operations, EBRVs servicing the NEG Port would utilize the International Maritime Organization (IMO)-approved Boston Traffic Separation Scheme (TSS) to delivery LNG to the NEG Port facility. When an EBRV arrives at the NEG Port, it would retrieve one of the two permanently anchored submerged STL buoys. It would make final connection to the buoy through a series of engine and bow thruster actions. The EBRV would require the use of thrusters for dynamic positioning (DP) during docking procedure. Typically, the docking procedure is completed over a 10- to 30-minute period, with the thrusters activated as necessary for short periods (bursts in seconds). During this time period thrusters would be engaged in use for docking at the NEG Port approximately 10 to 30 minutes for each vessel

arrival and departure. Once connected to the buoy, the EBRV would make ready to begin vaporizing the LNG into its natural gas state using the onboard regasification system. As the LNG is regasified, natural gas would be transferred at pipeline pressures off the EBRV through the STL buoy and flexible riser via a steel flowline leading to the connecting Algonquin Pipeline Lateral. When the LNG vessel is on the buoy, wind and current effects on the vessel would be allowed to "weathervane" on the single-point mooring system; therefore, thrusters would not be used to maintain a stationary position.

According to NEG, it is estimated that the NEG Port could receive approximately 65 cargo deliveries a year, although none have been received since February 2010.

Detailed information on the operation activities can be found in the MARAD/USCG Final EIS on the Northeast Gateway Project (see ADDRESSES for availability). Detailed information on the LNG facility's operation and noise generated from operations was also published in the Federal Register for the proposed IHA for Northeast Gateway's LNG Port construction and operations on March 13, 2007 (72 FR 11328).

NEG Port Maintenance and Repair

The specified design life of the NEG Port is about 40 years, with the exception of the anchors, mooring chain/rope, and riser/umbilical assemblies, which are based on a maintenance-free design life of 20 years. The buoy pick-up system components are considered consumable and are inspected following each buoy connection, and replaced (from inside the STL compartment during the normal cargo discharge period) as deemed necessary. The underwater components of the NEG Port are inspected once yearly in accordance with Classification Society Rules (American Bureau of Shipping) using either divers or remotely operated vehicles (ROV) to inspect and record the condition of the various STL system components. These activities are

conducted using the NEG Port's normal support vessel (125-foot [38 meter], 99 gross ton, 2,700 horsepower, aluminum mono-hull vessel), and to the extent possible coincide with planned weekly visits to the NEG Port.

In addition to these routine activities, there may be instances whereby unanticipated events at the NEG Port necessitate emergency maintenance and/or repair activities. While the extent and number of such maintenance and repair activities at the NEG Port over its expected 25 year life cannot be accurately estimated, it is reasonable to assume that a worst-case maintenance and/or repair scenario would result in similar types of activities and require the use of similar support vessels and equipment as used for construction. There may also be certain unanticipated circumstances that require the presence of an EBRV at the NEG Port to support these maintenance and repair activities (e.g., maintenance and repair on the STL Buoy, vessel commissioning, and any onboard equipment malfunction or failure occurring while a vessel is present for cargo delivery). To assess the impact to marine mammals from the NEG port maintenance and repair, a 14-day maintenance period during one calendar is selected. This is based on evaluation of the potential marine mammal takes associated with similar maintenance and repair at the Neptune Port Facility in Massachusetts Bay, due to the fact that both the NEG and Neptune Ports are very similar in their potential need and type of maintenance and repair of port facilities.

Algonquin Pipeline Lateral Routine Operations and Maintenance Activities

The planned activities required for the operations and maintenance (O&M) of the Algonquin Pipeline Lateral and Flowlines over a 1-year period are limited. Similar to the inspection of the NEG Port underwater components, the only planned O&M activity is the annual inspection of the cathodic protection monitors by a ROV. The monitors are located at the ends of

the Algonquin Pipeline Lateral and the adjacent Flowlines. Each inspection activity would take approximately 3 days and would utilize a ROV launched from a vessel of opportunity. The most likely vessel would be similar to the NEG Port's normal support vessel referenced earlier in the document. This vessel is self-positioning and requires no anchors or use of thrusters. The vessel would mobilize from Salem, Massachusetts, and would inspect the monitors in the vicinity of the NEG Port and at the point where the Algonquin Pipeline Lateral interconnects with Algonquin's HubLine. These activities would be performed during daylight hours and during periods of good weather.

Unplanned Pipeline Repair Activities

Unplanned O&M activities may be required from time to time at a location along the Algonquin Pipeline Lateral or along one of the Flowlines should the line become damaged or malfunction. Repair activities requiring limited excavation to access the pipeline or cathodic protection maintenance are authorized by the FERC certificate.

Should repair work be required, it is likely a dive vessel would be the main vessel used to support the repair work. The type of diving spread and the corresponding vessel needed to support the spread would be dictated by the type of repair work required and the water depth at the work location. In addition, the type of vessel used may vary depending upon availability. The duration of an unplanned activity would also vary depending upon the repair work involved (e.g., repairing or replacing a section of the pipeline, connection, or valve) but can generally be assumed to take less than 40 work days to complete based on industry experience with underwater pipeline repairs.

A diving spread required to execute an unplanned activity might necessitate several vessels. Most likely the dive vessel would support a saturation diving spread and be moored at

the work location using four anchors. Once secured at the work location, the dive vessel would remain on site through the completion of the work, weather permitting. A crew/supply boat would be utilized to intermittently provide labor and supply transfers. Once or twice during the work, a tug may be required to bring a material barge to and from the location. While unlikely, there is a small possibility that a second dive vessel would be required to support the main dive vessel, depending upon the work activity. The second dive vessel would be on-site for a shorter work duration. These vessels would be supported from an onshore base located between Quincy and Gloucester, Massachusetts.

The selection of a dive vessel would be driven by the technical requirements of the work. In addition, the degree of urgency required to address the work and the availability of vessels will also enter into the decision process for securing a dive vessel. It may be that a four-point moored dive vessel is either not available or doesn't meet the technical capabilities required by the work. It then becomes possible that a DP dive vessel may have to be utilized. The use of a DP dive vessel removes the need for an attendant tug to support the vessel since no anchors will be deployed. However, potential impacts related to noise are increased when a DP dive vessel is used. The noise generated by a DP dive vessel varies, and results from the use of the thrusters which run at various levels to maintain the vessel's position during the work depending upon currents, winds, waves and other forces acting on the vessel at the time of the work.

Description of Marine Mammals in the Area of the Specified Activities

Marine mammal species that potentially occur in the vicinity of the Northeast Gateway facility include several species of cetaceans and pinnipeds:

North Atlantic right whale (Eubalaena glacialis),

humpback whale (Megaptera novaeangliae),

fin whale (Balaenoptera physalus),

minke whale (B. acutorostrata),

long-finned pilot whale (Globicephala melas),

Atlantic white-sided dolphin (Lagenorhynchus acutus),

bottlenose dolphin (Tursiops truncatus),

coPSOn dolphin (Delphinus delphis),

killer whale (Orcinus orca),

Risso's dolphin (Grampus griseus),

harbor porpoise (Phocoena phocoena),

harbor seal (Phoca vitulina), and

gray seal (Halichoerus grypus).

Information on those species that may be affected by this activity is discussed in detail in the USCG Final EIS on the Northeast Gateway LNG proposal. Please refer to that document for more information on these species and potential impacts from construction and operation of this LNG facility. In addition, general information on these marine mammal species can also be found in Wűrsig et al. (2000) and in the NMFS Stock Assessment Reports (Waring et al., 2013). This latter document is available at: http://www.nmfs.noaa.gov/pr/sars/pdf/ao2012.pdf. An updated summary on several PSO-sighted marine mammal species distribution and abundance in the vicinity of the proposed action area is provided below.

Humpback Whale

The highest abundance for humpback whales is distributed primarily along a relatively narrow corridor following the 100-m (328 ft) isobath across the southern Gulf of Maine from the northwestern slope of Georges Bank, south to the Great South Channel, and northward alongside

Cape Cod to Stellwagen Bank and Jeffreys Ledge. The relative abundance of whales increases in the spring with the highest occurrence along the slope waters (between the 40- and 140-m, or 131- and 459-ft, isobaths) off Cape Cod and Davis Bank, Stellwagen Basin and Tillies Basin and between the 50- and 200-m (164- and 656-ft) isobaths along the inner slope of Georges Bank. High abundance is also estimated for the waters around Platts Bank. In the summer months, abundance increases markedly over the shallow waters (<50 m, or <164 ft) of Stellwagen Bank, the waters (100 - 200 m, or 328 - 656 ft) between Platts Bank and Jeffreys Ledge, the steep slopes (between the 30- and 160-m isobaths) of Phelps and Davis Bank north of the Great South Channel towards Cape Cod, and between the 50- and 100-m (164- and 328-ft) isobath for almost the entire length of the steeply sloping northern edge of Georges Bank. This general distribution pattern persists in all seasons except winter, when humpbacks remain at high abundance in only a few locations including Porpoise and Neddick Basins adjacent to Jeffreys Ledge, northern Stellwagen Bank and Tillies Basin, and the Great South Channel. The best estimate of abundance for Gulf of Maine, formerly western North Atlantic, humpback whales is 847 animals (Waring et al., 2009). Current data suggest that the Gulf of Maine humpback whale stock is steadily increasing in size, which is consistent with an estimated average trend of 3.1 percent in the North Atlantic population overall for the period 1979-1993 (Stevick et al., 2003, cited in Waring et al., 2009).

Fin Whale

Spatial patterns of habitat utilization by fin whales are very similar to those of humpback whales. Spring and summer high-use areas follow the 100-m (328 ft) isobath along the northern edge of Georges Bank (between the 50- and 200-m (164- and 656-ft) isobaths), and northward from the Great South Channel (between the 50- and 160-m, or 164- and 525-ft, isobaths). Waters around Cashes Ledge, Platts Bank, and Jeffreys Ledge are all high-use areas in the

summer months. Stellwagen Bank is a high-use area for fin whales in all seasons, with highest abundance occurring over the southern Stellwagen Bank in the summer months. In fact, the southern portion of the Stellwagen Bank National Marine Sanctuary (SBNMS) is used more frequently than the northern portion in all months except winter, when high abundance is recorded over the northern tip of Stellwagen Bank. In addition to Stellwagen Bank, high abundance in winter is estimated for Jeffreys Ledge and the adjacent Porpoise Basin (100- to 160-m, 328- to 656-ft, isobaths), as well as Georges Basin and northern Georges Bank. The best estimate of abundance for the western North Atlantic stock of fin whales is 2,269 (Waring et al., 2009). Currently, there are insufficient data to determine population trends for this species.

Minke Whale

Like other piscivorous baleen whales, highest abundance for minke whale is strongly associated with regions between the 50- and 100-m (164- and 328-ft) isobaths, but with a slightly stronger preference for the shallower waters along the slopes of Davis Bank, Phelps Bank, Great South Channel and Georges Shoals on Georges Bank. Minke whales are sighted in the SBNMS in all seasons, with highest abundance estimated for the shallow waters (approximately 40 m, or 131 ft) over southern Stellwagen Bank in the summer and fall months. Platts Bank, Cashes Ledge, Jeffreys Ledge, and the adjacent basins (Neddick, Porpoise and Scantium) also support high relative abundance. Very low densities of minke whales remain throughout most of the southern Gulf of Maine in winter. The best estimate of abundance for the Canadian East Coast stock, which occurs from the western half of the Davis Strait to the Gulf of Mexico, of minke whales is 3,312 animals (Waring et al., 2009). Currently, there are insufficient data to determine population trends for this species.

North Atlantic Right Whale

North Atlantic right whales are generally distributed widely across the southern Gulf of Maine in spring with highest abundance located over the deeper waters (100- to 160-m, or 328- to 525-ft, isobaths) on the northern edge of the Great South Channel and deep waters (100 – 300 m, 328 - 984 ft) parallel to the 100-m (328-ft) isobath of northern Georges Bank and Georges Basin. High abundance is also found in the shallowest waters (< 30 m, or <98 ft) of Cape Cod Bay, over Platts Bank and around Cashes Ledge. Lower relative abundance is estimated over deep-water basins including Wilkinson Basin, Rodgers Basin and Franklin Basin. In the summer months, right whales move almost entirely away from the coast to deep waters over basins in the central Gulf of Maine (Wilkinson Basin, Cashes Basin between the 160- and 200-m, or 525- and 656-ft, isobaths) and north of Georges Bank (Rogers, Crowell and Georges Basins). Highest abundance is found north of the 100-m (328-ft) isobath at the Great South Channel and over the deep slope waters and basins along the northern edge of Georges Bank. The waters between Fippennies Ledge and Cashes Ledge are also estimated as high-use areas. In the fall months, right whales are sighted infrequently in the Gulf of Maine, with highest densities over Jeffreys Ledge and over deeper waters near Cashes Ledge and Wilkinson Basin. In winter, Cape Cod Bay, Scantum Basin, Jeffreys Ledge, and Cashes Ledge were the main high-use areas. Although SBNMS does not appear to support the highest abundance of right whales, sightings within SBNMS are reported for all four seasons, albeit at low relative abundance. Highest sighting within SBNMS occurred along the southern edge of the Bank.

The western North Atlantic population size was estimated to be at least 345 individuals in 2005 based on a census of individual whales identified using photo-identification techniques (Waring et al., 2009). This value is a minimum and does not include animals that were alive prior to 2003 but not recorded in the individual sightings database as seen from December 1, 2003,

to October 10, 2008. It also does not include calves known to be born during 2005 or any other individual whale seen during 2005 but not yet entered into the catalog (Waring et al., 2009). Examination of the minimum alive population index calculated from the individual sightings database, as it existed on October 10, 2008, for the years 1990-2005 suggests a positive trend in numbers. These data reveal a significant increase in the number of catalogued whales alive during this period but with significant variation due to apparent losses exceeding gains during 1998-1999. Mean growth rate for the period 1990-2005 was 1.8 percent (Waring et al., 2009).

