RESPONSE TO COMMENTS

REGARDING THE RESISSUANCE OF THE FOLLOWING NPDES PERMIT

NORTHEAST GATEWAY ENERGY BRIDGE PIPELINE LATERAL PROJECT
MA0040240

INTRODUCTION

On January 25, 2007, the New England office of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) issued a draft National Pollution Discharge Elimination System (NPDES) permit (Draft Permit) to Algonquin Gas Transmission, LLC (Algonquin) and Northeast Gateway Energy Bridge, LLC (NEG). EPA and MassDEP solicited public comments on the Draft Permit from January 25, 2007 through February 23, 2007 and from February 27, 2007 through April 2, 2007. In addition, EPA and MassDEP heard comments on the permit at a public hearing held on March 29, 2007, at the Beverly Public Library, 32 Essex Street, Beverly, Massachusetts.

EPA received one comment from the permittee on April 25, 2007 related to the effective date of the permit. Although the comment was received after the close of the public comment period, EPA has chosen to accept the comment and it is addressed herein.

The Draft NPDES Permit is intended to authorize and set limits for the discharge of pipe flooding and hydrostatic test water by Algonquin and NEG. The facility proposes to discharge to the Massachusetts Bay.

During the public-notice (comment) period EPA received comments from the following individuals on behalf of various organizations or themselves. All comments were submitted in writing unless otherwise noted.

1. Paul J. Diodati, Director, Massachusetts Division of Marine Fisheries
2. Kathy Lordan[1], President, Cape Ann League of Women Voters
3. John Bell, Mayor, City of Gloucester
4. Priscilla M. Brooks[1], Ph.D., Director Ocean Conservation Program, Conservation Law Foundation (CLF)
5. John D. Crawford, Ph.D., Senior Scientist, CLF
6. Vito Giacalone, President, Gloucester Fishermen Association
7. Jean Gallo[1], Gloucester Fishermen's Wives Association
8. David Lincoln[2], Environmental Consultant for Gloucester Fishermen's Wives Association
9. Nina Ropel[2], Gloucester Fishermen's Wives Association
10. Angela Sanfilippo[1], President, Gloucester Fishermen's Wives Association (GFWA)
11. Martha Dansdill, HealthLink
12. Lori Erlich[2], Health Link
13. David Bergeron, Executive Director, Massachusetts Fishermen's Partnership, Inc.
14. William A. Adler, Executive Director, Massachusetts Lobsterman's Association, Inc.

[1] Comments received in writing and via testimony at Public Hearing March 29, 2007

[2] Comments received via testimony at Public Hearing March 29, 2007

15. Capt. Rich Milligan, President, Northeast Charterboat Captains Association
16. Barry Gibson, New England Regional Director, Recreation Fishing Alliance
17. Christine Alexander, SWIM
18. Stephen C. Archer, SWIM
19. Julie Arnold[1], SWIM
20. Polly Bradley[1], Nahant Safer Waters in Massachusetts, Inc. (SWIM)
21. Sarah Byrne, SWIM
22. Tina Chase, SWIM
23. Kerry Coulton, SWIM
24. Katy Dolhun, SWIM
25. John Dolhun, SWIM
26. Salvatore Genovese, Ph.D., President, SWIM
27. Michael Giles, SWIM
28. Philip Joyce[1], SWIM
29. Jenelle Kardenetz, SWIM
30. Janet Lavigne, SWIM
31. Rosemary A. Maglio[1], SWIM
32. Allen Orenstein, SWIM
33. Wendy Payne, SWIM
34. Heidi Roberts[1], Sierra Club, SWIM
35. Mary Rodrick[1], SWIM
36. Gail Tarmey, SWIM
37. Mason Weinrich[1], Executive Director and Chief Scientist, The Whale Center of New England
38. Thomasina Bedingfield
39. Elaine Brown
40. Dale T. Brown, Community Development Director, City of Gloucester
41. Alessandro Cagiati[1]
42. Kathy Cagiati
43. Paula Curley
44. Justin DeMato[2]
45. Kathleen Giamanco
46. Antonina Groppo
47. Patricia Hadley
48. Marcia Hart, R.N.
49. Jay Havighurst[1]
50. Bill Hinckley, Sr.
51. Peg Hinrichs[1], M.Ed.
52. Deborah Holt
53. Robert Horne
54. Robert John[2]
55. Kris Kenyon
56. Renee M. Mary
57. Sheila C. McCarthy
58. Eleanor Melanson
59. Fred Newcombe
60. Pam Newcombe
61. Joseph Orlando[1]
62. Anthony Porcello

63. Dora T. Porcello
64. Deborah Prentice
65. Margaret Rosa
66. Amy Shapiro
67. Nancy Hodgson Smith
68. Mike Sosnowski
69. Raffaele Terzo
70. Rev. Dr. Larry Titus
71. Rev. Dr. Kathryn Titus[1]
72. Susan Yochelson
73. Rob Bryngelson, Executive Vice President and Chief Operating Officer, NEG

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments, including all significant comments, received on the Draft Permit and details any changes made to the Draft Permit as a result of the comments. Since many parties provided comments which were similar in nature, EPA has combined and paraphrased similar comments and provided single responses to these grouped comments. Each comment is coded with the number identifying the individual(s) who provided the comments from the numbered list above.

EPA received several comments regarding proposed LNG deepwater ports that were not specifically related to the NPDES permit in question. EPA has responded to those comments (see comments 28 through 37) to the extent they relate to other EPA functions. However, EPA does not represent any other federal, state or local agency in responding to these comments and does not provide responses to comments concerning the responsibilities of such other agencies.

EPA's decision-making for this permit has benefited from the comments submitted. The information and arguments submitted in the comments resulted in a number of improvements to the permit. In addition, EPA and MassDEP noted some errors in the permit which were corrected. Changes from the Draft Permit, summarized below, are reflected in the Final Permit. These changes do not represent significant changes from the Draft Permit.

Changes Made in the Final Permit

1. The cover page has been revised to indicate that permit will become effective 40 days after signature.
2. Footnote 1 to the table in paragraph I.A.1 has been changed to limit the flow from outfalls 002 and 003 to that from Flowlines A and B, respectively.
3. Paragraph I.A.11 has been added to require that filling and dewatering activities are postponed in the event of a hurricane or tropical storm warning until after the hurricane or tropical depression is no longer a threat to the project area.
4. The contact information in section I.B.6 for the Massachusetts Division of Marine Fisheries has been corrected.
5. Section I.C has been amended to include a requirement that the permittee notify the Coast Guard, at least 72 hours prior to discharge in accordance with the most recent procedures in the project "Marine Communications Plan". This section has also been amended to require that EPA and MassDEP be notified at least 48 hours prior to discharge and within 2 hours after discharge has ceased, and to require that the permittee provide transportation for inspectors as requested from a coastal port location to, and from, the treatment vessels.

6. Section I.A. has been amended to include the following clause, as required by the Ocean Discharge Criteria (40 CFR § 120.120): "In addition to any other grounds specified herein, this permit shall be modified or revoked at any time if, on the basis of any new data, the director determines that continued discharges may cause unreasonable degradation of the marine environment."

Additional Change Made as a Result of Endangered Species Act Consultation

The federal agencies issuing permits and licenses for this Deepwater Port Act project engaged in a formal consultation under Section 7 of the Endangered Species Act (ESA) with the National Oceanic and Atmospheric Administration (NOAA). The Maritime Administration (MARAD) served as the lead agency for this consultation on behalf of the other involved federal agencies, including EPA.

On February 5, 2007, NOAA issued a Biological Opinion under Section 7 of the ESA (the NOAA B.O.) concluding that the deepwater port project would neither likely jeopardize the continued existence of any listed species nor affect any designated critical habitat (NOAA B.O. at 118). NOAA also found, however, that the construction and operation of the deepwater port is likely to result in the take, in the form of acoustic harassment, of certain endangered whales (*Id.* at 118-119).