Long-finned Pilot Whale

The long-finned pilot whale is more generally found along the edge of the continental shelf (a depth of 330 to 3,300 ft, or 100 to 1,000 m), choosing areas of high relief or submerged banks in cold or temperate shoreline waters. This species is split between two subspecies: the Northern and Southern subspecies. The Southern subspecies is circumpolar with northern limits of Brazil and South Africa. The Northern subspecies, which could be encountered during operation of the NEG Port, ranges from North Carolina to Greenland (Reeves et al., 2002; Wilson and Ruff, 1999). In the western North Atlantic, long-finned pilot whales are pelagic, occurring in especially high densities in winter and spring over the continental slope, then moving inshore and onto the shelf in summer and autumn following squid and mackerel populations (Reeves et al., 2002). They frequently travel into the central and northern Georges Bank, Great South Channel, and Gulf of Maine areas during the summer and early fall (May and October) (NOAA, 1993). According to the species stock report, the population estimate for the Western North Atlantic long-finned pilot whale is 26,535 individuals (Waring et al., 2010). Currently, there are insufficient data to determine population trends for the long-finned pilot whale.

Atlantic White-Sided Dolphin

In spring, summer and fall, Atlantic white-sided dolphins are widespread throughout the southern Gulf of Maine, with the high-use areas widely located either side of the 100-m (328-ft) isobath along the northern edge of Georges Bank, and north from the Great South Channel to Stellwagen Bank, Jeffreys Ledge, Platts Bank and Cashes Ledge. In spring, high-use areas exist in the Great South Channel, northern Georges Bank, the steeply sloping edge of Davis Bank and Cape Cod, southern Stellwagen Bank and the waters between Jeffreys Ledge and Platts Bank. In summer, there is a shift and expansion of habitat toward the east and northeast. High-use areas are identified along most of the northern edge of Georges Bank between the 50- and 200-m (164- and 656-ft) isobaths and northward from the Great South Channel along the slopes of Davis Bank and Cape Cod. High numbers of sightings are also recorded over Truxton Swell, Wilkinson Basin, Cashes Ledge and the bathymetrically complex area northeast of Platts Bank. High numbers of sightings of white-sided dolphin are recorded within SBNMS in all seasons, with highest density in summer and most widespread distributions in spring located mainly over the southern end of Stellwagen Bank. In winter, high numbers of sightings are recorded at the northern tip of Stellwagen Bank and Tillies Basin.

A comparison of spatial distribution patterns for all baleen whales (Mysticeti) and all porpoises and dolphins combined show that both groups have very similar spatial patterns of high- and low-use areas. The baleen whales, whether piscivorous or planktivorous, are more concentrated than the dolphins and porpoises. They utilize a corridor that extended broadly along the most linear and steeply sloping edges in the southern Gulf of Maine indicated broadly by the 100 m (328 ft) isobath. Stellwagen Bank and Jeffreys Ledge support a high abundance of baleen whales throughout the year. Species richness maps indicate that high-use areas for individual whales and dolphin species co-occur, resulting in similar patterns of species richness

primarily along the southern portion of the 100-m (328-ft) isobath extending northeast and northwest from the Great South Channel. The southern edge of Stellwagen Bank and the waters around the northern tip of Cape Cod are also highlighted as supporting high cetacean species richness. Intermediate to high numbers of species are also calculated for the waters surrounding Jeffreys Ledge, the entire Stellwagen Bank, Platts Bank, Fippennies Ledge and Cashes Ledge. The best estimate of abundance for the western North Atlantic stock of white-sided dolphins is 63,368 (Waring et al., 2009). A trend analysis has not been conducted for this species.

Killer Whale, CoPSOn Dolphin, Bottlenose Dolphin, Risso's Dolphin, and Harbor Porpoise

Although these five species are some of the most widely distributed small cetacean species in the world (Jefferson et al., 1993), they are not coPSOnly seen in the vicinity of the proposed project area in Massachusetts Bay (Wiley et al., 1994; NCCOS, 2006; Northeast Gateway Marine Mammal Monitoring Weekly Reports, 2007). The total number of killer whales off the eastern U.S. coast is unknown, and present data are insufficient to calculate a minimum population estimate or to determine the population trends for this stock (Blaylock et al., 1995). The best estimate of abundance for the western North Atlantic stock of coPSOn dolphins is 120,743 animals, and a trend analysis has not been conducted for this species (Waring et al., 2007). There are several stocks of bottlenose dolphins found along the eastern U.S. from Maine to Florida. The stock that may occur in the area of the Neptune Port is the western North Atlantic coastal northern migratory stock of bottlenose dolphins. The best estimate of abundance for this stock is 7,489 animals (Waring et al., 2009). There are insufficient data to determine the population trend for this stock. The best estimate of abundance for the western North Atlantic stock of Risso's dolphins is 20,479 animals (Waring et al., 2009). There are insufficient data to determine the population trend for this stock. The best estimate of abundance for the Gulf of

Maine/Bay of Fundy stock of harbor porpoise is 89,054 animals (Waring et al., 2009). A trend analysis has not been conducted for this species.

Harbor Seal and Gray Seal

In the U.S. waters of the western North Atlantic, both harbor and gray seals are usually found from the coast of Maine south to southern New England and New York (Waring et al., 2010).

Along the southern New England and New York coasts, harbor seals occur seasonally from September through late May (Schneider and Payne, 1983). In recent years, their seasonal interval along the southern New England to New Jersey coasts has increased (deHart, 2002). In U.S. waters, harbor seal breeding and pupping normally occur in waters north of the New Hampshire/Maine border, although breeding has occurred as far south as Cape Cod in the early part of the 20th century (Temte et al., 1991; Katona et al., 1993). The best estimate of abundance for the western North Atlantic stock of harbor seals is 99,340 animals (Waring et al., 2009). Between 1981 and 2001, the uncorrected counts of seals increased from 10,543 to 38,014, an annual rate of 6.6 percent (Gilbert et al., 2005, cited in Waring et al., 2009).

Although gray seals are often seen off the coast from New England to Labrador, within the U.S. waters, only small numbers of gray seals have been observed pupping on several isolated islands along the Maine coast and in Nantucket-Vineyard Sound, Massachusetts (Katona et al., 1993; Rough, 1995). In the late 1990s, a year-round breeding population of approximately 400 gray seals was documented on outer Cape Cod and Muskeget Island (Warring et al., 2007). Depending on the model used, the minimum estimate for the Canadian gray seal population was estimated to range between 125,541 and 169,064 animals (Trzcinski et al., 2005, cited in Waring et al., 2009); however, present data are insufficient to calculate the minimum population estimate

for U.S. waters. Waring et al. (2009) note that gray seal abundance in the U.S. Atlantic is likely increasing, but the rate of increase is unknown.

Potential Effects of the Specified Activity on Marine Mammals

The proposed NEG LNG port operations and maintenance and repair activities could adversely affect marine mammal species and stocks by exposing them to elevated noise levels in the vicinity of the activity area.

Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak et al. 1999; Schlundt et al. 2000; Finneran et al. 2002; 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is unrecoverable, or temporary (TTS), in which case the animal's hearing threshold will recover over time (Southall et al. 2007). Since marine mammals depend on acoustic cues for vital biological functions, such as orientation, communication, finding prey, and avoiding predators, marine mammals that suffer from PTS or TTS will have reduced fitness in survival and reproduction, either permanently or temporarily. Repeated noise exposure that leads to TTS could cause PTS. Currently, NMFS considers that repeated exposure to received noise levels at 180 dB and 190 dB re 1 μPa (rms) could lead to TTS in cetaceans and pinnipeds, respectively.

In addition, chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark et al. 2009). Masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their

performance fitness in survival and reproduction.

Masking occurs at the frequency band which the animals utilize. Therefore, since noise generated from in-water vibratory pile driving and removal is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds by odontocetes (toothed whales). However, lower frequency man-made noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. It may also affect communication signals when they occur near the noise band and thus reduce the communication space of animals (e.g., Clark et al. 2009) and cause increased stress levels (e.g., Foote et al. 2004; Holt et al. 2009).

Unlike TS, masking can potentially affect the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than 3 times in terms of SPL) in the world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009). All anthropogenic noise sources, such as those from vessel traffic, vessel docking and stationing while operating dynamic positioning (DP) thrusters, dredging and pipe laying associated with LNG Port and Pipeline Lateral maintenance and repair, and LNG regasification activities, contribute to the elevated ambient noise levels, thus increasing potential for or severity of masking.

Finally, exposure of marine mammals to certain sounds could lead to behavioral disturbance (Richardson et al. 1995), such as: changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities, changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle

response or aggressive behavior (such as tail/fluke slapping or jaw clapping), avoidance of areas where noise sources are located, and/or flight responses (e.g., pinnipeds flushing into water from haulouts or rookeries).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification are expected to be biologically significant if the change affects growth, survival, and/or reproduction.

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography) and is also difficult to predict (Southall et al. 2007). Currently NMFS uses 160 dB re 1 µPa (rms) at received level for impulse noises (such as impact pile driving) as the onset of marine mammal behavioral harassment, and 120 dB re 1 µPa (rms) for non-impulse noises (such as operating DP thrusters, dredging, pipe laying, and LNG regasification). For the NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities, only the 120 dB re 1 µPa (rms) threshold is considered because only non-impulse noise sources would be generated.

Northeast Gateway contracted with Tetra Tech EC, Inc. (Tetra Tech) to perform field investigations to document various underwater noise levels emitted during the construction of the NEG Port and Algonquin Pipeline Lateral and during the operation of NEG Port facilities (namely the operation of EBRVs). Tetra Tech conducted five offshore hydroacoustic field programs: one in 2005 and one in 2006 at the Gulf Gateway Deepwater Port located approximately 116 miles off the coast of Louisiana in the Gulf of Mexico; and three in 2007 at the NEG Port and Algonquin Pipeline Lateral Project area. The 2005 measurements were completed to determine underwater

noise levels during EBRV onboard regasification and vessel movements. The data from the 2005 field program was used to support the modeling and analysis of potential acoustic effects of EBRV operations in Massachusetts Bay during the NEG Port permitting and licensing process. The data collected in 2006 was also associated with EBRV operation activities and were collected for the purpose of verifying the measurement completed in 2005 as well as to further document sound levels during additional operational and EBRV activities such as EBRV coupling and decoupling from the buoy system, transit and the use of stern and bow thrusters required for dynamic positioning. The 2007 measurements were collected during NEG Port and Algonquin Pipeline Lateral construction to obtain site-specific underwater sound-level data associated with various construction activities that were previously modeled in support of permitting and licensing. These data are used here to analyze potential noise impacts to marine mammals and to provide the basis for take calculation before new measurements are made on-site (see Proposed Monitoring Measures section below).

A detailed report describing both the 2006 and 2007 operation and construction noise measurement events and associated results have been included as Appendix B of the IHA application. The following sections describe those activities that could result in Level B harassment as they relate to NEG Port and Algonquin O&M activities.

NEG Port Operations

For the purposes of understanding the noise footprint of operations at the NEG Port, measurements taken to capture operational noise (docking, undocking, regasification, and EBRV thruster use) during the 2006 Gulf of Mexico field event were taken at the source. Measurements taken during EBRV transit were normalized to a distance of 328 feet (100 meters) to serve as a basis for modeling sound propagation at the NEG Port site in Massachusetts Bay.

Sound propagation calculations for operational activities were then completed at two positions in Massachusetts Bay to determine site-specific distances to the 120/160/180 dB re 1 µPa isopleths: at LNG Port (EBRV Operations) and at Boston TSS (EBRV Transit).

At each of these locations sound propagation calculations were performed to determine the noise footprint of the operation activity at each of the specified locations. Calculations were performed in accordance with Marsh and Schulkin (1985) and Richardson et al (1995) and took into consideration aspects of water depth, sea state, bathymetry, and seabed composition. In addition, the acoustic modeling performed specifically evaluated sound energy in 1/3-octave spectral bands covering frequencies from 12.5 hertz (Hz) to 20 kilohertz (kHz). This range encompasses the auditory frequency range of marine mammals and the range at which sound propagates beyond the immediate vicinity of the source (i.e., high frequency sounds have a much higher attenuation rate than frequencies in the low to middle range due to a higher absorption rate by seawater and boundary effects). These results were then summed across frequencies to provide the broadband received levels at receptor locations. A literature review of relevant underwater noise measurement data of offshore construction activities in similar shallow water environments were referred to for estimating typical propagation rates. Relevant here, the resulting distances to the 120 dB isopleth (180 dB re 1 µPa does not exist) was estimated to determine the maximum distance at which Level B harassment may occur.

To further understand how NEG Port activities may result in underwater noise that could harass marine mammals, Northeast Gateway has engaged scientists from Cornell University's Bioacoustics Research Program (BRP) and the Woods Hole Oceanographic Institution (WHOI) as the consultants for collecting and analyzing the acoustic data throughout the project area (see sections 13.0 and 14.0 of the IHA application). Elevated underwater sound levels within

Massachusetts Bay due to this existing vessel traffic and other Bay activities may effectively mask sound generated during Port activities. Sound levels recorded by marine autonomous recording units (MARUs) within frequency bands for marine mammals have been reported to include whales, other biotic and abiotic sound sources and ambient noise that could be occurring at the time (BRP 2011).

NEG Port Maintenance and Repair

As stated in earlier in the document, routine inspections of NEG Port mooring components occur after each buoy connection from the Port's normal support vessel. Inspections of other Port facility components such as the STL Buoy, flexible riser, mooring system, pipeline end manifold (PLEM) are conducted annually by a ROV and/or diver launched from a vessel of opportunity.

In addition to these routine activities, there may be instances whereby unanticipated events at the NEG Port necessitate emergency maintenance and/or repair activities. While the extent and number of such maintenance and repair activities at the NEG Port over its expected 25 year life cannot be accurately estimated, it is reasonable to assume that a worst-case maintenance and/or repair scenario would result in similar types of activities and require the use of similar support vessels and equipment as used for construction.

Modeling analysis conducted by TetraTech concluded that the only underwater noise of critical concern during NEG Port construction would be from vessel noises such as turning screws, engine noise, noise of operating machinery, and thruster use. To confirm these modeled results and better understand the noise footprint associated with construction activities at the NEG Port, field measurements were taken of various construction activities during the 2007 NEG Port and Algonquin Pipeline Lateral Construction period. Measurements were taken to establish the

"loudest" potential construction measurement event. The location at the LNG Port was used to determine site-specific distances to the 120/180 dB re 1 µPa isopleths for NEG Port maintenance and repair activities.

As described for NEG Port operations, sound propagation calculations were performed to determine the noise footprint of the construction activity. The calculations took into consideration aspects of water depth, sea state, bathymetry, and seabed composition, and specifically evaluated sound energy in the range that encompasses the auditory frequencies of marine mammals and at which sound propagates beyond the immediate vicinity of the source. These results were then summed across frequencies to provide the broadband received levels at receptor locations. The resulting distances to the 120 dB isopleth (180 dB re 1 µPa does not exist) was estimated to determine the maximum distance at which Level B harassment may occur (Table 1).

Algonquin Pipeline Lateral Operations and Maintenance and Unplanned Repair

As discussed earlier in the document, routine inspections of the Algonquin Pipeline Lateral are conducted annually by a ROV launched from a vessel of opportunity. Planned O&M activity is the annual inspection of the cathodic protection monitors by a ROV. The monitors are located at the ends of the Algonquin Pipeline Lateral and the adjacent Flowlines. Each inspection activity will take approximately 3 days and will utilize a ROV launched from a vessel of opportunity. The most likely vessel will be similar to the NEG Port's normal support vessel.

In addition to these routine activities, there may be instances whereby unanticipated events at the NEG Port and Algonquin Pipeline Lateral necessitate emergency maintenance and/or repair activities. While the extent and number of such maintenance and repair activities at the Port over its expected 25 year life cannot be accurately estimated, it is reasonable to assume that a

worst-case maintenance and/or repair scenario would result in similar types of activities and require the use of similar support vessels and equipment as used for construction.

Modeling analysis conducted in support of the final EIS/EIR concluded that the only underwater noise of critical concern during NEG Port and Algonquin Pipeline Lateral construction would be from vessel noises such as turning screws, engine noise, noise of operating machinery, and thruster use. As with construction noise at the NEG Port, to confirm modeled results and better understand the noise footprint associated with construction activities along the Algonquin Pipeline Lateral, field measurements were taken of various construction activities during the 2007 NEG Port and Algonquin Pipeline Lateral Construction period. Again, measurements were taken to establish the "loudest" potential construction measurement event. Two positions within Massachusetts Bay were then used to determine site-specific distances to the 120/180 dB re 1 µPa isopleths: at PLEM and at Mid-Pipeline.

As described for NEG Port operations and maintenance and repair, at each location sound propagation calculations were performed to determine the noise footprint of the construction activity at each of the specified locations. The resulting distances to the 120 dB isopleth (180 dB re 1 µPa does not exist) was estimated to determine the maximum distance at which Level B harassment may occur (Table 1).

Table 1. Modeled underwater received sound pressure levels and distances to threshold levels for NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities

Activities	**Estimated distance (m) from source where received SPL falls below 120 dB re 1 µPa**
NEG Port Operations	
EBRV docking with support vessel at Port	4,250
EBRV docking with support vessels on station	5,500
EBRV regasification	< 300
EBRV transiting TSS	1,750
NEG Port Maintenance and Repair	
Barge/tug (with load)/construction vessel	2,560
Algonquin Pipeline Lateral O&M and Unplanned Repair	

Barge/tug (with load)/construction vessel at PLEM	3,500
Barge/tug (with load)/construction vessel at Mid-pipeline	2,831

Potential Effects on Marine Mammal Habitat

NEG Port Operations

Operation of the NEG Port will not result in short-term effects; however, long-term effects on the marine environment, including alteration of the seafloor conditions, continued disturbance of the seafloor, regular withdrawal of sea water, and regular generation of underwater noise, will result from Port operations. Specifically, a small area (0.14 acre) along the Pipeline Lateral has been permanently altered (armored) at two cable crossings. In addition, the structures associated with the NEG Port (flowlines, mooring wire rope and chain, suction anchors, and pipeline end manifolds) occupy 4.8 acres of seafloor. An additional area of the seafloor of up to 43 acres (worst case scenario based on severe 100-year storm with EBRVs occupying both STL buoys) will be subject to disturbance due to chain sweep while the buoys are occupied. Given the relatively small size of the NEG Port area that will be directly affected by Port operations, NMFS does not anticipate that habitat loss will be significant.

EBRVs are currently authorized to withdraw an average of 4.97 million gallons per day (mgd) and 2.6 billion gallons per year of sea water for general ship operations during it cargo delivery activities at the NEG Port. However, during the operations of the NEG Port facility, it was revealed that significantly more water usage is needed from what was originally evaluated in the final USCG Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The updates for the needed water intake and discharge temperature are:

- 11 billion gallons of total annual water use at the Port;

- Maximum daily intake volume of up to 56 mgd at a rate of 0.45 feet per second when an EBRV is not able to achieve the heat recovery system (HRS: it is the capability of reducing water use during the regasification process) mode of operation; and,
- Maximum daily change in discharge temperature of 12ºC (21.6ºF) from ambient from the vessel's main condenser cooling system.

Under the requested water-use scenario, Tech Tech (2011) conducted an environmental analysis on the potential impacts to marine mammals and their prey. To evaluate impacts to phytoplankton under the increased water usage, the biomass of phytoplankton lost from the Massachusetts Bay ecosystem was estimated based on the method presented in the final EIS/EIR. Phytoplankton densities of 65,000 to 390,000 cells/gallon were multiplied by the annual planned activities of withdrawal rate of 11 billion gallons to estimate a loss of 7.15×10^{14} to 4.29×10^{15} cells per year. Assuming a dry-weight biomass of 10^{-10} to 10^{-11} gram per cell (g/cell), an estimated 7.2 kg to 429 kg of biomass would be lost from Massachusetts Bay under the proposed activity, up to approximately 4.2 times that estimated in the final EIS/EIR for the permitted operational scenario. An order of magnitude estimate of the effect of this annual biomass loss on the regional food web can be calculated assuming a 10 percent transfer of biomass from one trophic level to the next (Sumich 1988) following the method used in the final EIS/EIR. This suggests that the loss of 7.2 kg to 429 kg of phytoplankton will result in the loss of about 0.7 kg to 42.9 kg of zooplankton, less than 0.1 kg to 4.3 kg of small planktivorous fish, and up to 0.4 kg of large piscivorous fish (approximately equivalent to a single 1-pound striped bass). Relative to the biomass of these trophic levels in the project area, this biomass loss is minor and consistent with the findings in the final EIS/EIR.

In addition, zooplankton losses will also increase proportionally to the increase in water

withdrawn. The final EIS/EIR used densities of zooplankton determined by the sampling conducted by the Massachusetts Water Resource Authority (MWRA) to characterize the area around its offshore outfall and assumed a mean zooplankton density of 34.9×10^3 organisms per m^3. Applying this density, the water withdrawal volume under the proposed activity would result in the entrainment of 2.2×10^{10} zooplankton individuals per trip or 1.5×10^{12} individuals per year. Assuming an average biomass of 0.63×10^{-6} g per individual, this would result in the loss of 14.1 kg of zooplankton per shipment or 916.5 kg of zooplankton per year. As discussed for phytoplankton, biomass transfers from one trophic level to the next at a rate of about 10 percent. Therefore, this entrainment of zooplankton would result in loss of about 91.6 kg of planktivorous fish and 9.2 kg of large piscivorous fish (approximately equivalent to two 9-pound striped bass). These losses are minor relative to the total biomass of these trophic levels in Massachusetts Bay.

Finally, ichthyoplankton (fish eggs and larvae) losses and equivalent age one juvenile fish estimates under the proposed activity were made based on actual monthly ichthyoplankton data collected in the port area from October 2005 through December 2009 and the proposed activity withdrawal volume of 11 billion gallons per year evenly distributed among months (0.92 billion gallons per month) as a worst-case scenario, representing the maximum number of Port deliveries during any given month. Similarly, the lower, upper, and mean annual entrainment estimates are based on the lower and upper 95 percent confidence limits, of the monthly mean ichthyoplankton densities, and the monthly mean estimates multiplied by the monthly withdrawal rate of 0.92 billion gallons per month. At this withdrawal rate approximately 106 million eggs and 67 million larvae are estimated to be lost (see Table 4.2-2 of the IHA application). The most abundant species and life stages estimated to be entrained under the proposed activity are cunner

post yolk-sac larvae (33.3 million), yellowtail flounder/Labridae eggs (27.4 million) and hake species eggs (18.7 million). Together, these species and life stages accounted for approximately 46 percent of the total entrainment estimated. Entrainment was estimated to be highest in June through July when 97.4 million eggs and larvae (approximately 57 percent of the annual total) were estimated to be entrained. Nevertheless, since the demand for natural gas and corresponding Port activities will likely be greatest during the winter heating season (November through March) when impacts from entrainment will likely be lower.

These estimated losses are not significant given the very high natural mortality of ichthyoplankton. This comparison was done in the final EIS/EIR where ichthyoplankton losses based on historic regional ichthyoplankton densities and a withdrawal rate of approximately 2.6 billion gallons per year were represented by the equivalent number of age one fish. Under the final EIS/EIR withdrawal scenario, equivalent age one losses due to entrainment ranged from 1 haddock to 43,431 sand lance (Tetra Tech 2010). Equivalent age one losses under the conditions when no NEG Port operation occurrence were recalculated using Northeast Gateway monitoring data in order to facilitate comparisons between the permitted scenario. Using Northeast Gateway monitoring data, withdrawal of 2.6 billion gallons per year would result in equivalent age one losses ranging from less than 1 haddock to 5,602 American sand lance. By comparison, equivalent age one losses under the proposed activity withdrawal rate of 11 billion gallons per year ranged from less than 1 haddock to 23,701 sand lance and were generally similar to or less than those in the final EIS/EIR. Substantially more equivalent age one Atlantic herring, pollock, and butterfish were estimated to be lost under the final EIS/EIR at a withdrawal rate of 2.6 billion gallons per year, while substantially more equivalent age one Atlantic cod, silver hake and hake species, cunner, and Atlantic mackerel are estimated to be lost under the proposed activity.

Although no reliable annual food consumption rates of baleen whales are available for comparison, based on the calculated quantities of phytoplankton, zooplankton, and ichthyoplankton removal analyzed above, it is reasonable to conclude that baleen whale predation rates would dwarf any reasonable estimates of prey removals by NEG Port operations. Therefore, NMFS believes that the prey removals by NEG Port operations resulting from water usage will have negligible impacts on marine mammal habitat.

NEG Port Maintenance

As stated earlier, NEG LNG Port will require scheduled maintenance inspections using either divers or ROVs. The duration of these inspections are not anticipated to be more than two 8-hour working days. An EBRV will not be required to support these annual inspections. Water usage during the LNG Port maintenance would be limited to the standard requirements of NEG's normal support vessel. As with all vessels operating in Massachusetts Bay, sea water uptake and discharge is required to support engine cooling, typically using a once-through system. The rate of seawater uptake varies with the ship's horsepower and activity and therefore will differ between vessels and activity type. For example, the Gateway Endeavor is a 90-foot vessel powered with a 1,200 horsepower diesel engine with a four-pump seawater cooling system. This system requires seawater intake of about 68 gallons per minute (gpm) while idling and up to about 150 gpm at full power. Use of full power is required generally for transit. A conservatively high estimate of vessel activity for the Gateway Endeavor would be operation at idle for 75 percent of the time and full power for 25 percent of the time. During the routine activities this would equate to approximately 42,480 gallons of seawater per 8-hour work day. When compared to the engine cooling requirements of an EBRV over an 8-hour period (approximately 18 million gallons), the Gateway Endeavour uses about 0.2 percent of the EBRV requirement.

To put this water use into context, potential effects from the waters-use scenario of 56 mgd have been concluded to be orders of magnitude less than the natural fluctuations of Massachusetts Bay and Cape Cod Bay and not detectable. Water use by support vessels during routine port activities would not materially add to the overall impacts.

Certain maintenance and repair activities may also require the presence of an EBRV at the Port. Such instances may include maintenance and repair on the STL Buoy, vessel commissioning, and any onboard equipment malfunction or failure occurring while a vessel is present for cargo delivery. Because the requested water-use scenario allows for daily water use of up to 56 mgd to support standard EBRV requirements when not operating in the HRS mode, vessels would be able to remain at the Port as necessary to support all such maintenance and repair scenarios. Therefore, NMFS considers that NEG Port maintenance and repair would have negligible impacts to marine mammal habitat in the proposed activity area.

Unanticipated Algonquin Pipeline Lateral Maintenance and Repair

As stated earlier, proper care and maintenance of the Algonquin Pipeline Lateral should minimize the likelihood of an unanticipated maintenance and/or repair event; however, unanticipated activities may occur from time to time if facility components become damaged or malfunction. Unanticipated repairs may range from relatively minor activities requiring minimal equipment and one or two diver/ROV support vessels to major activities requiring larger construction-type vessels similar to those used to support the construction and installation of the facility.

Major repair activities, although unlikely, may include repairing or replacement of pipeline manifolds or a sections of the Pipeline Lateral. This type of work would likely require the use of large specialty construction vessels such as those used during the construction and

installation of the NEG Port and Algonquin Pipeline Lateral. The duration of a major unplanned activity would depend upon the type of repair work involved and would require careful planning and coordination.

Turbidity would likely be a potential effect of Algonquin Pipeline Lateral maintenance and repair activities on listed species. In addition, the possible removal of benthic or planktonic species, resulting from relatively minor construction vessel water use requirements, as measured in comparison to EBRV water use, is unlikely to affect in a measurable way the food sources available to marine mammals. Therefore, NMFS considers that Algonquin Pipeline Lateral maintenance and repair would have negligible impacts to marine mammal habitat in the proposed activity area.

Proposed Mitigation Measures

In order to issue an incidental take authorization under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses.

For the proposed NEG LNG Port operations and maintenance and repair activities, Excelerate and Tetra Tech worked with NMFS and proposed the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity as a result of the LNG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities. The primary purpose of these proposed mitigation measures is to ensure that no marine mammal would be injured or killed by vessels transiting the LNG Port facility, and to minimize the intensity of noise exposure of marine mammals in the activity area. For the proposed NEG Port

and Algonquin Pipeline Lateral operations and maintenance and repair, the following mitigation measures are proposed.