On May 14, 2007, NOAA also issued an Incidental Take Statement (ITS) under Section 7 of the ESA, as an amendment to the B.O. previously issued to MARAD and the other federal agencies, including EPA. The ITS includes Reasonable and Prudent Measures (RPMs) and Terms and Conditions to be implemented to "minimize the potential for and the impact of any incidental take that might otherwise result from the proposed action."

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

RESPONSE TO COMMENTS

1. COMMENT (2, 10, 39, 48, 49, 51, 54)

EPA should require that the treatment and discharge of biocide-laden seawater be supervised by a neutral party, such as EPA, rather than entrusted to the permittee.

RESPONSE

EPA acknowledges the concern expressed regarding the need for oversight of this one-time discharge. For discharges large or small, continuous or intermittent, the Clean Water Act NPDES program relies upon self-monitoring and reporting, along with oversight and enforcement, to track and ensure compliance with permit requirements. The approach to assuring compliance is the same under many other environmental statutes as well. It is simply infeasible for EPA itself to conduct the required monitoring for all permitted facilities around the Nation. Instead, NPDES permits set specific limits on what may discharged by a regulated facility and require the permittee to regularly monitor and report on its discharges to identify whether the applicable limits have been complied with. The permits specify monitoring methods to be used and the frequency of monitoring and reporting that is required. Violations of effluent

limits are required to be addressed by the permittee as outlined in the general conditions provided in Part II of the permit (common to all Massachusetts NPDES permits). In addition, a permitted facility is subject to EPA and MassDEP inspection without notice and violations of a permit – including any failure to monitor properly or to timely and/or truthfully report monitoring results -- are subject to potential civil and/or criminal enforcement action. EPA maintains an active enforcement program to help deter permit violations.

Since the discharge of neutralized, biocide treated seawater is a one time discharge, it would be difficult to inspect the treatment facilities and discharge effectively unless EPA became aware of the precise time of discharge. Therefore, EPA has revised the permit to include a requirement to notify the EPA 48 hours prior to discharge to allow EPA inspectors the opportunity to visit the vessel. This revision includes a requirement that, upon request, the permittee provide transportation for EPA inspectors from a nearby port to and from the treatment vessels.

2. COMMENT (39)

What types of assays and methodologies are used to test the concentrations of tetrakis hydroxymethyl phosphonium (THPS)? Are the people involved qualified and trained to run these tests?

RESPONSE

Testing of biocide treated and neutralized floodwater will be performed by an experienced, certified laboratory in accordance with 40 CFR Part 136, as required by part II.C.d. of the permit. The analysis of THPS will be performed using a modification of USEPA Method 556.1, "Determination of Carbonyl Compounds in Drinking Water by Fast Gas Chromatography." The THPS in seawater will be derivatized to its pentafluorobenzyl oxime which will be extracted with a suitable solvent such as hexane. The extract will then be analyzed on a gas chromatograph equipped with an electron capture detector (ECD). Expected detection levels of THPS will be 0.5 - 1.0 ppm in sea water.

3. COMMENT (39)

Could a hurricane lead to accidental discharge of THPS?

RESPONSE

This is highly unlikely. The flooding of the pipeline with treated water will only occur after the pipeline has first been lowered below the natural elevation of the seafloor. Once lowered, the pipeline will be protected from normal and storm-induced bottom velocities that could affect the stability of the pipeline. This will prohibit the accidental release of treated sea water due to a hurricane or other significant storm event.

In addition, an approaching hurricane is well known days in advance of when filling or dewatering would occur. So these operations would be postponed until after a hurricane or tropical depression was no longer a threat to the project area, which would avoid the potential for a release during the filling or dewatering phases. The permit has been revised to include this precaution.

4. COMMENT (1)

The project has similarities to a previous NPDES permit (MA0040169) in which THPS was used with the construction of a gas transmission pipeline for the Hubline project. In both permits, THPS-laden seawater is required to be neutralized with hydrogen peroxide prior

to discharge. Monitoring results for the previous permit indicate neutralization achieved compliance with the permit's effluent limitations.

Based on earlier results with THPS neutralization, we anticipate similar compliance with the draft permit. However, the Hubline permit fact sheet indicated an initial concentration of 125 mg/L THPS was necessary to achieve a final concentration of 62.5 mg/L THPS, which is the estimated half-life of THPS after approximately sixty days. In contrast, the draft permit indicates an initial concentration of 290 mg/L THPS is necessary to achieve a final concentration of 50 mg/L THPS. The final THPS concentration would be 145 mg/L after two months, nearly three times the final concentration in the draft permit fact sheet.

The higher concentration raises concern since the draft permit allows a minimal discharge of unneutralized THPS with sub sea tie-in to Massachusetts Bay. Additionally, no information has been provided describing any precautions to minimize the release of THPS at the tie-ins. The permittee (Algonquin) previously revised their sub-sea tie-in procedure for the Hubline project to minimize the discharge of THPS. Moreover, the Hubline permit anticipated discharging 5.3 million gallons of THPS neutralized seawater, but actually discharged 7.1 million gallons. Applying this 34 % overage to the draft permit could result in additional discharges of THPS-neutralized and/or THPS-laden seawater.

We request that EPA provide information on these aspects of the draft permit in order to estimate the volume, spatial extent, and concentration of THPS-laden seawater to be released at each of the six sub-sea tie-ins. We further request that the final permit include a provision requiring the permittee to report the volume and concentration of THPS-laden seawater discharged at each tie-in to the permitting agencies.

RESPONSE

The concentration of the biocide was provided by the chemical manufacturer for suitability for the proposed application to this project. The specific concentration of a biocide that should be used for any single application depends on inter-related factors such as water temperature, seasonal levels of biological activity, location of withdrawal relative to distance offshore, levels of particulate and dissolved organic matter, and duration of required biocide effectiveness. Experience with prior, similar projects may also be a relevant consideration.

For the Northeast Gateway Project, the permittee has added an additional procedure, the use of temporary closure plates at the tie-in locations, which will considerably reduce the volume of biocide-treated water that could escape. Compared to HubLine when the pipe end at each tie-in location was left open during the tie-in operation, for the NEG Lateral Project the duration that the pipe end will be left open should be reduced to a few hours.

Because of passive diffusion and mixing that will occur at the open end of the pipe until the closure plate can be installed, there is no means of accurately estimating or measuring the small volume of passively mixed floodwater that will exchange with the adjacent seawater. Due to the large mixing volume available at the tie-in locations, however, any effects will be temporary and localized as any escaping floodwater mixes and the biocide is consumed and diluted.

Region 1 also asked Algonquin why the discharge volumes for the HubLine project exceeded its earlier predictions. According to Algonquin:

> it is not known precisely why the reported discharge volume for the HubLine exceeded the volume that the permittee estimated in its application for that project. There are, however, inherent inaccuracies in

flow meters as well as accuracy variations that occur due to variable flow rates that occur at the upper and lower measurement ranges for flow meters. In addition, during HubLine construction, there was a construction sequencing change such that one of the pipe sections, which was installed by a horizontal directional drill and originally was not planned for inclusion in the flooding and dewatering of the pipeline, was tied in earlier than originally planned, became part of the flooded pipeline, and consequently led to an increase in floodwater volume.[3]

In any event, the discharge limits in the permit will be met through neutralization and the other dewatering and discharge procedures that will assure acceptable final concentrations irrespective of initial concentrations of THPS and the final volumes of discharged floodwater.

5. COMMENT (1)

Within the permit, we request that the contact information for Marine Fisheries appearing in part I.C.1 of the draft permit replace the contact information appearing in Part I.B.6.

RESPONSE

EPA agrees with the comment and has revised the permit as requested.