(a) General Marine Mammal Avoidance Measures

(i) All vessels shall utilize the International Maritime Organization (IMO)-approved Boston Traffic Separation Scheme (TSS) on their approach to and departure from the NEG Port and/or the repair/maintenance area at the earliest practicable point of transit in order to avoid the risk of whale strikes.

(ii) Upon entering the TSS and areas where North Atlantic right whales are known to occur, including the Great South Channel Seasonal Management Area (GSC-SMA) and the SBNMS, the EBRV shall go into "Heightened Awareness" as described below.

(A) Prior to entering and navigating the modified TSS the Master of the vessel shall:

(I) Consult Navigational Telex (NAVTEX), NOAA Weather Radio, the NOAA Right Whale Sighting Advisory System (SAS) or other means to obtain current right whale sighting information as well as the most recent Cornell acoustic monitoring buoy data for the potential presence of marine mammals;

(II) Post a look-out to visually monitor for the presence of marine mammals;

(III) Provide the US Coast Guard (USCG) required 96-hour notification of an arriving EBRV to allow the NEG Port Manager to notify Cornell of vessel arrival.

(B) The look-out shall concentrate his/her observation efforts within the 2-mile radius zone of influence (ZOI) from the maneuvering EBRV.

(C) If marine mammal detection was reported by NAVTEX, NOAA Weather Radio, SAS and/or an acoustic monitoring buoy, the look-out shall concentrate visual monitoring efforts towards the areas of the most recent detection.

(D) If the look-out (or any other member of the crew) visually detects a marine mammal within the 2-mile radius ZOI of a maneuvering EBRV, he/she will take the following actions:

(I) The Officer-of-the-Watch shall be notified immediately; who shall then relay the sighting information to the Master of the vessel to ensure action(s) can be taken to avoid physical contact with marine mammals.

(II) The sighting shall be recorded in the sighting log by the designated look-out.

(iii) In accordance with 50 CFR 224.103(c), all vessels associated with NEG Port and Pipeline Lateral activities shall not approach closer than 500 yards (460 m) to a North Atlantic right whale and 100 yards (91 m) to other whales to the extent physically feasible given navigational constraints. In addition, when approaching and departing the project area, vessels shall be operated so as to remain at least 1 km away from any visually-detected North Atlantic right whales.

(iv) In response to active right whale sightings and active acoustic detections, and taking into account exceptional circumstances, EBRVs, repair and maintenance vessels shall take appropriate actions to minimize the risk of striking whales. Specifically vessels shall:

(A) Respond to active right whale sightings and/or DMAs reported on the Mandatory Ship Reporting (MSR) or SAS by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less if the vessel is within the boundaries of a DMA (50 CFR 224.105) or within the circular area centered on an area 8 nm in radius from a sighting location;

(B) Respond to active acoustic detections by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less within an area 5 nm in radius centered on the detecting AB; and

(C) Respond to additional sightings made by the designated look-outs within a 2-mile radius of the vessel by slowing the vessel to 10 knots or less and concentrating monitoring efforts towards the area of most recent sighting.

(v) All vessels operated under NEG and Algonquin must follow the established specific speed restrictions when calling at the NEG Port. The specific speed restrictions required for all vessels (i.e., EBRVs and vessels associated with maintenance and repair) consist of the following:

(A) Vessels shall reduce their maximum transit speed while in the TSS from 12 knots or less to 10 knots or less from March 1 to April 30 in all waters bounded by straight lines connecting the following points in the order stated below unless an emergency situation dictates for an alternate speed. This area shall hereafter be referred to as the Off Race Point Seasonal Management Area (ORP-SMA) and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 70°30' W	41°40' N 69°57' W
42°30' N 69°45' W	42°12' N 70°15' W
41°40' N 69°45' W	42°12' N 70°30' W
42°04.8' N 70°10' W	42°30' N 70°30' W

(B) Vessels shall reduce their maximum transit speed while in the TSS to 10 knots or less unless an emergency situation dictates for an alternate speed from April 1 to

July 31 in all waters bounded by straight lines connecting the following points in the order stated below. This area shall hereafter be referred to as the GSC-SMA and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 69°45' W	41°40' N 69°45' W
42°30' N 67°27' W	42°30' N 69°45' W
42°09' N 67°08.4' W	41°00' N 69°05' W

(C) Vessels are not expected to transit the Cape Cod Bay or the Cape Cod Canal; however, in the event that transit through the Cape Cod Bay or the Cape Cod Canal is required, vessels shall reduce maximum transit speed to 10 knots or less from January 1 to May 15 in all waters in Cape Cod Bay, extending to all shorelines of Cape Cod Bay, with a northern boundary of 42°12' N latitude and the Cape Cod Canal. This area shall hereafter be referred to as the Cape Cod Bay Seasonal Management Area (CCB-SMA).

(D) All Vessels transiting to and from the project area shall report their activities to the mandatory reporting Section of the USCG to remain apprised of North Atlantic right whale movements within the area. All vessels entering and exiting the MSRA shall report their activities to WHALESNORTH. Vessel operators shall contact the USCG by standard procedures promulgated through the Notice to Mariner system.

(E) All Vessels greater than or equal to 300 gross tons (GT) shall maintain a speed of 10 knots or less, unless an emergency situation requires speeds greater than 10 knots.

(F) All Vessels less than 300 GT traveling between the shore and the project area that are not generally restricted to 10 knots will contact the Mandatory Ship Reporting (MSR) system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 kilometers) of any sighting location, when traveling in any of the seasonal management areas (SMAs) or when traveling in any active dynamic management area (DMA).

(b) NEG Port-specific Operations

(i) In addition to the general marine mammal avoidance requirements identified in (5)(a) above, vessels calling on the NEG Port must comply with the following additional requirements:

(A) EBRVs shall travel at 10 knots maximum speed when transiting to/from the TSS or

to/from the NEG Port/Pipeline Lateral area. For EBRVs, at 1.86 miles (3 km) from the NEG Port, speed will be reduced to 3 knots and to less than 1 knot at 1,640 ft (500 m) from the NEG buoys, unless an emergency situation dictates the need for an alternate speed.

(B) EBRVs that are approaching or departing from the NEG Port and are within the ATBA5 surrounding the NEG Port, shall remain at least 1 km away from any visually-detected North Atlantic right whale and at least 100 yards (91 m) away from all other visually-detected whales unless an emergency situation requires that the vessel stay its course. During EBRV maneuvering, the Vessel Master shall designate at least one look-out to be exclusively and continuously monitoring for the presence of marine mammals at all times while the EBRV is approaching or departing from the NEG Port.

(C) During NEG Port operations, in the event that a whale is visually observed within 1 km of the NEG Port or a confirmed acoustic detection is reported on either of the two ABs closest to the NEG Port (western-most in the TSS array), departing EBRVs shall delay their departure from the NEG Port, unless an emergency situation requires that departure is not delayed. This departure delay shall continue until either the observed whale has been visually (during daylight hours) confirmed as more than 1 km from the NEG Port or 30 minutes have passed without another confirmed detection either acoustically within the acoustic detection range of the two ABs closest to the NEG Port, or visually within 1 km from the NEG Port.

(ii) Vessel captains shall focus on reducing dynamic positioning (DP) thruster power to the maximum extent practicable, taking into account vessel and Port safety, during the operation activities. Vessel captains will shut down thrusters whenever they are not needed.

(c) Planned and Unplanned Maintenance and Repair Activities

(i) NEG Port

(A) The Northeast Gateway shall conduct empirical source level measurements on all noise emitting construction equipment and all vessels that are involved in maintenance/repair work.

(B) If dynamic positioning (DP) systems are employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m or greater, activities shall be conducted in accordance with the requirements for DP systems listed in (b)(ii) above.

(C) Northeast Gateway shall provide the NMFS Headquarters Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and SBNMS with a minimum of 30 days notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Northeast Gateway shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

(ii) Pipeline Lateral

(A) Pipeline maintenance/repair vessels less than 300 GT traveling between the shore and the maintenance/repair area that are not generally restricted to 10 knots shall contact the MSR system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 km) of any sighting location, when travelling in any of the seasonal management areas (SMAs) as defined above.

(B) Maintenance/repair vessels greater than 300 GT shall not exceed 10 knots, unless an emergency situation that requires speeds greater than 10 knots.

(C) Planned maintenance and repair activities shall be restricted to the period between May 1 and November 30.

(D) Unplanned/emergency maintenance and repair activities shall be conducted utilizing anchor-moored dive vessel whenever operationally possible.

(E) Algonquin shall also provide the NMFS Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and Stellwagen Bank National Marine Sanctuary (SBNMS) with a minimum of 30-day notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Algonquin shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

(F) If dynamic positioning (DP) systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m or greater, activities shall be conducted in accordance with the requirements for DP systems listed in (b)(ii) above.

(G) In the event that a whale is visually observed within 0.5 mile (0.8 kilometers) of a repair or maintenance vessel, the vessel superintendent or on-deck supervisor shall be notified immediately. The vessel's crew shall be put on a heightened state of alert and the marine mammal shall be monitored constantly to determine if it is moving toward the repair or maintenance area.

(H) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 μPa @ 1 m or higher when a right whale is sighted within or approaching at 500 yd (457 m) from the vessel. Repair and maintenance work

may resume after the marine mammal is positively reconfirmed outside the established zones (500 yd [457 m]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(I) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 µPa @ 1 m or higher when a marine mammal other than a right whale is sighted within or approaching at 100 yd (91 m) from the vessel. Repair and maintenance work may resume after the marine mammal is positively reconfirmed outside the established zones (100 yd [91 m]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(J) Algonquin and associated contractors shall also comply with the following:

(I) Operations involving equipment with sound source levels exceeding 139 dB re 1µPa @ 1 m shall "ramp-up" sound sources, allowing whales a chance to leave the area before sounds reach maximum levels. In addition, Northeast Gateway, Algonquin, and other associated contractors shall maintain equipment to manufacturers' specifications, including any sound-muffling devices or engine covers in order to minimize noise effects. Noisy construction equipment shall only be used as needed and equipment shall be turned off when not in operation.

(II) Any material that has the potential to entangle marine mammals (e.g., anchor lines, cables, rope or other construction debris) shall only be deployed as needed and measures shall be taken to minimize the chance of entanglement.

(III) For any material mentioned above that has the potential to entangle marine mammals, such material shall be removed from the water immediately unless such action jeopardizes the safety of the vessel and crew as determined by the Captain of the vessel.

(IV) In the event that a marine mammal becomes entangled, the marine mammal coordinator and/or PSO will notify NMFS (if outside the SBNMS), and SBNMS staff (if inside the SBNMS) immediately so that a rescue effort may be initiated.

(K) All maintenance/repair activities shall be scheduled to occur between May 1 and November 30; however, in the event of unplanned/emergency repair work that cannot be scheduled during the preferred May through November work window, the following additional measures shall be followed for Pipeline Lateral maintenance and repair related activities between December and April:

(I) Between December 1 and April 30, if on-board PSOs do not have at least 0.5-mile visibility, they shall call for a shutdown. At the time of shutdown, the use of thrusters must be minimized. If there are potential safety problems due to the shutdown, the captain will decide what operations can safely be shut down.

(II) Prior to leaving the dock to begin transit, the barge shall contact one of the PSOs on watch to receive an update of sightings within the visual observation area. If the PSO has observed a North Atlantic right whale within 30 minutes of the transit start, the vessel shall hold for 30 minutes and again get a clearance to leave from the PSOs on board. PSOs shall assess whale activity and visual observation ability at the time of the transit request to clear the barge for release.

(III) Transit route, destination, sea conditions and any marine mammal sightings/mitigation actions during watch shall be recorded in the log book. Any whale sightings within 1,000 m of the vessel shall result in a high alert and slow speed of 4 knots or less and a sighting within 750 m shall result in idle speed and/or ceasing all movement.

(IV) The material barges and tugs used in repair and maintenance shall transit from the

operations dock to the work sites during daylight hours when possible provided the safety of the vessels is not compromised. Should transit at night be required, the maximum speed of the tug shall be 5 knots.

(V) All repair vessels must maintain a speed of 10 knots or less during daylight hours. All vessels shall operate at 5 knots or less at all times within 5 km of the repair area.

(d) Acoustic Monitoring Related Activities

(i) Vessels associated with maintaining the acoustic seafloor array of Marine Autonomous Recording Units (MARUs) and the AB network operating as part of the mitigation/monitoring protocols shall adhere to the following speed restrictions and marine mammal monitoring requirements.

(A) Vessels maintaining the MARU array that are greater than 300 gross tons (GT) shall not exceed 10 knots.

(B) Vessels maintaining the MARU array that are less than 300 GT shall not exceed 15 knots at any time, but shall adhere to speeds of 10 knots or less in the following areas and seasons:

(I) In the ORP-SMA between March 1 and April 30; and

(II) In the CCB-SMA between January 1 and May 15.

(C) In accordance with 50 CFR 224.103 (c), all vessels associated with NEG Port activities shall not approach closer than 500 yards (460 meters) to a North Atlantic right whale.

(D) All vessels shall obtain the latest DMA or right whale sighting information via the NAVTEX, MSR, SAS, NOAA Weather Radio, or other available means prior to operations to determine if there are right whales present in the operational area.

Mitigation Conclusions

NMFS has carefully evaluated the proposed mitigation measures in the context of

ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Based on our evaluation of the applicant's proposed measures, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting Measures

In order to issue an ITA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for ITAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Proposed Monitoring Measures

(a) Vessel-based visual monitoring

(i) Vessel-based monitoring for marine mammals shall be done by trained look-outs during NEG LNG Port and Pipeline Lateral operations and maintenance and repair activities.

The observers shall monitor the occurrence of marine mammals near the vessels during LNG Port and Pipeline Lateral related activities. Lookout duties include watching for and identifying marine mammals; recording their numbers, distances, and reactions to the activities; and documenting "take by harassment".

(ii) The vessel look-outs assigned to visually monitor for the presence of marine mammals and shall be provided with the following:

(A) Recent NAVTEX, NOAA Weather Radio, SAS and/or acoustic monitoring buoy detection data;

(B) Binoculars to support observations;

(C) Marine mammal detection guide sheets; and

(D) Sighting log.

(b) NEG LNG Port Operations

(i) All individuals onboard the EBRVs responsible for the navigation duties and any other personnel that could be assigned to monitor for marine mammals shall receive training on marine mammal sighting/reporting and vessel strike avoidance measures.

(ii) While an EBRV is navigating within the designated TSS, there shall be three people with look-out duties on or near the bridge of the ship including the Master, the Officer-of-the-Watch and the Helmsman-on-watch. In addition to the standard watch procedures, while the EBRV is transiting within the designated TSS, maneuvering within the Area to be Avoided (ATBA), and/or while actively engaging in the use of thrusters, an additional look-out shall be designated to exclusively and continuously monitor for marine mammals.

(iii) All sightings of marine mammals by the designated look-out, individuals posted to navigational look-out duties and/or any other crew member while the EBRV is transiting within

the TSS, maneuvering within the ATBA and/or when actively engaging in the use of thrusters, shall be immediately reported to the Officer-of-the-Watch who shall then alert the Master. The Master or Officer-of-the-Watch shall ensure the required reporting procedures are followed and the designated marine mammal look-out records all pertinent information relevant to the sighting.

(iv) Visual sightings made by look-outs from the EBRVs shall be recorded using a standard sighting log form. Estimated locations shall be reported for each individual and/or group of individuals categorized by species when known. This data shall be entered into a database and a summary of monthly sighting activity shall be provided to NMFS. Estimates of take and copies of these log sheets shall also be included in the reports to NMFS.

(c) Planned and Unplanned Maintenance and Repair

(i) Two (2) qualified and NMFS-approved protected species observers (PSOs) shall be assigned to each vessel that will use dynamic positioning (DP) systems during maintenance and repair related activities. PSOs shall operate individually in designated shifts to accommodate adequate rest schedules. Additional PSOs shall be assigned to additional vessels if auto-detection buoy (AB) data indicates that sound levels exceed 120 dB re 1 μPa, further then 100 meters (328 feet) from these vessels.

(ii) All PSOs shall receive NMFS-approved marine mammal observer training and be approved in advance by NMFS after review of their resume. All PSOs shall have direct field experience on marine mammal vessels and/or aerial surveys in the Atlantic Ocean/Gulf of Mexico.

(iii) PSOs (one primary and one secondary) shall be responsible for visually locating marine mammals at the ocean's surface and, to the extent possible, identifying the species. The primary PSO shall act as the identification specialist and the secondary PSO will serve as data

recorder and also assist with identification. Both PSOs shall have responsibility for monitoring for the presence of marine mammals and sea turtles. Specifically PSO's shall:

(A) Monitor at all hours of the day, scanning the ocean surface by eye for a minimum of 40 minutes every hour.

(B) Monitor the area where maintenance and repair work is conducted beginning at daybreak using 25x power binoculars and/or hand-held binoculars. Night vision devices must be provided as standard equipment for monitoring during low-light hours and at night.

(C) Conduct general 360° visual monitoring during any given watch period and target scanning by the observer shall occur when alerted of a whale presence.

(D) Alert the vessel superintendent or construction crew supervisor of visual detections within 2 miles (3.31 kilometers) immediately.

(E) Record all sightings on marine mammal field sighting logs. Specifically, all data shall be entered at the time of observation, notes of activities will be kept, and a daily report prepared and attached to the daily field sighting log form. The basic reporting requirements include the following:

- Beaufort sea state;
- Wind speed;
- Wind direction;
- Temperature;
- Precipitation;
- Glare;
- Percent cloud cover;
- Number of animals;

- Species;
- Position;
- Distance;
- Behavior;
- Direction of movement; and
- Apparent reaction to construction activity.

(iv) In the event that a whale is visually observed within the 2-mile (3.31-kilometers) zone of influence (ZOI) of a DP vessel or other construction vessel that has shown to emit noise with source level in excess of 139 dB re 1 µPa @ 1 m, the PSO will notify the repair/maintenance construction crew to minimize the use of thrusters until the animal has moved away, unless there are divers in the water or an ROV is deployed.

(d) Acoustic Monitoring

(i) Northeast Gateway shall monitor the noise environment in Massachusetts Bay in the vicinity of the NEG Port and Pipeline Lateral using an array of 19 MARUs that were deployed initially in April 2007 to collect data during NEG LNG Port and Pipeline Lateral related activities.

(ii) The acoustic data collected by the MARUs shall be analyzed to document the seasonal occurrences and overall distributions of whales (primarily fin, humpback and right whales) within approximately 10 nm of the NEG Port and shall measure and document the noise "budget" of Massachusetts Bay so as to eventually assist in determining whether or not an overall increase in noise in the Bay associated with the Project might be having a potentially negative impact on marine mammals.

(iii) In addition to the 19 MARUs, Northeast Gateway shall deploy 10 ABs within the Separation Zone of the TSS for the operational life of the Project.

(iv) The ABs shall be used to detect a calling North Atlantic right whale an average of 5 nm from each AB. The AB system shall be the primary detection mechanism that alerts the EBRV Master to the occurrence of right whales, heightens EBRV awareness, and triggers necessary mitigation actions as described in section (5) above.

(e) Acoustic Whale Detection and Response Plan

(i) NEG Port Operations

(A) Ten (10) ABs that have been deployed since 2007 shall be used to continuously screen the low-frequency acoustic environment (less than 1,000 Hertz) for right whale contact calls occurring within an approximately 5-nm radius from each buoy (the AB's detection range).

(B) Once a confirmed detection is made, the Master of any EBRVs operating in the area will be alerted immediately.

(ii) NEG Port and Pipeline Lateral Planned and Unplanned/Emergency Repair and Maintenance Activities

(A) If the repair/maintenance work is located outside of the detectible range of the 10 project area ABs, Northeast Gateway and Algonquin shall consult with NOAA (NMFS and SBNMS) to determine if the work to be conducted warrants the temporary installation of an additional AB(s) to help detect and provide early warnings for potential occurrence of right whales in the vicinity of the repair area.

(B) The number of ABs installed around the activity site shall be commensurate with the type and spatial extent of maintenance/repair work required, but must be sufficient to detect vocalizing right whales within the 120-dB impact zone.

(C) Should acoustic monitoring be deemed necessary during a planned or unplanned/emergency repair and/or maintenance event, active monitoring for right whale calls

shall begin 24 hours prior to the start of activities.

(D) Source level data from the acoustic recording units deployed in the NEG Port and/or Pipeline Lateral maintenance and repair area shall be provided to NMFS.

Proposed Reporting Measures

(a) Throughout NEG Port and Pipeline Lateral operations, Northeast Gateway and Algonquin shall provide a monthly Monitoring Report. The Monitoring Report shall include:

(i) Both copies of the raw visual EBRV lookout sighting information of marine mammals that occurred within 2 miles of the EBRV while the vessel transits within the TSS, maneuvers within the ATBA, and/or when actively engaging in the use of thrusters, and a summary of the data collected by the look-outs over each reporting period.

(ii) Copies of the raw PSO sightings information on marine mammals gathered during pipeline repair or maintenance activities. This visual sighting data shall then be correlated to periods of thruster activity to provide estimates of marine mammal takes (per species/species class) that took place during each reporting period.

(iii) Conclusion of any planned or unplanned/emergency repair and/or maintenance period, a report shall be submitted to NMFS summarizing the repair/maintenance activities, marine mammal sightings (both visual and acoustic), empirical source-level measurements taken during the repair work, and any mitigation measures taken.

(b) During the maintenance and repair of NEG Port components, weekly status reports shall be provided to NOAA (both NMFS and SBNMS) using standardized reporting forms. The weekly reports shall include data collected for each distinct marine mammal species observed in the repair/maintenance area during the period that maintenance and repair activities were taking place. The weekly reports shall include the following information:

(i) Location (in longitude and latitude coordinates), time, and the nature of the maintenance and repair activities;

(ii) Indication of whether a DP system was operated, and if so, the number of thrusters being used and the time and duration of DP operation;

(iii) Marine mammals observed in the area (number, species, age group, and initial behavior);

(iv) The distance of observed marine mammals from the maintenance and repair activities;

(v) Changes, if any, in marine mammal behaviors during the observation;

(vi) A description of any mitigation measures (power-down, shutdown, etc.) implemented;

(vii) Weather condition (Beaufort sea state, wind speed, wind direction, ambient temperature, precipitation, and percent cloud cover etc.);

(viii) Condition of the observation (visibility and glare); and

(ix) Details of passive acoustic detections and any action taken in response to those detections.

(d) Injured/Dead Protected Species Reporting

(i) In the unanticipated event that survey operations clearly cause the take of a marine mammal in a manner prohibited by the proposed IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), NEG and/or Algonquin shall immediately cease activities and immediately report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and

Shane.Guan@noaa.gov and the Northeast Regional Stranding Coordinators (Mendy.Garron@noaa.gov or Lanni.Hall@noaa.gov) or by phone at 978-281-9300. The report must include the following information:

(A) time, date, and location (latitude/longitude) of the incident;

(B) the name and type of vessel involved;

(C) the vessel's speed during and leading up to the incident;

(D) description of the incident;

(E) status of all sound source use in the 24 hours preceding the incident;

(F) water depth;

(G) environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);

(H) description of marine mammal observations in the 24 hours preceding the incident;

(I) species identification or description of the animal(s) involved;

(J) the fate of the animal(s); and

(K) photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with NEG and/or Algonquin to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. NEG and/or Algonquin may not resume their activities until notified by NMFS via letter, email, or telephone.

(ii) In the event that NEG and/or Algonquin discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the

next paragraph), NEG and/or Algonquin will immediately report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and the NMFS Northeast Stranding Coordinators (Mendy.Garron@noaa.gov or Lanni.Hall@noaa.gov) or by phone at 978-281-9300, within 24 hours of the discovery. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with NEG and/or Algonquin to determine whether modifications in the activities are appropriate.

(iii) In the event that NEG or Algonquin discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized (if the IHA is issued) (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), NEG and/or Algonquin shall report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and the NMFS Northeast Stranding Coordinators (Mendy.Garron@noaa.gov or Lanni.Hall@noaa.gov) or by phone at 978-281-9300, within 24 hours of the discovery. NEG and/or Algonquin shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. NEG and/or Algonquin can continue its operations under such a case.

Summary of Previous Monitoring Reports

Based on monthly activity reports submitted to NMFS for the period between August

2010 and October 2013, there were no activities at the NEG Port during the period. Therefore, no take of marine mammals occurred or were reported during this period.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment]. Only take by Level B harassment is anticipated as a result of NEG's operation and maintenance and repair activities. Anticipated take of marine mammals is associated with operation of dynamic positioning during the docking of the LNG vessels and positioning of maintenance and dive vessels, and by operations of certain machinery during maintenance and repair activities. The regasification process itself is an activity that does not rise to the level of taking, as the modeled source level for this activity is 108 dB. Certain species may have a behavioral reaction to the sound emitted during the activities. Hearing impairment is not anticipated. Additionally, vessel strikes are not anticipated, especially because of the speed restriction measures that are proposed that were described earlier in this document.

The full suite of potential impacts to marine mammals was described in detail in the "Potential Effects of the Specified Activity on Marine Mammals" section found earlier in this document. The potential effects of sound from the proposed open water marine survey programs might include one or more of the following: masking of natural sounds; behavioral disturbance; non-auditory physical effects; and, at least in theory, temporary or permanent hearing impairment (Richardson et al. 1995). As discussed earlier in this document, the most common impact will

likely be from behavioral disturbance, including avoidance of the ensonified area or changes in speed, direction, and/or diving profile of the animal. For reasons discussed previously in this document, hearing impairment (TTS and PTS) is highly unlikely to occur based on the proposed mitigation and monitoring measures that would preclude marine mammals from being exposed to noise levels high enough to cause hearing impairment.

For non-pulse sounds, such as those produced by operating dynamic positioning (DP) thruster during vessel docking and supporting underwater construction and repair activities and the operations of various machineries that produces non-pulse noises, NMFS uses the 120 dB (rms) re 1 μPa isopleth to indicate the onset of Level B harassment.

NEG Port and Algonquin Pipeline Lateral Activities Acoustic Footprints

I. NEG Port Operations

For the purposes of understanding the noise footprint of operations at the NEG Port, measurements taken to capture operational noise (docking, undocking, regasification, and EBRV thruster use) during the 2006 Gulf of Mexico field event were taken at the source. Measurements taken during EBRV transit were normalized to a distance of 328 feet (100 meters) to serve as a basis for modeling sound propagation at the NEG Port site in Massachusetts Bay.

Sound propagation calculations for operational activities were then completed at two positions in Massachusetts Bay to determine site-specific distances to the 120/160/180 dB isopleths:

- Operations Position 1 - Port (EBRV Operations): 70° 36.261'W and 42° 23.790' N
- Operations Position 2 – Boston TSS (EBRV Transit): 70° 17.621'W and 42° 17.539' N

At each of these locations sound propagation calculations were performed to determine

the noise footprint of the operation activity at each of the specified locations. Calculations were performed in accordance with Marsh and Schulkin (1985) and Richardson et al. (1995) and took into consideration aspects of water depth, sea state, bathymetry, and seabed composition. In addition, the acoustic modeling performed specifically evaluated sound energy in 1/3-octave spectral bands covering frequencies from 12.5 Hz to 20 kHz. The resultant underwater sound pressure levels to the 120 dB isopleth is presented in Table 2.