6. COMMENT (4, 9, 11, 31, 35, 37, 40, 48, 49, 51, 68)

Mason Weinrich submitted the following comment.:

> **In the Final Environmental Impact Statement (FEIS) for the NEG project, the project proponents state that "THPS demonstrates low toxicity in aquatic organisms and rapidly breaks down in the environment through hydrolysis, oxidation, photo-degradation, and biodegradation." This is an overstatement.**
>
> **To start with, the single source that the proponents cite[4] actually states that "The acute oral toxicity of THPS is moderate"; that ">20% degradation occurred within a 28 day period"; regarding abiotic degradation, the source only states that "Exposure to natural sunlight showed high levels of conversion over a three-month period"; and regarding natural seawater dosed with THPS "biodegradation (as measured by oxygen demand) reached 17.7% after 28 days." The only studies that showed more rapid breakdown were aerobic and anaerobic studies of THPS in a soil/water mix which is essentially irrelevant to the current case. So, what we really have is a compound with moderate toxicity to subjects which received oral doses that will break down by only approximately 20 to 40 % after 30 days. This is not quite the rosy picture that the proponents would like us to believe.**
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> **As far as toxicity in marine organisms, there is a real paucity of data. There is limited data for freshwater organisms; tests have been conducted on a few plankton**

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[3] Martin, Paul D., TRC, Letter to EPA Region 1 re: "Northeast Gateway Project, Suggested response to comments on Draft NPDES Permit #MA0040240", April 26, 2007.

[4] World Health Organization. 2000. Environmental Health Criteria 218 – Flame Retardants: Tris (2-butoxyethyl) phosphate, tris (2-ethylhexyl) phosphate and tetrakis (hydroxymethyl) phosphonium salts. http://www.who.int/ipcs/publications/ehc/en/EHC218.pdf.

species (most notably the water flea, *Daphnia magna*) and a few fish species [including rainbow trout (*Oncorhynchus mykiss*) and bluegill sunfish (*Lepomis macochirus*)]. The only marine species of any relevance for which there is any data is the marine sheepshead minnow (*Cyprinodon variegates*), and even that is of questionable value to any species in the project area. So, in general, the knowledge base behind any statements about toxicity to marine organisms is shaky at best.

The permit lists a maximum discharge concentration of 4.4 mg/L of THPS. While this concentration is below the toxic doses reported in most of the few studies that have been conducted on plankton, it is within the realm of the low end of toxicity for the water flea (2.2 mg/L) and above that for brine shrimp (0.6 mg/L). However, again, we have no idea how relevant these figures are to marine plankton that actually live in the area of the discharge.

The toxicity of THPS to the freshwater fish species measured would lead one to believe that they are far above the concentration of the proposed discharge, so there should be no reason for concern. Mortality in bluegills and rainbow trout was not seen until concentrations reached a minimum of 67 mg/l, much higher than the proposed 4.4 mg/L. Again, we have no idea how this relates to equivalent values in marine species. Further it is likely that the exposure of marine fish will be a combination of both direct intake from the surrounding environment (as water is swallowed incidentally during feeding and/or passage over gills), and through the food chain. In the latter case there is a risk of bioaccumulation potentially leading to higher exposures. Without an ecosystem model to determine the level of cumulative exposure, the simplistic statement that the released concentrations are well below that of lethal doses is virtually meaningless.

The other commenters listed above also expressed concern that not enough research had been done regarding the toxicity of sulfate (THPS) to marine organisms.

RESPONSE

EPA agrees degradation rates of THPS can be highly variable, but the discharge permit does not rely on natural degradation rates as a control strategy. The permittee is required to treat the hydrostatic test water with a neutralizing agent (hydrogen peroxide) and achieve a maximum concentration of 4.4 mg/l prior to discharging to the marine environment.

Contrary to the comment's assertion, a number of studies have examined the toxic effects of THPS on both freshwater and marine organisms (see NPDES Permit Application for Northeast Gateway Pipeline Lateral, Appendix D, 2006). Acute toxicity has been examined in freshwater algae (*Selenastrum capricornutum*), invertebrate (*Daphnia magna*) and fish (rainbow trout and bluegill sunfish). Acute toxicity has also been tested in marine algae (*Skeletonema costatum*), invertebrates (*Acartia tonsa*, *Mytilus edulis*, *Arenicola marina*, *Corophium volutator*, *Mysidopsis bahia*) and fish (juvenile plaice, sheepshead minnow). *Arcatia tonsa* was the most sensitive species tested with an LC_{50} (lethal concentration for 50% of the test animals) of 1.29 mg/l after a 48 hour exposure. EPA does not anticipate significant toxicity resulting from the permitted discharge, however, because of the dilution available at the discharge location and the limited duration of the discharge. It has been estimated that the discharge will have a minimum dilution of at least 15 to 1 before contacting the seafloor. This estimate is conservative, because it did not consider any potential horizontal dispersion of the plume resulting from currents, waves, tide or wind. This increased horizontal dispersion would only increase the dilution of the plume before

contacting the seafloor. In addition, the discharge is 32 hours in duration, which is substantially shorter than the exposure time used to derive LC_{50} concentrations.

The log octanol/water partition coefficient is the ratio of a chemical's solubility in n-octanol and water at equilibrium. This ratio is used as an indication of a chemical's propensity for bioconcentration by aquatic organisms. A ratio > 0 would indicate that a chemical has a propensity for bioaccumulation and possibly bioconcentration up the food chain. THPS has been tested and found to have a log octanol/water partition coefficient of < 0, suggesting that the chemical structure does not show a propensity for bioaccumulation or bioconcentration.

EPA believes that there are sufficient data on the potential effects on marine organisms to determine that the Final Permit's proposed discharge concentration of 4.4 mg/l should be sufficiently protective of the marine environment and preclude any unreasonable degradation of the marine environment, especially when one considers dilution and the limited duration of the one-time discharge at issue.

7. COMMENT (40)

One commenter wrote that "At the hearing it was stated that the modeling performed on the mixing and dilution of the biocide indicated it would reach permittable levels within approximately 100 yards. This distance is greater than the depth in the area of discharge, given as 120 feet, at the inshore end of the pipeline where it ties into the existing Hubline. This would suggest that the biocide will directly impact the benthic habitat. The discharge should be re-engineered or relocated so that the bottom community is not exposed to the biocide before full mixing occurs."

RESPONSE

Permittable concentrations will be achieved at the point of discharge, thus the permit limit is 4.4 mg/l and will be met before the effluent is discharged to the marine environment. Hydrodynamic modeling has shown that a conservative estimate of dilution is 15 to 1, by the time the effluent reaches the seafloor. Without accounting for additional degradation, concentrations at the seafloor would be approximately 0.29 mg/l, well below what any testing has determined to be toxic. Thus, EPA does not believe that the discharge poses any significant risk to the benthic community and it will dissipate quickly over a small geographic area.

8. COMMENT (40)

One commenter stated that "The information provided in the fact sheet describes how and where the discharge will occur. This discussion implies that the bulk of the discharge, if not all of it, will occur at the location identified at Outfall 001. If outfalls 002 and 003 are used, they will be used for significantly smaller discharges. However, the draft permit does not distinguish among the outfalls in any way. The permit itself should be clear as to where the discharge is to occur, with limitations to that effect."

RESPONSE

EPA agrees with the comment and has revised the permit not only to specify limits for outfall 001, but also to specify a maximum discharge from outfalls 002 and 003, limiting the discharge in that area to hydrostatic test water from the flowlines only.

9. COMMENT (4, 5, 37, 39, 42)

Mason Weinrich submitted the following comment.:

> **"…the project proponents have unfortunately chosen one of the most important marine environments in which to locate their deepwater port. The location is designated Essential Fish Habitat, is immediately adjacent to the Stellwagen Bank National Marine Sanctuary, and our own sighting data shows that it is an important marine mammal feeding habitat, especially for humpback and fin whales in September and October[5], and for the North Atlantic right whales in the winter and early spring[6]. Hence we urge EPA to proceed with extreme caution in allowing discharges with largely unknown consequences, simply because unforeseen circumstances or unexpected outcomes could disrupt this vital ecosystem."**

The other commenters listed above also expressed concern regarding the location of the discharge in a marine mammal feeding habitat.

RESPONSE

EPA acknowledges and shares the concerns expressed regarding marine mammals. See responses to comments 10, 11 and 15 below.