Table 2. Radii of 120-dB SPL isopleths from NEG LNG operations

	Radius to 120-dB zone (m)
One EBRV docking procedure with support vessel	4,250
Two EBRV docking procedure with support vessel	5,500
EBRV regasification	<300
EBRV transiting the TSS (10 knot)	1,750

II. NEG Port Maintenance and Repair

Modeling analysis conducted for the construction of the NEG Port concluded that the only underwater noise of critical concern during NEG Port construction would be from vessel noises such as turning screws, engine noise, noise of operating machinery, and thruster use. To confirm these modeled results and better understand the noise footprint associated with construction activities at the NEG Port, field measurements were taken of various construction activities during the 2007 NEG Port and Algonquin Pipeline Lateral Construction period. Measurements were taken and normalized as described to establish the "loudest" potential construction measurement event. One position within Massachusetts Bay was then used to determine site-specific distances to the 120/180 dB isopleths for NEG Port maintenance and repair activities:

- Construction Position 1. Port: 70° 36.261'W and 42° 23.790' N

Sound propagation calculations were performed to determine the noise footprint of the

construction activity. The calculations took into consideration aspects of water depth, sea state, bathymetry, and seabed composition, and specifically evaluated sound energy in the range that encompasses the auditory frequencies of marine mammals and at which sound propagates beyond the immediate vicinity of the source. These results were then summed across frequencies to provide the broadband received levels at receptor locations. The results showed that the estimated distance from the loudest source involved in construction activities fell to 120 dB re 1 µPa at a distance of 3,600 m.

III. Algonquin Pipeline Lateral Operation and Maintenance Activities

Modeling analysis conducted during the NEG Port and Pipeline Lateral construction concluded that the only underwater noise of critical concern during such activities would be from vessel noises such as turning screws, engine noise, noise of operating machinery, and thruster use. As with construction noise at the NEG Port, to confirm modeled results and better understand the noise footprint associated with construction activities along the Algonquin Pipeline Lateral, field measurements were taken of various construction activities during the 2007 NEG Port and Algonquin Pipeline Lateral construction period. Measurements were taken and normalized to establish the "loudest" potential construction measurement event. Two positions within Massachusetts Bay were then used to determine site-specific distances to the 120/160/180 dB isopleths:

- Construction Position 2. PLEM: 70° 46.755'W and 42° 28.764' N
- Construction Position 3. Mid-Pipeline: 70° 40.842'W and 42° 31.328' N

Sound propagation calculations were performed to determine the noise footprint of the construction activity. The calculations took into consideration aspects of water depth, sea state, bathymetry, and seabed composition, and specifically evaluated sound energy in the range that

encompasses the auditory frequencies of marine mammals and at which sound propagates beyond the immediate vicinity of the source. These results were then summed across frequencies to provide the broadband received levels at receptor locations. The results of the distances to the 120-dB are shown in Table 3.

Table 3. Radii of 120-dB SPL isopleths from Algonquin Pipeline Lateral operation and maintenance

	Radius to 120-dB zone (m)
Barge / tug (pulling & pushing) / construction vessel / barge @ PLEM	3,600
Barge / tug (pulling & pushing) / construction vessel / barge @ mid-pipeline	2,831

The basis for Northeast Gateway and Algonquin's "take" estimate is the number of marine mammals that would be exposed to sound levels in excess of 120 dB, which is the threshold used by NMFS for non-pulse sounds. For the NEG LNG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities, the take estimates are determined by multiplying the 120-dB esonified area by local marine mammal density estimates, and then multiplying by the estimated dates such activities would occur during a year-long period. For the NEG Port operations, the 120-dB esonfied area is 56.8 km^2 for a single visit during docking when running DP system. For NEG Port and Algonquin Pipeline Lateral maintenance and repair activities, modeling based on the empirical measurements showed that the distance of the 120-dB radius is expected to be 3.6 km, making a maximum 120-dB ZOI of approximately 40.7 km^2.

Although there have been no LNG deliveries since February 2010 at the NEG LNG Port, NEG expected when the Port is under full operation, NEW expects it will received up to 65 LNG shipments per year, and would require 14 days for NEG Port maintenance and up to 40 days for planned and unplanned Algonquin Pipeline Lateral maintenance and repair.

NMFS recognizes that baleen whale species other than North Atlantic right whales have been sighted in the project area from May to November. However, the occurrence and abundance of fin, humpback, and minke whales is not well documented within the project area. Nonetheless, NMFS uses the data on cetacean distribution within Massachusetts Bay, such as those published by the National Centers for Coastal Ocean Science (NCCOS 2006), to estimate potential takes of marine mammals species in the vicinity of project area.

The NCCOS study used cetacean sightings from two sources: (1) the North Atlantic Right Whale Consortium (NARWC) sightings database held at the University of Rhode Island (Kenney, 2001); and (2) the Manomet Bird Observatory (MBO) database, held at NMFS Northeast Fisheries Science Center (NEFSC). The NARWC data contained survey efforts and sightings data from ship and aerial surveys and opportunistic sources between 1970 and 2005. The main data contributors included: Cetacean and Turtles Assessment Program (CETAP), Canadian Department of Fisheries and Oceans, PCCS, International Fund for Animal Welfare, NOAA's NEFSC, New England Aquarium, Woods Hole Oceanographic Institution, and the University of Rhode Island. A total of 653,725 km (406,293 mi) of survey track and 34,589 cetacean observations were provisionally selected for the NCCOS study in order to minimize bias from uneven allocation of survey effort in both time and space. The sightings-per-unit-effort (SPUE) was calculated for all cetacean species by month covering the southern Gulf of Maine study area, which also includes the project area (NCCOS, 2006).

The MBO's Cetacean and Seabird Assessment Program (CSAP) was contracted from 1980 to 1988 by NMFS NEFSC to provide an assessment of the relative abundance and distribution of cetaceans, seabirds, and marine turtles in the shelf waters of the northeastern United States (MBO, 1987). The CSAP program was designed to be completely compatible

with NMFS NEFSC databases so that marine mammal data could be compared directly with fisheries data throughout the time series during which both types of information were gathered. A total of 5,210 km (8,383 mi) of survey distance and 636 cetacean observations from the MBO data were included in the NCCOS analysis. Combined valid survey effort for the NCCOS studies included 567,955 km (913,840 mi) of survey track for small cetaceans (dolphins and porpoises) and 658,935 km (1,060,226 mi) for large cetaceans (whales) in the southern Gulf of Maine. The NCCOS study then combined these two data sets by extracting cetacean sighting records, updating database field names to match the NARWC database, creating geometry to represent survey tracklines and applying a set of data selection criteria designed to minimize uncertainty and bias in the data used.

Owing to the comprehensiveness and total coverage of the NCCOS cetacean distribution and abundance study, NMFS calculated the estimated take number of marine mammals based on the most recent NCCOS report published in December 2006. A summary of seasonal cetacean distribution and abundance in the project area is provided above, in the "Description of Marine Mammals in the Area of the Specified Activities" section. For a detailed description and calculation of the cetacean abundance data and SPUE, please refer to the NCCOS study (NCCOS, 2006). These data show that the relative abundance of North Atlantic right, fin, humpback, minke, sei, and pilot whales, and Atlantic white-sided dolphins for all seasons, as calculated by SPUE in number of animals per square kilometer, is 0.0082, 0.0097, 0.0118, 0.0059, 0.0084, 0.0407, and 0.1314 n/km, respectively.

In calculating the area density of these species from these linear density data, NMFS used 0.5 mi (0.825 km) as the hypothetical strip width (W). This strip width is based on the distance of visibility used in the NARWC data that was part of the NCCOS (2006) study. However, those

surveys used a strip transect instead of a line transect methodology. Therefore, in order to obtain a strip width, one must divide the visibility or transect value in half. Since the visibility value used in the NARWC data was 2.3 mi (3.7 km), it thus gives a strip width of 1.15 mi (1.85 km). The hypothetical strip width used in the analysis is less than half of that derived from the NARWC data, therefore, the analysis provided here is more protective in calculating marine mammal densities in the area. Based on this information, the area density (D) of these species in the project area can be obtained by the following formula:

$$D = SPUE/2W$$

where D is marine mammal density in the area, and W is the strip width. Based on this calculation method, the estimated take numbers per year for North Atlantic right, fin, humpback, minke, sei, and pilot whales, and Atlantic white-sided dolphins by the NEG Port facility operations (maximum 65 visits per year), NEG Port maintenance and repair (up to 14 days per year), and Algonquin Pipeline Lateral operation and maintenance (up to 40 days per year), are 29, 35, 42, 21, 30, 145, and 469, respectively (Table 4). These numbers represent approximately 6.59%, 1%, 5.12%, 0.1%, 8.4%, 1.2%, and 1% of the populations for these species based on the latest NMFS Atlantic marine mammal stock assessment reports (Waring et al. 2013), respectively. Since it is very likely that individual animals could be "taken" by harassment multiple times, these percentages are the upper boundary of the animal population that could be affected. The actual number of individual animals being exposed or taken would likely be far less. There is no danger of injury, death, or hearing impairment from the exposure to these noise levels.

Table 4. Estimated annual takes of marine mammals from the NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities in Massachusetts Bay

Species	Population/stock	Number of takes
Right whale	Western Atlantic	29
Humpback whale	Gulf of Maine	42

Fin whale	Western North Atlantic	35
Sei whale	Nova Scotia	30
Minke whale	Canadian East Coast	21
Long-finned pilot whale	Western North Atlantic	145
Atlantic white-sided dolphin	Western North Atlantic	469
Bottlenose dolphin	Western North Atlantic Southern Migratory	20
Short-beaked common dolphin	Western North Atlantic	40
Risso's dolphin	Western North Atlantic	40
Killer whale	Western North Atlantic	10
Harbor porpoise	Gulf of Maine/Bay of Fundy	20
Harbor seal	Western North Atlantic	60
Gray seal	Western North Atlantic	30

In addition, bottlenose dolphins, common dolphins, killer whales, Risso's dolphins, harbor porpoises, harbor seals, and gray seals could also be taken by Level B harassment as a result of deepwater NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair. Since these species are less likely to occur in the area, and there are no density estimates specific to this particular area, NMFS based the take estimates on typical group size. Therefore, NMFS estimates that up to approximately 20 bottlenose dolphins, 40 short-beaked common dolphins, 40 Risso's dolphins, 10 killer whales, 20 harbor porpoises, 60 harbor seals, and 30 gray seals could be exposed to continuous noise at or above 120 dB re 1 µPa rms incidental to operations during the one year period of the IHA, respectively. These numbers represent 0.16%, 0.06%, 0.26%, and 0.03% of the bottlenose dolphin, short-beaked common dolphin, Risso's dolphin, and harbor porpoise populations/stocks. Since no population/stock estimates for killer whale, and harbor and gray seals is available, the percentage of estimated takes for these species is unknown. Nevertheless, since Massachusetts Bay represents only a small fraction of the western North Atlantic basin where these animals occur NMFS has preliminarily determined that the takes of 10 killer whales, 60 harbor seals, and 30 gray seals represent a small fraction of the population and stocks of these species (Table 3). The take estimates presented in this section of the document do

not take into consideration the mitigation and monitoring measures that are proposed for inclusion in the IHA.

Negligible Impact and Small Numbers Analysis and Preliminary Determination

NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." In making a negligible impact determination, NMFS considers a variety of factors, including but not limited to: (1) the number of anticipated mortalities; (2) the number and nature of anticipated injuries; (3) the number, nature, intensity, and duration of Level B harassment; and (4) the context in which the takes occur.

No injuries or mortalities are anticipated to occur as a result of proposed Northeast Gateway LNG Port Algonquin Pipeline Lateral operations and maintenance and repair activities, and none are proposed to be authorized by NMFS. Additionally, animals in the area are not anticipated to incur any hearing impairment (i.e., TTS or PTS), as the modeling of source levels indicates that none of the source received levels exceed 180 dB (rms).

While some of the species occur in the proposed project area year-round, some species only occur in the area during certain seasons. Humpback and minke whales are not expected in the project area in the winter. During the winter, a large portion of the North Atlantic right whale population occurs in the southeastern U.S. calving grounds (i.e., South Carolina, Georgia, and northern Florida). The fact that certain activities will occur during times when certain species are not commonly found in the area will help reduce the amount of Level B harassment for these species.

Many animals perform vital functions, such as feeding, resting, traveling, and socializing,

on a diel cycle (24-hr cycle). Behavioral reactions to noise exposure (such as disruption of critical life functions, displacement, or avoidance of important habitat) are more likely to be significant if they last more than one diel cycle or recur on subsequent days (Southall et al., 2007). Consequently, a behavioral response lasting less than one day and not recurring on subsequent days is not considered particularly severe unless it could directly affect reproduction or survival (Southall et al. 2007). Operational activities are not anticipated to occur at the Port on consecutive days. In addition, Northeast Gateway EBRVs are expected to make 65 port calls throughout the year, with thruster use needed for a couple of hours. Therefore, Northeast Gateway will not be creating increased sound levels in the marine environment for prolonged periods of time.

Of the 14 marine mammal species likely to occur in the area, four are listed as endangered under the ESA: North Atlantic right, humpback, and fin whales. All of these species are also considered depleted under the MMPA. There is currently no designated critical habitat or known reproductive areas for any of these species in or near the proposed project area. However, there are several well known North Atlantic right whale feeding grounds in the Cape Cod Bay and Great South Channel. No mortality or injury is expected to occur, and due to the nature, degree, and context of the Level B harassment anticipated, the activity is not expected to impact rates of recruitment or survival. There is no critical habitat or biologically important areas for marine mammals within the proposed project area.

The population estimates for the species that may be taken by Level B behavioral harassment contained in the most recent U.S. Atlantic Stock Assessment Reports were provided earlier in this document. From the most protective estimates of both marine mammal densities in the project area and the size of the 120-dB ZOI, the maximum calculated number of individual

marine mammals for each species that could potentially be harassed annually is small relative to the overall population sizes.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS preliminarily finds that the proposed Northeast Gateway LNG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities would result in the incidental take of small numbers of marine mammals, by Level B harassment only, and that the total taking from Northeast Gateway and Algonquin's proposed activities will have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Proposed Incidental Harassment Authorization

This section contains a draft of the IHA itself. The wording contained in this section is proposed for inclusion in the IHA (if issued).

(1) This Authorization is valid from January 6, 2014, through January 5, 2015.

(2) This Authorization is valid only for activities associated with Northeast Gateway's LNG Port and Algonquin's Pipeline Lateral operations and maintenance and repair activities in the Massachusetts Bay. The specific area of the activities is shown in Figure 2-1 of the Excelerate Energy, L.P. and Tetra Tech EC., Inc.'s IHA application.