10. COMMENT (37)

One commenter wrote: "In particular, our expertise with endangered whales in the area leads us to strongly urge the EPA NOT to permit any discharge in the months of January through May, and August through October. From January to May, North Atlantic right whales use the area, presumably as a feeding habitat. Data from passive acoustic studies conducted in the past 18 months have shown near daily winter use of the waters immediately around the project site[7]. Right whales are only known to feed on zooplankton, especially *Calanus* spp[8]. Similarly, the extensive use of the project site by feeding fin and

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[5]Weinrich, M. and K. Sardi, 2005. Distribution of Baleen Whales in the Waters Surrounding the Northeast Gateway Proposed LNG Buoy Project: 1995-2004. The Whale Center of New England, Gloucester, MA. Unpublished report to Normandeau Associates for consideration in the Northeast Gateway LNG LLC project.

Dickey, R., C.W. Clark, L. Hatch, J. Kiernan, R. Merrick, M. Thompson, D. Wiley and S.M. Van Parijs. 2006. Passive Acoustics Monitoring of North Atlantic Right Whales in Stellwagen Bank National Marine Sanctuary. Abstract of a paper presented at North Atlantic Right Whale Consortium Annual Meeting, New Bedford, November 2006.

Weinrich, M., J. Tackaberry, and K/ Sardi. 2006. The Distribution of Endangered Baleen Whales in the Waters Surrounding the Neptune LNG Proposed Deepwater Port Site: 1995-2005. Report prepared for the USCG by the Whale Center of New England, Gloucester, MA. September 2006. Appendix J in the Final Environmental Impact Statement/Environmental Impact Report for the Neptune LNG Deepwater Port License Application.

[6] Weinrich and Sardi, 2005; Weinrich et al. 2006

[7] Dickey et al. 2006

[8] Baumgartner, M.F., C.A. Mayo, and R.D. Kenney. 2007. Enormous Carnivores, microscopic food and a restaurant that's hard to find. Pp. 138-170 In: S.D. Kraus and R.M. Rolland. The Urban Whale: North Atlantic Right Whales at the Crossroads. Harvard University Press.

humpback whales that we have documented every September and October since 2000 (see attached plots) appears to target zooplankton, most likely amphipods. Given that there is no data for toxic doses of THPS for these species, but the THPS concentration provided is not far from known lethal doses to freshwater plankton, we suggest that disposal during that time might risk affecting the prey source for the most endangered whale in the North Atlantic ocean. While feeding whales themselves are less common in August than in September and October, the breakdown rate from the chemical suggests that its effects may last a month or more. We urge EPA to permit the discharge only during the months of May, June, July or November and December."

RESPONSE

EPA does not anticipate any significant toxicity to zooplankton from this discharge, due to its limited duration, the large amount of available dilution and the natural degradation rates. Toxicity to marine zooplankton (*Acartia tonsa*) has been assessed using 48 hour toxicity tests of THPS and its metabolite THPO. The LC_{50} concentration for THPS was 1.29 mg/l, while for THPO was 2143 mg/l. The breakdown product is even more benign than the parent compound, so as this product degrades it becomes substantially less toxic. The plume will be diluted by at least a factor of 15 before it contacts the seafloor and dilution will only become greater with time and distance from the point of discharge. At most, EPA would anticipate a minor short term impact and does not anticipate a prolonged effect from this discharge.

11. COMMENT (37)

One commenter wrote: "[t]here has been a total lack of consideration of potential bioaccumulation of THPS, a flame retardant, on marine mammals and seabirds in the area. Marine mammals and seabirds carry the greatest concentrations of a wide suite of well studied pollutants including heavy metals and organochlorines[9]. Brominated flame retardants are a subject of emerging concern for a wide suite of whale and dolphin species where they have been examined. No testing has been done for concentrations and/or effects of THPS itself, but no consideration has been given to the potential effect of its bioaccumulation in sensitive species that use the area."

RESPONSE

The bioaccumulation potential of this compound has been chemically assessed and it has a log octanol/water partition coefficient of ≤ 0. This suggests that it does not have a propensity to bioaccumulate or bioconcentrate. Also see the response to comment #6.

12. COMMENT (31)

One commenter expressed concern that there is a potential for the air pollution being emitted into the air to end up in the water via precipitation and EPA has not considered discharge of those chemicals into the water.

[9] Reijnders, P.J.H., A. Aguilar, and G.P. Donovan. 1999. Chemical Pollutants and Cetaceans. Journal of Cetacean Research and Management, Special Issue I. 273 pp.

RESPONSE

This is not a comment on the NPDES permit at issue here – which covers the one-time hydrostatic test water discharge -- so much as a comment expressing concern about possible water pollution from the deposition of air pollutants in the marine environment. The comment neither identifies nor suggests any specific cumulative or synergistic effect of any such deposition of any particular pollutant with the discharge authorized by the Final Permit, nor does it identify or suggest any other particular effect from any such deposition. That being said, EPA acknowledges the concern and is sensitive to the fact that airborne pollutants can be incorporated into the hydrologic cycle through precipitation. However, the Clean Water Act limits the scope of NPDES permits to regulating point source discharges to waters of the United States. The deposition of air pollutants as a result of precipitation are currently considered to be nonpoint discharges, rather than point source discharges, and, as such, they are not regulated under the NPDES program and are not covered by the permit.

13. COMMENT (4, 10, 51)

One commenter stated that "[i]f you look at Attachment B of the fact sheet (Summary of Essential Fish Habitat Designation), there is a long list of species in the discharge area. This includes the severely depleted Atlantic Cod. The proposed port is in Blocks 124 and 125 which, as of November 2006 was limited to fishing, except for 24 days per year, by the Department of Commerce. EPA should take a much closer look at the impacts on the sensitive life stages of those very depleted species, and perhaps consider some seasonality restrictions on when the water can be discharged so as to protect the sensitive life stages of those very, very, depleted species." Two other commenters stated similar concerns.

RESPONSE

As discussed above in responses to comments concerning the toxicity and bioaccumulation potential of the biocide discharge, EPA does not believe that the discharge authorized by this permit will have a significant adverse effect on marine life. That being said, eggs and larvae are the life stages of cod (and other species) that would be at greatest risk from this project. With respect to Atlantic cod, this species' eggs are most prevalent in the Gulf of Maine in the fall and winter, with the resulting larvae most prevalent in winter and spring. This discharge authorized by this NPDES permit is intended to proceed during the summer months, so it should avoid the bulk of cod spawning activities.

NOAA has reviewed the project for impacts to Essential Fish Habitat and has recommended specific mitigating measures to reduce impacts to EFH. NOAA had no specific recommendations/concerns related to the discharge authorized by this NPDES permit.

14. COMMENT (37)

One commenter asked how EPA determined the volume of the effluent and what is the exact location of the discharge?

RESPONSE

The volume of effluent was estimated by the permittee and confirmed by EPA as the volume of water that would be contained within the pipeline lateral and flowlines. The permit authorizes the discharge of 1.99 million gallons of neutralized THPS treated seawater from outfall 001. Outfall 001 is located at the junction of the existing Hubline and the pipeline lateral in Massachusetts Bay east of Marblehead. This is located at latitude 42º28'46", longitude

70º46’45”. If possible, the permittee intends to discharge only at outfall 001. In the event that discharging the contents of the pipeline lateral and the flowlines to outfall 001 becomes logistically impossible, the permit provides a contingency that allows the discharge of neutralized, THPS treated seawater from Flowline A and B at outfalls 002 and 003. The total allowable discharge from outfalls 002 and 003 is 85,000 gallons.

15. COMMENT (37)

What are the marine species by type and quantity present in these areas and the potential impacts to each as a result of this discharge.

RESPONSE

Section 3.2 of the Final Environmental Impact Statement (FEIS)[10] describes the biological resources in the port area and along the pipeline lateral route. This section describes benthic and shellfish resources, plankton, finfish (fisheries) resources, and marine mammals in great detail with discussion of both endangered and non-endangered species and species lists. Section 4.2 of the FEIS describes the potential impacts as a result of the pipeline lateral and port construction. The minor impacts listed in the FEIS are associated with the entrainment of larvae and very small organisms in the filtered seawater used to flood and test the pipelines. No impact on marine species is anticipated as a result of the actual discharge of the treated seawater after it has been neutralized with hydrogen peroxide, which is the activity regulated by the present NPDES Permit.

In addition, MARAD consulted with the National Oceanic and Atmospheric Administration (NOAA) under the Endangered Species Act (ESA) on MARAD’s decision to issue a license for the construction and operation of the NEG project and on the other federal permits associated with this project, including the NPDES permit issued by EPA. NOAA’s Biological Opinion found neither jeopardy to protected species nor an adverse effect on their designated critical habitat from the deepwater port project, and found that the discharge covered by the NPDES Permit at issue here would be unlikely to adversely affect sea turtles or whales protected under the ESA. NOAA’s Biological Opinion also includes an Incidental Take Statement (ITS) which specifies “reasonable and prudent measures” (RPMs), and related terms and conditions, for the regulatory agencies to take to minimize the occurrence and impact of any incidental take on protected species. None of these RPMs impose any conditions on the discharge authorized and regulated by this NPDES permit. NOAA also evaluated the construction and operation of the NEG project under the Marine Mammals Protection Act (MMPA) and has issued NEG an Incidental Harassment Authorization (IHA) under that statute authorizing the limited taking of marine mammals as a result of acoustic harassment during project construction and operations, and imposing various conditions. None of these conditions pertain to the discharge to be authorized and regulated under this permit. NOAA’s ITS essentially incorporates the conditions of its IHA under the MMPA .

Finally, NOAA has also reviewed the NEG deepwater port project for impacts to Essential Fish Habitat and has recommended specific mitigating measures to reduce impacts to EFH. NOAA

[10] United States Coast Guard, 2006, *Northeast Gateway Deepwater Port Final Environmental Impact Statement/Final Environmental Impact Report*, DOT Docket Number: USCG-2004-22219, Washington, DC, October 27, 2006.

had no specific recommendations/concerns pertaining to the discharge authorized by this NPDES permit.

16. COMMENT (35)

One commenter urged that discharges related to the construction and operation of the Northeast Gateway Energy Bridge should have been covered by a single permit instead of two separate permits.

RESPONSE

Two separate companies will own, operate and construct the pipeline lateral and the Northeast Gateway Energy Bridge (NEG) deepwater port (which includes the two flowlines). The pipeline lateral will be owned, built and operated by Algonquin, while the port will be owned, built and operated by Excelerate Energy, the owner of NEG. Since a single contractor was to be selected jointly by the companies for the construction of the pipeline and the port as a single project, EPA believes that issuing two separate construction permits would have been more difficult to enforce than separating the construction and operation phases of the NEG deepwater port. Therefore, a single construction permit has been issued for both companies (as co-permittees) for the construction of the pipeline lateral and the deepwater port. Since the port operation will be entirely the responsibility of Excelerate, the permit requirements related to port operation discharges will be issued in a second permit where Excelerate is the sole permittee.

17. COMMENT (4, 5)

CLF commented that "[t]he proposed quantity of THPS treated water discharge contemplated in the NPDES permit application (1.99 million gallons) is more than 20 times the amount proposed (81,722 gallons) in the Final Environmental Impact Statement (FEIS) for the Northeast Gateway LNG project (p. 4.4). Furthermore, the FEIS for this project states that the biocide treated water would be held in the flowlines for "as long as 2 days" (p. 4.4), in sharp contrast to the 60 day estimate presented in the fact sheet accompanying the draft permit. It is essential that an explanation be given as to why this permit application deviates so sharply from the very recent FEIS – demonstrating why this change is not significant enough to warrant EIS supplementation."

RESPONSE

EPA points out that its analysis was based on the larger discharge volumes and retention times spelled out in the company's NPDES permit application and EPA still concluded that the discharge could be properly authorized as limited in the NPDES Permit. That being said, EPA agrees that discrepancies in project description between the United States Coast Guard's FEIS and Algonquin's NPDES permit application should be cleared up. Therefore, EPA requested that Algonquin explain the apparent discrepancy and the company sent the following response. EPA concurs with its conclusions.

> "Review of the Draft Environmental Impact Statement (DEIS) and the FEIS indicates that the DEIS described and analyzed the effects of appropriate volume estimates for the hydrostatic test waters for the Lateral and the flow lines, but the FEIS presented incorrect volume estimates. It appears that the authors of the FEIS mistook the flow line volumes as also comprising the volumes for the Lateral. The applicants' NPDES permit application provides the correct volumes. The FEIS authors also appear to have mistaken the

approximate duration of the hydrotest process, 2 days, as the duration that the pipelines would be flooded. The NPDES fact sheet durations are correct.

As the discharge of the neutralized floodwater will not contain harmful concentrations of any toxic material, however, those discrepancies do not warrant additional NEPA analysis. Whether there is to be a discharge of 81,722 gallons or 1.99 million gallons, there will be negligible adverse effects on water quality or marine life from this discharge, and hence the outcome of the NEPA review would not change.

The use of the incorrect estimate of volume for hydrostatic testing (81,000 gallons) in the FEIS also resulted in a negligible underestimate of the impacts to the icthyoplankton community due to entrainment during the water withdrawals to perform flooding and hydrostatic testing. The correct estimate of volume is approximately 2,000,000 gallons as stated in the NPDES application materials. Using the correct estimate of volume and the same estimating methodology used in the FEIS, the largest number of eggs entrained would be approximately 2,400 hake (red and white hakes) eggs, which represents less than 1% of the annual fecundity of one Age 4 hake (Table E-21, FEIS). The largest number of larvae entrained would be approximately 600 cunner larvae, which represents a small number of larvae for this common fish. The FEIS (based on the incorrect volume estimate) concludes that fewer than one age-1 equivalent fish for each species would be lost due to the water withdrawal. With the correct, larger volume estimate and using the data in Appendix E, it would be more appropriate to assume that fewer than 20 age-1 equivalent fish of each species would be lost." [11]

18. COMMENT (31)

One commenter asked both "[w]hat happens to the hydrogen peroxide after it is added to the THPS? And are there byproducts produced in the neutralization of THPS with hydrogen peroxide?"

RESPONSE

The primary metabolite from the reaction of THPS with hydrogen peroxide is tetrakis hydroxymethyl phosphine oxide (THPO). This byproduct has been shown to be of very low toxicity to aquatic organisms, as described in the fact sheet that accompanied the draft permit.

19. COMMENT (4, 5)

CLF comments that "[g]iven the discrepancies in the FEIS and the NPDES permit application and the fact that the substantially similar Neptune LNG deepwater port proposal does not expect to use the biocide, CLF believes that the applicant has not properly justified the need to use biocide and to subsequently discharge biocide treated seawater into Massachusetts Bay. The expected amount of time that the pipelines will be flooded with water during construction and hydrostatic testing of the pipelines is the determining factor regarding the necessity for a biocide to prevent microbiologically induced corrosion (MIC). The applicant assumes a 30 day period for MIC to commence. Since the applicant expects to flood the pipelines for up to 60 days, the applicant deems biocide treatment necessary to prevent MIC. Not only is the 60 day time period in direct

[11] Martin, 2007.

contrast to the "up to two days" time period stated in the FEIS associated with this project, but it is also in direct contrast to time estimates for a substantially similar project which is also in the permitting phase – the Neptune LNG Deepwater Port Project. According to the FEIS for the Neptune project, the hydrostatic test water is expected to be in the pipelines for less than 30 days and hence Neptune claims that it will not add biocide to the water (see p. 406 of the Neptune FEIS). The applicant must provide a credible explanation as to why the pipelines need to be flooded more than 30 days and therefore why a biocide is deemed necessary. If the required testing of the pipelines can be conducted within thirty days, then the permit should not authorize the use of any biocide."

RESPONSE

EPA requested and received the following response to this comment from Algonquin.