(3)(a) The species authorized for incidental harassment takings, Level B harassment only,

are: right whales (Eubalaena glacialis); fin whales (Balaenoptera physalus); humpback whales (Megaptera novaeangliae); minke whales (B. acutorostrata); sei whales (B. borealis); long-finned pilot whales (Globicephala melas); Atlantic white-sided dolphins (Lagenorhynchus acutus); bottlenose dolphins (Tursiops truncatus); short-beaked common dolphins (Delphinus delphis); Risso's dolphin (Grampus griseus); killer whales (Orcinus orca); harbor porpoises (Phocoena phocoena); harbor seals (Phoca vitulina); and gray seals (Halichoerus grypus).

(3)(b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:

(i) NEG Port operations;

(ii) NEG Port maintenance and repair; and

(iii) Algonquin Pipeline Lateral operations and maintenance.

(3)(c) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the National Marine Fisheries Service (NMFS) Northeast Regional Administrator (978-281-9300) or his designee (978-282-8468), NMFS Headquarter Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at (301-427-8401), or his designee (301-427-8418).

(4) Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 3. The taking by Level A harassment, injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(b) The taking of any marine mammal is prohibited whenever the required mitigation

measures under (5) of this authorization are not implemented.

(5) Mitigation

(a) General Marine Mammal Avoidance Measures

(i) All vessels shall utilize the International Maritime Organization (IMO)-approved Boston Traffic Separation Scheme (TSS) on their approach to and departure from the NEG Port and/or the repair/maintenance area at the earliest practicable point of transit in order to avoid the risk of whale strikes.

(ii) Upon entering the TSS and areas where North Atlantic right whales are known to occur, including the Great South Channel Seasonal Management Area (GSC-SMA) and the SBNMS, the EBRV shall go into "Heightened Awareness" as described below.

(A) Prior to entering and navigating the modified TSS the Master of the vessel shall:

(I) Consult Navigational Telex (NAVTEX), NOAA Weather Radio, the NOAA Right Whale Sighting Advisory System (SAS) or other means to obtain current right whale sighting information as well as the most recent Cornell acoustic monitoring buoy data for the potential presence of marine mammals;

(II) Post a look-out to visually monitor for the presence of marine mammals;

(III) Provide the US Coast Guard (USCG) required 96-hour notification of an arriving EBRV to allow the NEG Port Manager to notify Cornell of vessel arrival.

(B) The look-out shall concentrate his/her observation efforts within the 2-mile radius zone of influence (ZOI) from the maneuvering EBRV.

(C) If marine mammal detection was reported by NAVTEX, NOAA Weather Radio, SAS and/or an acoustic monitoring buoy, the look-out shall concentrate visual monitoring efforts towards the areas of the most recent detection.

(D) If the look-out (or any other member of the crew) visually detects a marine mammal within the 2-mile radius ZOI of a maneuvering EBRV, he/she will take the following actions:

(I) The Officer-of-the-Watch shall be notified immediately; who shall then relay the sighting information to the Master of the vessel to ensure action(s) can be taken to avoid physical contact with marine mammals.

(II) The sighting shall be recorded in the sighting log by the designated look-out.

(iii) In accordance with 50 CFR 224.103(c), all vessels associated with NEG Port and Pipeline Lateral activities shall not approach closer than 500 yards (460 m) to a North Atlantic right whale and 100 yards (91 m) to other whales to the extent physically feasible given navigational constraints. In addition, when approaching and departing the project area, vessels shall be operated so as to remain at least 1 km away from any visually-detected North Atlantic right whales.

(iv) In response to active right whale sightings and active acoustic detections, and taking into account exceptional circumstances, EBRVs, repair and maintenance vessels shall take appropriate actions to minimize the risk of striking whales. Specifically vessels shall:

(A) Respond to active right whale sightings and/or DMAs reported on the Mandatory Ship Reporting (MSR) or SAS by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less if the vessel is within the boundaries of a DMA (50 CFR 224.105) or within the circular area centered on an area 8 nm in radius from a sighting location;

(B) Respond to active acoustic detections by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less within an area 5 nm in radius centered on the detecting AB; and

(C) Respond to additional sightings made by the designated look-outs within a 2-mile radius of the vessel by slowing the vessel to 10 knots or less and concentrating monitoring efforts towards the area of most recent sighting.

(v) All vessels operated under NEG and Algonquin must follow the established specific speed restrictions when calling at the NEG Port. The specific speed restrictions required for all vessels (i.e., EBRVs and vessels associated with maintenance and repair) consist of the following:

(A) Vessels shall reduce their maximum transit speed while in the TSS from 12 knots or less to 10 knots or less from March 1 to April 30 in all waters bounded by straight lines connecting the following points in the order stated below unless an emergency situation dictates for an alternate speed. This area shall hereafter be referred to as the Off Race Point Seasonal Management Area (ORP-SMA) and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 70°30' W	41°40' N 69°57' W
42°30' N 69°45' W	42°12' N 70°15' W
41°40' N 69°45' W	42°12' N 70°30' W
42°04.8' N 70°10' W	42°30' N 70°30' W

(B) Vessels shall reduce their maximum transit speed while in the TSS to 10 knots or less unless an emergency situation dictates for an alternate speed from April 1 to

July 31 in all waters bounded by straight lines connecting the following points in the order stated below. This area shall hereafter be referred to as the GSC-SMA and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 69°45' W	41°40' N 69°45' W
42°30' N 67°27' W	42°30' N 69°45' W
42°09' N 67°08.4' W	41°00' N 69°05' W

(C) Vessels are not expected to transit the Cape Cod Bay or the Cape Cod Canal; however, in the event that transit through the Cape Cod Bay or the Cape Cod Canal is required, vessels shall reduce maximum transit speed to 10 knots or less from January 1 to May 15 in all waters in Cape Cod Bay, extending to all shorelines of Cape Cod Bay, with a northern boundary of 42°12' N latitude and the Cape Cod Canal. This area shall hereafter be referred to as the Cape Cod Bay Seasonal Management Area (CCB-SMA).

(D) All Vessels transiting to and from the project area shall report their activities to the mandatory reporting Section of the USCG to remain apprised of North Atlantic right whale movements within the area. All vessels entering and exiting the MSRA shall report their activities to WHALESNORTH. Vessel operators shall contact the USCG by standard procedures promulgated through the Notice to Mariner system.

(E) All Vessels greater than or equal to 300 gross tons (GT) shall maintain a speed of 10 knots or less, unless an emergency situation requires speeds greater than 10 knots.

(F) All Vessels less than 300 GT traveling between the shore and the project area that are not generally restricted to 10 knots will contact the Mandatory Ship Reporting (MSR) system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 kilometers) of any sighting location, when traveling in any of the seasonal management areas (SMAs) or when traveling in any active dynamic management area (DMA).

(b) NEG Port-specific Operations

(i) In addition to the general marine mammal avoidance requirements identified in (5)(a) above, vessels calling on the NEG Port must comply with the following additional requirements:

(A) EBRVs shall travel at 10 knots maximum speed when transiting to/from the TSS or

to/from the NEG Port/Pipeline Lateral area. For EBRVs, at 1.86 miles (3 km) from the NEG Port, speed will be reduced to 3 knots and to less than 1 knot at 1,640 ft (500 m) from the NEG buoys, unless an emergency situation dictates the need for an alternate speed.

(B) EBRVs that are approaching or departing from the NEG Port and are within the ATBA5 surrounding the NEG Port, shall remain at least 1 km away from any visually-detected North Atlantic right whale and at least 100 yards (91 m) away from all other visually-detected whales unless an emergency situation requires that the vessel stay its course. During EBRV maneuvering, the Vessel Master shall designate at least one look-out to be exclusively and continuously monitoring for the presence of marine mammals at all times while the EBRV is approaching or departing from the NEG Port.

(C) During NEG Port operations, in the event that a whale is visually observed within 1 km of the NEG Port or a confirmed acoustic detection is reported on either of the two ABs closest to the NEG Port (western-most in the TSS array), departing EBRVs shall delay their departure from the NEG Port, unless an emergency situation requires that departure is not delayed. This departure delay shall continue until either the observed whale has been visually (during daylight hours) confirmed as more than 1 km from the NEG Port or 30 minutes have passed without another confirmed detection either acoustically within the acoustic detection range of the two ABs closest to the NEG Port, or visually within 1 km from the NEG Port.

(ii) Vessel captains shall focus on reducing dynamic positioning (DP) thruster power to the maximum extent practicable, taking into account vessel and Port safety, during the operation activities. Vessel captains will shut down thrusters whenever they are not needed.

(c) Planned and Unplanned Maintenance and Repair Activities

(i) NEG Port

(A) The Northeast Gateway shall conduct empirical source level measurements on all noise emitting construction equipment and all vessels that are involved in maintenance/repair work.

(B) If dynamic positioning (DP) systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m, activities shall be conducted in accordance with the requirements for DP systems listed in (5)(b)(ii).

(C) Northeast Gateway shall provide the NMFS Headquarters Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and SBNMS with a minimum of 30 days notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Northeast Gateway shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

(ii) Pipeline Lateral

(A) Pipeline maintenance/repair vessels less than 300 GT traveling between the shore and the maintenance/repair area that are not generally restricted to 10 knots shall contact the MSR system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 km) of any sighting location, when travelling in any of the seasonal management areas (SMAs) as defined above.

(B) Maintenance/repair vessels greater than 300 GT shall not exceed 10 knots, unless an emergency situation that requires speeds greater than 10 knots.

(C) Planned maintenance and repair activities shall be restricted to the period between May 1 and November 30.

(D) Unplanned/emergency maintenance and repair activities shall be conducted utilizing anchor-moored dive vessel whenever operationally possible.

(E) Algonquin shall also provide the NMFS Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and Stellwagen Bank National Marine Sanctuary (SBNMS) with a minimum of 30-day notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Algonquin shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

(F) If dynamic positioning (DP) systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 µPa at 1 m, activities shall be conducted in accordance with the requirements for DP systems listed in (5)(b)(ii).

(G) In the event that a whale is visually observed within 0.5 mile (0.8 kilometers) of a repair or maintenance vessel, the vessel superintendent or on-deck supervisor shall be notified immediately. The vessel's crew shall be put on a heightened state of alert and the marine mammal shall be monitored constantly to determine if it is moving toward the repair or maintenance area.

(H) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 µPa @ 1 m or higher when a right whale is sighted within or approaching at 500 yd (457 m) from the vessel. Repair and maintenance work

may resume after the marine mammal is positively reconfirmed outside the established zones (500 yd [457 m]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(I) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 µPa @ 1 m or higher when a marine mammal other than a right whale is sighted within or approaching at 100 yd (91 m) from the vessel. Repair and maintenance work may resume after the marine mammal is positively reconfirmed outside the established zones (100 yd [91 m]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(J) Algonquin and associated contractors shall also comply with the following:

(I) Operations involving excessively noisy equipment (source level exceeding 139 dB re 1µPa @ 1 m) shall "ramp-up" sound sources, allowing whales a chance to leave the area before sounds reach maximum levels. In addition, Northeast Gateway, Algonquin, and other associated contractors shall maintain equipment to manufacturers' specifications, including any sound-muffling devices or engine covers in order to minimize noise effects. Noisy construction equipment shall only be used as needed and equipment shall be turned off when not in operation.

(II) Any material that has the potential to entangle marine mammals (e.g., anchor lines, cables, rope or other construction debris) shall only be deployed as needed and measures shall be taken to minimize the chance of entanglement.

(III) For any material that has the potential to entangle marine mammals, such material shall be removed from the water immediately unless such action jeopardizes the safety of the vessel and crew as determined by the Captain of the vessel.

(IV) In the event that a marine mammal becomes entangled, the marine mammal coordinator and/or PSO will notify NMFS (if outside the SBNMS), and SBNMS staff (if inside the SBNMS) immediately so that a rescue effort may be initiated.

(K) All maintenance/repair activities shall be scheduled to occur between May 1 and November 30; however, in the event of unplanned/emergency repair work that cannot be scheduled during the preferred May through November work window, the following additional measures shall be followed for Pipeline Lateral maintenance and repair related activities between December and April:

(I) Between December 1 and April 30, if on-board PSOs do not have at least 0.5-mile visibility, they shall call for a shutdown. At the time of shutdown, the use of thrusters must be minimized. If there are potential safety problems due to the shutdown, the captain will decide what operations can safely be shut down.

(II) Prior to leaving the dock to begin transit, the barge shall contact one of the PSOs on watch to receive an update of sightings within the visual observation area. If the PSO has observed a North Atlantic right whale within 30 minutes of the transit start, the vessel shall hold for 30 minutes and again get a clearance to leave from the PSOs on board. PSOs shall assess whale activity and visual observation ability at the time of the transit request to clear the barge for release.

(III) Transit route, destination, sea conditions and any marine mammal sightings/mitigation actions during watch shall be recorded in the log book. Any whale sightings within 1,000 m of the vessel shall result in a high alert and slow speed of 4 knots or less and a sighting within 750 m shall result in idle speed and/or ceasing all movement.

(IV) The material barges and tugs used in repair and maintenance shall transit from the

operations dock to the work sites during daylight hours when possible provided the safety of the vessels is not compromised. Should transit at night be required, the maximum speed of the tug shall be 5 knots.

(V) All repair vessels must maintain a speed of 10 knots or less during daylight hours. All vessels shall operate at 5 knots or less at all times within 5 km of the repair area.

(d) Acoustic Monitoring Related Activities

(i) Vessels associated with maintaining the acoustic seafloor array of Marine Autonomous Recording Units (MARUs) and the AB network operating as part of the mitigation/monitoring protocols shall adhere to the following speed restrictions and marine mammal monitoring requirements.

(A) Vessels maintaining the MARU array that are greater than 300 gross tons (GT) shall not exceed 10 knots.

(B) Vessels maintaining the MARU array that are less than 300 GT shall not exceed 15 knots at any time, but shall adhere to speeds of 10 knots or less in the following areas and seasons:

(I) In the ORP-SMA between March 1 and April 30; and

(II) In the CCB-SMA between January 1 and May 15.

(C) In accordance with NOAA Regulation 50 CFR 224.103 (c), all vessels associated with NEG Port activities shall not approach closer than 500 yards (460 meters) to a North Atlantic right whale.

(D) All vessels shall obtain the latest DMA or right whale sighting information via the NAVTEX, MSR, SAS, NOAA Weather Radio, or other available means prior to operations to determine if there are right whales present in the operational area.