> "Flooding of the pipeline to assure successful lowering is based on the HubLine experience, and is a requirement of the Water Quality Certification issued by MassDEP (Special Condition No. 19) to authorize construction. Algonquin has provided ample justification for its construction schedule throughout the NEPA review process, and this schedule reflects a flooded pipe duration in excess of 30 days. See the response to comment number [17] for response to the FEIS discrepancy in duration of flooded pipe."[12]

EPA believes that this represents a reasonable response to the comment and, as EPA has discussed above, no significant adverse environmental effects are anticipated from the discharge authorized by this permit. Although EPA encourages the use of processes and construction methods that minimize the generation of process wastewater, EPA does not under the facts of this case see a basis for precluding the flooding of the pipeline, the retention of the floodwater, and the discharge of the neutralized, biocide-treated floodwater consistent with the permittee's proposed construction schedule.

20. COMMENT (31)

One commenter urged that "[a]lternative methods for testing leaks of pipeline should be considered," and asked, "[w]hy not use air at the same pressure as the methane gas would be kept at during actual operation of the pipeline to test for leaks?"

RESPONSE

As this comment raised questions related to construction methods, EPA requested and received a response to this comment from Algonquin as follows:

> "U.S. Department of Transportation pipeline regulations (30 CFR 250) require that hydrostatically testing (sic) of the proposed pipeline to a minimum of 1.25 times the Maximum Allowable Operating Pressure (MAOP). The NE Gateway pipeline will be hydrostatically tested to a pressure that is 1.5 times the MAOP. This method of proving the pipeline's integrity and suitability for service is highly reliable and safer than other methods.
>
> Because gases are very compressible, they do not work well for pressure testing because changes in pressure during the test may signify natural adjustments in the gas volume within the pipe rather than any loss of structural integrity. Pressure testing requirements actually

[12] Martin, 2007

involve testing to pressures above the operating pressure, to ensure a margin of safety, so the proposed (and DOT required) approach is superior to the approach suggested by the comment."[13]

EPA believes this explanation provides a reasonable response to the comment.

21. COMMENT (39, 61)

Multiple commenters asked whether EPA will require the permittee to "notify fishermen when the discharge will occur so they know not to fish in the area that day?"

RESPONSE

Yes, the permit has been revised, as requested, to require that the permittee notify EPA, MassDEP, and the Coast Guard prior to the discharge. Coast Guard will notify fishermen of all construction activities including the discharge of flood/hydrostatic test water. That said, EPA does not see any risk from the discharge to fishermen fishing in the area on that day, or to anyone who might consume fish caught in the area on that day.

22. COMMENT (31)

One commenter asked, "Where are the safeguards for spill containment for the biocide container?"

RESPONSE

All vessels involved in constructing and operating the LNG ports are subject to Spill Containment and Countermeasure (SPCC) regulations which include safeguards for preventing spills of oil and hazardous materials, including biocide.

23. COMMENT (68)

One commenter stated that "[t]he water changes that will result from the regasification process are of great concern. Even though the argument may be correct that chemically the impact is trivial, the life cycles of all inhabitants of Massachusetts Bay are determined by temperature from seasonal triggers."

RESPONSE

EPA acknowledges the importance of considering temperature as a parameter in regasification related discharges. However, no temperature changes are expected as a result of the pipeline lateral and deepwater port construction related discharges which are subject of the NPDES permit (MA0040240) under consideration here.

Although EPA has received the NPDES permit application for discharges related to regasification and port operation, no draft permit has yet been issued for these as of this writing.

[13] Martin, 2007

24. COMMENT (31)

One commenter asked, "[h]ow can the discharge of chemicals not naturally found in ocean water be permitted by the Environmental Protection Agency?"

RESPONSE

Based on the available information, EPA concludes that rapid dilution, following effective treatment via neutralization with hydrogen peroxide, and the limited volume of discharge as a one-time event will ensure extremely limited, if any, adverse effects on water quality in Massachusetts Bay. In any event, EPA determines that the discharge of the neutralized THPS and/or the THPS metabolite, THPO, as authorized by the Final Permit, will not violate state water quality standards and will not cause unreasonable degradation of the marine environment or the violation of any other applicable Clean Water Act standard.

25. COMMENT (31)

One commenter presented the following argument and questions:

> **The hydrostatic testing is being done to test for leaks. Therefore leaks are expected to occur. These leaks would cause discharge into Massachusetts Bay of unacceptable amounts. If leaks are present along the pipeline, how will leaks be detected? How long will it take to notice, discover a leak is occurring at any give site along the 16.1 miles of lateral pipeline or along the 6,900 feet of subsea flowlines A and B. How will leaks be repaired? How will weather affect the contractor's ability to quickly fix a leak?**

RESPONSE

As these comments and questions primarily related to construction methods, EPA requested and received a response to this concern from Algonquin as follows:

> "Hydrostatic testing is a reliable, DOT-required method designed to evaluate the integrity of the pipeline in its final position resting on the seabed. Leaks are not expected or typically found because throughout the pipeline manufacturing process, a high degree of quality control is maintained such that structural deficiencies along the welded portion of the pipeline are extremely rare. Nevertheless it is entirely prudent, as well as mandated, to conduct hydrostatic testing to confirm that the pipeline is sound. This involves instrumentation that can detect a loss in pressure and utilizes sonic information to identify the location where the loss may be occurring.
>
> In the unlikely event that a structural flaw is identified along the pipeline, mechanical equipment will be on hand to perform the repair. This equipment would result in a tie-in component similar to what is planned for other tie-in locations for the project.
>
> When they do occur, pressure losses typically occur at flanged locations. The procedure for performing the flanged connections involves the use of stud tensioning equipment. This procedure typically results in a uniform flange mating process and has reduced the potential for leakage throughout the industry. However, if a pressure drop is detected during the hydrotest process, the contractor will inspect the flange connections first using the available sonic detection system. Verification of the stud tensions and flange mating can be accomplished quickly and any deviations rectified in a timely manner. Weather will have

no more nor no less effect on repairs as it will have on the remainder of construction activities."[14]

Region 1 believes that this is a reasonable response to the thrust of the comment. Region 1 also notes that the permittee has a strong economic interest in preventing any leaks that would allow natural gas to leak from the pipelines. Thus, as indicated above, leaks are not expected. Furthermore, as discussed above, no significant water quality problems are expected from the discharge of the hydrostatic test water, and it is not anticipated that a leak of natural gas from the pipeline to the water would cause any significant water quality problem and the commenter has not identified any such problems.

26. COMMENT (3, 31, 35)

Multiple commenters urged that EPA should consider the cumulative impacts of having two LNG ports side-by-side and two pipeline laterals to reflect the two proposed LNG projects.

RESPONSE

This permit addresses the one-time hydrostatic testwater discharge associated with construction of undersea pipelines needed for the NEG project. EPA Region 1 believes the permitted discharge should not cause any significant adverse effects on the environment. Region 1 also concludes that adding this insignificant environmental impact to any impacts from the potential, later operation of the NEG port and/or the potential, later construction and operation of the Neptune port, would not constitute a significant cumulative impact. Cumulative impacts were considered in the Final Environmental Impact Statement (FEIS) for the NEG project. The evaluation included the cumulative environmental impacts of construction and operation of two ports. The FEIS cumulative impacts evaluation concluded that "pipeline installation activities would only produce short-term, minor, direct, adverse impacts on marine water quality." Moreover, EPA Region 1 wishes to emphasize that since the construction of the two pipelines and ports is expected to be separated by as much as two years, cumulative impacts from the one-time construction-related discharge covered by this permit are not expected and such cumulative impacts were, therefore, not further evaluated in the fact sheet for the Draft Permit.

27. COMMENT (40)

One commenter noted that MARAD's Record of Decision on the Northeast Gateway Deepwater Port License application recognized an outstanding issue based on the recommendation from NOAA's National Marine Sanctuary Program that not more than one offshore LNG terminal be approved in this area, to prevent harm to sanctuary resources in the adjacent Stellwagen Bank National Marine Sanctuary. This commenter urged that it would appear to be premature for other Federal Agencies to proceed with finalizing permit approvals before MARAD, as the lead agency, has issued their license.

RESPONSE

Subsequent to issuance of the Record of Decision, MARAD issued the Deepwater Port Act license for the NEG project on May 14, 2007, having previously signed the license for the

[14] Martin, 2007

Neptune project on March 23, 2007. Therefore, the comment regarding the pending unresolved recommendation from the National Marine Sanctuary Program is now moot. The recommendation is no longer pending or unresolved. Region 1 notes that the National Marine Sanctuaries Program also urged that "periodic, standardized" water quality monitoring" be conducted prior to and during construction and throughout the facility's operation. The Final Permit being issued by EPA includes specific effluent monitoring requirements for the hydrostatic test water discharge being authorized.

28. COMMENT (73)

NEG and Algonquin commented that in order to complete the construction of the pipeline lateral and flowlines within the seasonal window allowed (May 1 to November 30), the NPDES permit would need to be effective as of July 15, 2007.

RESPONSE

Although this comment from the permit applicants was received by EPA after the close of the comment period, the Region has exercised its discretion to consider the comment and provides the following response. To begin with, EPA is sensitive to the practicalities of construction schedules for new projects and seeks to be as flexible as possible with regard to issuing permits for new dischargers in a fashion to accommodate preferred construction schedules, subject to the demands of ensuring that relevant environmental concerns are addressed and of competing priorities for EPA's limited permitting resources. While this comment letter suggests that the permittee needs an effective NPDES permit by July 15, 2007, to accommodate its desired construction schedule, EPA notes that the company verbally indicated that an effective date of August 1, 2007, would be sufficient. In any case, when comments are received on a draft NPDES permit, as was the case here, 40 C.F.R. § 124.19 requires that the permit not become effective for at least 30 days following permit issuance. In practice, the effective date of Massachusetts NPDES permits is typically set at at least 60 days from the issuance date to allow ample time for new permit requirements to be entered into EPA's permit tracking system and for the permittee to receive their first set of discharge monitoring report forms. However, given the short construction window on this project, due at least in part to environmental concerns, EPA has provided in the permit that it will become effective 40 days following issuance. This satisfies the regulations and should allow adequate time for EPA to enter the permit into the tracking system while also reasonably accommodating the permittee's desired construction schedule in light of the limited construction window.

------NON-PERMIT RELATED COMMENTS------

29. COMMENT (51, 54, 71)

Multiple commenters stated that the permitting process for the LNG ports, as a whole, has been rushed, cumbersome and difficult for the public to follow, and that a project that normally would have taken three to five years to obtain permits has been gone through in a matter of months to a year.

RESPONSE

EPA acknowledges that the LNG port construction projects have necessitated many approvals from several federal and state agencies. EPA has, and will continue, to follow a transparent process by allowing ample opportunity for public comment through broad public notice and well

advertised public hearings on NPDES permits. A list of the approvals required is provided in Section 1.4 of the FEIS for Northeast Gateway Energy Bridge. The FEIS can be viewed at local public libraries (Marblehead, Salem, Beverly, Manchester and Gloucester) or downloaded from http://dms.dot.gov/ (docket USCG-2005-22219-205). EPA also notes that the rapid schedules for environmental review and Deepwater Port Act licensing are dictated by the Deepwater Port Act.

30. COMMENT (39)

One commenter asked whether workers applying the chemical will be protected from the health hazards of eye burns, allergic skin reactions, inhalation and absorption through the skin?

RESPONSE

The NPDES permit does not directly address the health and safety of the permittee's employees. However, activities related to the construction of the pipeline lateral and flowlines are subject to health and safety regulations administered by the Occupational Safety and Health Administration (OSHA).

31. COMMENT (8)

One commenter stated that:

> **We know from the USGS web site that the Massachusetts Bay Disposal Site was investigated in 1981, '82, '91, and '97 by the EPA and NOAA in conjunction with the Army Corps of Engineers. They used remotely operated vehicles and manned submersibles and encountered numerous waste barrels, but no radioactive containers were definitively recognized. The 1991 survey concluded that potentially several tens of thousands of waste barrels littered the sea floor in and about the Industrial Waste Site and an evaluation of the seafood safety and threat to the marine environment was warranted. In 1997, only a single dive was possible due to the deterioration in the sea state. It is essential that these earlier surveys be fully integrated with the proponent's surveys and core data before any permits are issued. Only then can a baseline be established which will allow us to monitor environmental changes in this toxic dump site area.**

RESPONSE

In response to similar questions, EPA prepared a summary of the Massachusetts Bay disposal site investigations conducted to date including those funded or conducted by EPA and the Army Corps of Engineers for distribution at the March 29, 2007 public hearing on the draft permit. A copy of this summary is provided herewith as Attachment A. The figure included in the summary shows that the pipeline lateral route does not include any areas where drums or other indicators of disposal were found during these surveys. See also the Response to Comment 32.

32. COMMENT (2,3,6,7, 8, 10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30, 31,32,33,34,35,36,38,39,41, 42,43,45,46,47,48,49,50,51,52,53,55,56,57,58,59,60,61,62,63,64, 65,66,67,69,70,71,72)

Many commenters presented comments along the following lines:

The draft permit does not address the issue of toxic, chemical, and radioactive waste known to have been dumped in close proximity to the location of the LNG offshore port. This has been a known problem since the early 90's when fishermen, who were fishing in the area where the proposed LNG offshore ports will be located, picked up toxic drums in their nets and as a result suffered severe health problems. Although these concerns have been expressed at the various LNG hearings, it seems that no attention has been given to these concerns. Also, this potential problem is not even addressed in the material that Northeast Gateway and Algonquin have posted on the federal docket. This omission of possibly enormous danger to the livelihood of fishermen and the health of people who eat fish from Massachusetts Bay is unacceptable. Moreover, the danger is equally severe to some species of endangered whales and sea turtles that frequent the area.

Before any construction occurs, the question of the whereabouts and dangers of radioactive wastes should be thoroughly investigated. During any construction, the disturbance of radioactive wastes should be carefully avoided. After any construction, potential disturbance from operation and ocean floor scouring from anchor chains should be monitored.

RESPONSE

EPA agrees that disturbance of any historically deposited hazardous or radioactive industrial wastes on the ocean floor should be carefully avoided during construction of the pipeline lateral and deepwater port flowlines. However, NPDES permits under section 402 of the Clean Water Act do not typically regulate construction activities *per se*. They, instead, regulate point source discharges of pollutants. This permit regulates the one-time discharge of hydrostatic testwater from pipelines in question. Algonquin's construction-related activities on the seafloor are, however, regulated by MARAD's license under the Deepwater Port Act and by the U.S. Army Corps of Engineers' permit under section 404 of the Clean Water Act. The MARAD license and the Army Corps permit provide requirements for the project proponent to survey the pipeline construction area both before and during construction, and to analyze sediment samples, to maximize the ability to avoid possible waste containers on the seafloor, if any. If any hazards are identified, the permittee is required to notify MARAD, U.S. Coast Guard, EPA, the Army Corps and, for any hazards found in state waters, the state. Construction activities may be halted until authorized to resume by the relevant authorities.

33. COMMENT (8)

One commenter stated that:

"According to maps supplied by Suez and Excelerate in their applications, at least five sediment cores were collected within one mile of the Massachusetts Bay Disposal Site (MBDS). We need to know what the level of radioactivity was in those cores that were retained. If the analysis wasn't done, then the proponents should be required to conduct it. And if the cores are no longer available, then the proponents should be ordered to gather new cores before any permits are approved."

RESPONSE

Algonquin has informed EPA that it collected 5 surface sediment grab samples from within the western side of the MBDS to characterize sediments in an area that would be affected by

construction vessel anchors. Those samples were tested at the time for emissions of radioactivity above background. No such radioactivity was detected.

Sediment cores also were collected during those geophysical investigations from all along the proposed route of the Northeast Gateway Lateral, including within one mile of the MBDS, and then stored. In response to concerns expressed on this issue, Algonquin commissioned Battelle Labs to assess those cores for radioactivity levels that could be attributed to radioactive waste that had been historically dumped at the Industrial Waste Site. According to Battelle's report on the methodology and results of that assessment, which Algonquin has provided, no such radioactivity was detected[15].

34. COMMENT (7)

One commenter stated that "[t]he area where the LNG port will be located has been closed to fishing for the last several years because it is an essential fish habitat. Why, then, are the LNG ports being built in that location?"