(6) Monitoring

(a) Vessel-based visual monitoring

(i) Vessel-based monitoring for marine mammals shall be done by trained look-outs during NEG LNG Port and Pipeline Lateral operations and maintenance and repair activities. The observers shall monitor the occurrence of marine mammals near the vessels during LNG Port and Pipeline Lateral related activities. Lookout duties include watching for and identifying marine mammals; recording their numbers, distances, and reactions to the activities; and documenting "take by harassment".

(ii) The vessel look-outs assigned to visually monitor for the presence of marine mammals and shall be provided with the following:

(A) Recent NAVTEX, NOAA Weather Radio, SAS and/or acoustic monitoring buoy detection data;

(B) Binoculars to support observations;

(C) Marine mammal detection guide sheets; and

(D) Sighting log.

(b) NEG LNG Port Operations

(i) All individuals onboard the EBRVs responsible for the navigation duties and any other personnel that could be assigned to monitor for marine mammals shall receive training on marine mammal sighting/reporting and vessel strike avoidance measures.

(ii) While an EBRV is navigating within the designated TSS, there shall be three people with look-out duties on or near the bridge of the ship including the Master, the Officer-of-the-Watch and the Helmsman-on-watch. In addition to the standard watch procedures, while the EBRV is transiting within the designated TSS, maneuvering within the Area to be Avoided (ATBA), and/or while actively engaging in the use of thrusters, an additional look-out

shall be designated to exclusively and continuously monitor for marine mammals.

(iii) All sightings of marine mammals by the designated look-out, individuals posted to navigational look-out duties and/or any other crew member while the EBRV is transiting within the TSS, maneuvering within the ATBA and/or when actively engaging in the use of thrusters, shall be immediately reported to the Officer-of-the-Watch who shall then alert the Master. The Master or Officer-of-the-Watch shall ensure the required reporting procedures are followed and the designated marine mammal look-out records all pertinent information relevant to the sighting.

(iv) Visual sightings made by look-outs from the EBRVs shall be recorded using a standard sighting log form. Estimated locations shall be reported for each individual and/or group of individuals categorized by species when known. This data shall be entered into a database and a summary of monthly sighting activity shall be provided to NMFS. Estimates of take and copies of these log sheets shall also be included in the reports to NMFS.

(c) Planned and Unplanned Maintenance and Repair

(i) Two (2) qualified and NMFS-approved protected species observers (PSOs) shall be assigned to each vessel that will use dynamic positioning (DP) systems during maintenance and repair related activities. PSOs shall operate individually in designated shifts to accommodate adequate rest schedules. Additional PSOs shall be assigned to additional vessels if auto-detection buoy (AB) data indicates that sound levels exceed 120 dB re 1 μPa, further then 100 meters (328 feet) from these vessels.

(ii) All PSOs shall receive NMFS-approved marine mammal observer training and be approved in advance by NMFS after review of their resume. All PSOs shall have direct field experience on marine mammal vessels and/or aerial surveys in the Atlantic Ocean/Gulf of Mexico.

(iii) PSOs (one primary and one secondary) shall be responsible for visually locating marine mammals at the ocean's surface and, to the extent possible, identifying the species. The primary PSO shall act as the identification specialist and the secondary PSO will serve as data recorder and also assist with identification. Both PSOs shall have responsibility for monitoring for the presence of marine mammals and sea turtles. Specifically PSO's shall:

(A) Monitor at all hours of the day, scanning the ocean surface by eye for a minimum of 40 minutes every hour.

(B) Monitor the area where maintenance and repair work is conducted beginning at daybreak using 25x power binoculars and/or hand-held binoculars. Night vision devices must be provided as standard equipment for monitoring during low-light hours and at night.

(C) Conduct general 360° visual monitoring during any given watch period and target scanning by the observer shall occur when alerted of a whale presence.

(D) Alert the vessel superintendent or construction crew supervisor of visual detections within 2 miles (3.31 kilometers) immediately.

(E) Record all sightings on marine mammal field sighting logs. Specifically, all data shall be entered at the time of observation, notes of activities will be kept, and a daily report prepared and attached to the daily field sighting log form. The basic reporting requirements include the following:

- Beaufort sea state;
- Wind speed;
- Wind direction;
- Temperature;
- Precipitation;

- Glare;
- Percent cloud cover;
- Number of animals;
- Species;
- Position;
- Distance;
- Behavior;
- Direction of movement; and
- Apparent reaction to construction activity.

(iv) In the event that a whale is visually observed within the 2-mile (3.31-kilometers) zone of influence (ZOI) of a DP vessel or other construction vessel that has shown to emit noise with source level in excess of 139 dB re 1 µPa @ 1 m, the PSO will notify the repair/maintenance construction crew to minimize the use of thrusters until the animal has moved away, unless there are divers in the water or an ROV is deployed.

(d) Acoustic Monitoring

(i) Northeast Gateway shall monitor the noise environment in Massachusetts Bay in the vicinity of the NEG Port and Pipeline Lateral using an array of 19 MARUs that were deployed initially in April 2007 to collect data during NEG LNG Port and Pipeline Lateral related activities.

(ii) The acoustic data collected by the MARUs shall be analyzed to document the seasonal occurrences and overall distributions of whales (primarily fin, humpback and right whales) within approximately 10 nm of the NEG Port and shall measure and document the noise "budget" of Massachusetts Bay so as to eventually assist in determining whether or not an overall increase in noise in the Bay associated with the Project might be having a potentially negative

impact on marine mammals.

(iii) In addition to the 19 MARUs, Northeast Gateway shall deploy 10 ABs within the Separation Zone of the TSS for the operational life of the Project.

(iv) The ABs shall be used to detect a calling North Atlantic right whale an average of 5 nm from each AB. The AB system shall be the primary detection mechanism that alerts the EBRV Master to the occurrence of right whales, heightens EBRV awareness, and triggers necessary mitigation actions as described in section (5) above.

(e) Acoustic Whale Detection and Response Plan

(i) NEG Port Operations

(A) Ten (10) ABs that have been deployed since 2007 shall be used to continuously screen the low-frequency acoustic environment (less than 1,000 Hertz) for right whale contact calls occurring within an approximately 5-nm radius from each buoy (the AB's detection range).

(B) Once a confirmed detection is made, the Master of any EBRVs operating in the area will be alerted immediately.

(ii) NEG Port and Pipeline Lateral Planned and Unplanned/Emergency Repair and Maintenance Activities

(A) If the repair/maintenance work is located outside of the detectible range of the 10 project area ABs, Northeast Gateway and Algonquin shall consult with NOAA (NMFS and SBNMS) to determine if the work to be conducted warrants the temporary installation of an additional AB(s) to help detect and provide early warnings for potential occurrence of right whales in the vicinity of the repair area.

(B) The number of ABs installed around the activity site shall be commensurate with the type and spatial extent of maintenance/repair work required, but must be sufficient to detect

vocalizing right whales within the 120-dB impact zone.

(C) Should acoustic monitoring be deemed necessary during a planned or unplanned/emergency repair and/or maintenance event, active monitoring for right whale calls shall begin 24 hours prior to the start of activities.

(D) Source level data from the acoustic recording units deployed in the NEG Port and/or Pipeline Lateral maintenance and repair area shall be provided to NMFS.

(7) Reporting

(a) Throughout NEG Port and Pipeline Lateral operations, Northeast Gateway and Algonquin shall provide a monthly Monitoring Report. The Monitoring Report shall include:

(i) Both copies of the raw visual EBRV lookout sighting information of marine mammals that occurred within 2 miles of the EBRV while the vessel transits within the TSS, maneuvers within the ATBA, and/or when actively engaging in the use of thrusters, and a summary of the data collected by the look-outs over each reporting period.

(ii) Copies of the raw PSO sightings information on marine mammals gathered during pipeline repair or maintenance activities. This visual sighting data shall then be correlated to periods of thruster activity to provide estimates of marine mammal takes (per species/species class) that took place during each reporting period.

(iii) Conclusion of any planned or unplanned/emergency repair and/or maintenance period, a report shall be submitted to NMFS summarizing the repair/maintenance activities, marine mammal sightings (both visual and acoustic), empirical source-level measurements taken during the repair work, and any mitigation measures taken.

(b) During the maintenance and repair of NEG Port components, weekly status reports shall be provided to NOAA (both NMFS and SBNMS) using standardized reporting forms. The

weekly reports shall include data collected for each distinct marine mammal species observed in the repair/maintenance area during the period that maintenance and repair activities were taking place. The weekly reports shall include the following information:

(i) Location (in longitude and latitude coordinates), time, and the nature of the maintenance and repair activities;

(ii) Indication of whether a DP system was operated, and if so, the number of thrusters being used and the time and duration of DP operation;

(iii) Marine mammals observed in the area (number, species, age group, and initial behavior);

(iv) The distance of observed marine mammals from the maintenance and repair activities;

(v) Changes, if any, in marine mammal behaviors during the observation;

(vi) A description of any mitigation measures (power-down, shutdown, etc.) implemented;

(vii) Weather condition (Beaufort sea state, wind speed, wind direction, ambient temperature, precipitation, and percent cloud cover etc.);

(viii) Condition of the observation (visibility and glare); and

(ix) Details of passive acoustic detections and any action taken in response to those detections.

(d) Injured/Dead Protected Species Reporting

(i) In the unanticipated event that survey operations clearly cause the take of a marine mammal in a manner prohibited by the proposed IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), NEG and/or

Algonquin shall immediately cease activities and immediately report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and the Northeast Regional Stranding Coordinators (Mendy.Garron@noaa.gov or Lanni.Hall@noaa.gov) or by phone at 978-281-9300. The report must include the following information:

(A) time, date, and location (latitude/longitude) of the incident;

(B) the name and type of vessel involved;

(C) the vessel's speed during and leading up to the incident;

(D) description of the incident;

(E) status of all sound source use in the 24 hours preceding the incident;

(F) water depth;

(G) environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);

(H) description of marine mammal observations in the 24 hours preceding the incident;

(I) species identification or description of the animal(s) involved;

(J) the fate of the animal(s); and

(K) photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with NEG and/or Algonquin to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. NEG and/or Algonquin may not resume their activities until notified by NMFS via letter, email, or telephone.

(ii) In the event that NEG and/or Algonquin discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), NEG and/or Algonquin will immediately report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and the NMFS Northeast Stranding Coordinators (Mendy.Garron@noaa.gov or Lanni.Hall@noaa.gov) or by phone at 978-281-9300, within 24 hours of the discovery. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with NEG and/or Algonquin to determine whether modifications in the activities are appropriate.

(iii) In the event that NEG or Algonquin discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized (if the IHA is issued) (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), NEG and/or Algonquin shall report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Shane.Guan@noaa.gov and the NMFS Northeast Stranding Coordinators (Mendy.Garron@noaa.gov or Lanni.Hall@noaa.gov) or by phone at 978-281-9300, within 24 hours of the discovery. NEG and/or Algonquin shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. NEG and/or Algonquin can continue its operations under

such a case.

Endangered Species Act (ESA)

On February 5, 2007, NMFS concluded consultation with MARAD and the USCG, under section 7 of the ESA, on the proposed construction and operation of the Northeast Gateway LNG facility and issued a biological opinion. The finding of that consultation was that the construction and operation of the Northeast Gateway LNG terminal may adversely affect, but is not likely to jeopardize, the continued existence of northern right, humpback, and fin whales, and is not likely to adversely affect sperm, sei, or blue whales and Kemp's ridley, loggerhead, green or leatherback sea turtles. An incidental take statement (ITS) was issued following NMFS' issuance of the 2007 IHA.

On November 15, 2007, Northeast Gateway and Algonquin submitted a letter to NMFS requesting an extension for the LNG Port construction into December 2007. Upon reviewing Northeast Gateway's weekly marine mammal monitoring reports submitted under the previous IHA, NMFS Permits and Conservation Division (PR1) recognized that the potential take of some marine mammals resulting from the LNG Port and Pipeline Lateral by Level B behavioral harassment likely had exceeded the original take estimates. Therefore, NMFS Northeast Regional Office (NERO) reinitiated consultation with MARAD and USCG on the construction and operation of the Northeast Gateway LNG facility. On November 30, 2007, NMFS NERO issued a revised biological opinion, reflecting the revised construction time period and including a revised ITS. This revised biological opinion concluded that the construction and operation of the Northeast Gateway LNG terminal may adversely affect, but is not likely to jeopardize, the continued existence of northern right, humpback, and fin whales, and is not likely to adversely affect sperm, sei, or blue whales.

However, both biological opinions only analyzed ESA-listed species for activities under the initial short construction period and during operations, and did not take into consideration potential impacts to marine mammals that could result from the subsequent LNG Port and Pipeline Lateral maintenance and repair activities. In addition, NEG also revealed that significantly more water usage and vessel operating air emissions are needed from what was originally evaluated for the LNG Port operation. NMFS PR1 has initiated consultation with NMFS NERO under section 7 of the ESA on the issuance of an IHA to NEG under section 101(a)(5)(D) of the MMPA for the proposed activities that include increased NEG Port and Algonquin Pipeline Lateral maintenance and repair and water usage for the LNG Port operations this activity. Consultation will be concluded prior to a determination on the issuance of an IHA.

National Environmental Policy Act

MARAD and the USCG released a Final EIS/Environmental Impact Report (EIR) for the proposed Northeast Gateway Port and Pipeline Lateral. A notice of availability was published by MARAD on October 26, 2006 (71 FR 62657). The Final EIS/EIR provides detailed information on the proposed project facilities, construction methods and analysis of potential impacts on marine mammals.

NMFS was a cooperating agency (as defined by the Council on Environmental Quality (40 CFR 1501.6)) in the preparation of the Draft and Final EISs. NMFS reviewed the Final EIS and adopted it on May 4, 2007. NMFS issued a separate Record of Decision for issuance of authorizations pursuant to section 101(a)(5) of the MMPA for the construction and operation of the Northeast Gateway's LNG Port Facility in Massachusetts Bay.

Dated: November 12, 2013

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Helen M. Golde,
Deputy Director, Office of Protected Resources,
National Marine Fisheries Service.

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