RESPONSE

Although the planned site of the deepwater port has been subject to seasonal closures, the area has not been completely closed to fishing, according to personnel at the regional NOAA office. The deepwater port location was selected based on many factors which are described in the section 2.2.2 of the FEIS which describes the evaluation of location alternatives. These factors included minimizing effects on fishing activities, though once in place, the deepwater port will render the location (including a designated safety zone) off-limits to fishing. As discussed in the FEIS, the construction and operation of the proposed deepwater port is not expected to have a significant adverse effect on fish populations, The FEIS can be viewed at local public libraries (Marblehead, Salem, Beverly, Manchester and Gloucester) or downloaded from http://dms.dot.gov/ (docket USCG-2005-22219-205).

35. COMMENT (34, 44)

Two commenters asked, "Do we even need all this LNG in New England?"

RESPONSE

EPA's responsibilities focus on environmental protection and, in this case, on development of a proper NPDES permit under the Clean Water Act. EPA is not tasked by statute with determining the Region's need, or lack thereof, for LNG. Nevertheless, Region 1 keeps up-to-date on energy issues with regard to their connection to environmental issues. The following is excerpted from EPA Region 1's website:

> Over the last decade, demand for natural gas in New England has increased significantly. Much of that growth has been driven by the increased use of natural gas for electricity generation. Natural gas currently accounts for over 40% of New

[15] Thurston, Heather, Battelle, Memorandum to George A. McLachlan, Spectra Energy Transmission, Subject: "Radiation Monitoring of Sediment Cores Along the Proposed Route of the Northeast Gateway Pipeline Lateral", dated April 26, 2007.

> England's electricity generation, and approximately 50% of home heating. Finally, demand for natural gas is expected to grow by 1.4% per year through 2025.
>
> New England is at the end of all of the major pipeline systems serving the northeastern United States. Barring any major pipeline expansions, the only way to meet this demand growth is through the import of LNG. . . . Currently, the only terminal in New England that receives LNG ships is in Everett, Massachusetts. . . .

The above discussion and more information about LNG use in New England, as well as links to EPA's energy conservation and renewable energy programs, is available at http://www.epa.gov/region1/eco/energy/lng.html .

36. COMMENT (41, 42)

Two commenters raised the following concerns:

> **Many construction problems occurred during Algonquin's construction of the Hubline in 2003. Will they be able to bury a pipeline at 200 ft water depth when they had so much trouble burying the Hubline in much shallower water? The Hubline construction finished four years ago and still there are marine environments along the pipeline route that show no signs of recovery after being disturbed during construction. Who will ensure that this will not happen again?**

RESPONSE

As this was a comment and question related to construction methods and effects, rather than on the point source discharge and its effects, EPA requested and received a response to this concern from Algonquin as follows:

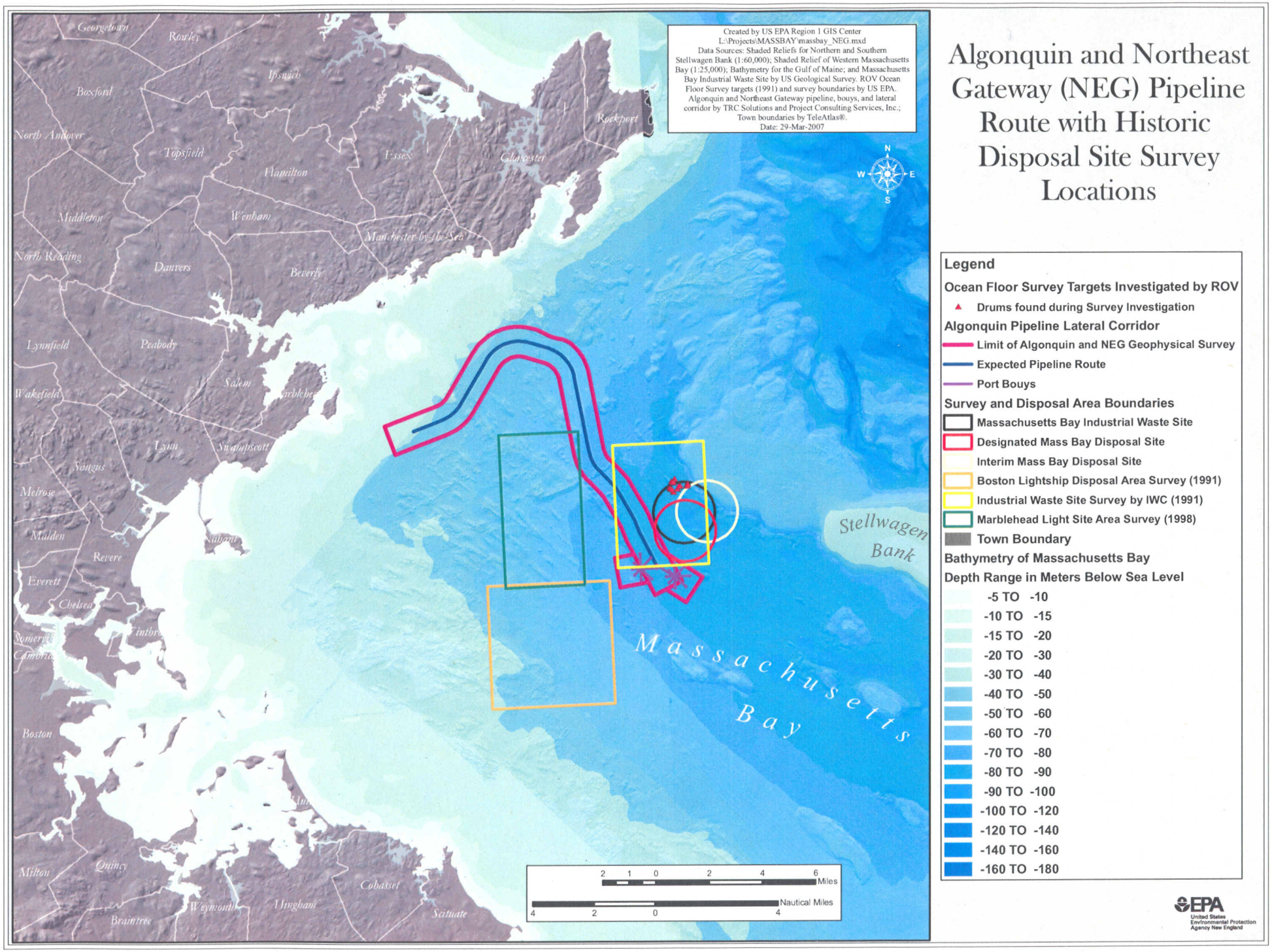
> "The proposed construction methods and equipment have been employed on many other pipeline projects in water depths equal to or greater than that occurring along the NEG Lateral, and there is high confidence that the pipeline will be buried as stated in the NEG Lateral permit applications and as required in permits received to date. Also, the NEG Lateral, while involving greater water depths, otherwise involves a much more consistent and manageable set of subsurface construction conditions than the HubLine.
>
> It is incorrect to state that there is any section of the HubLine route that shows no signs of recovery. Everywhere along that route there are marine organisms living in, on and over the sediments, regardless of the substrate type. In some sections of the route, due to permit conditions requiring Algonquin to place rock in the trench instead of returning native sediments, there has been a change in the characteristics of the substrate, but post-construction reports during the past 3 years show abundant signs of marine life even at these modified substrates.
>
> Algonquin has received numerous permits with conditions specifying construction and restoration procedures that are to be employed to minimize long term environmental impacts. These measures are intended to support the recovery of the seafloor after

construction. The FERC, MassDEP, and the U.S. Army Corps of Engineers have issued or are expected to issue permits with enforceable conditions designed to assure appropriate recovery."[16]

EPA concurs that the benthic habitat along the Hubline route is currently recovering. However, the rate and extent of that recovery is not what was anticipated by the applicant. In the Hubline EIS, Algonquin estimated a 1-2 year recovery period for most benthic habitats. Post construction monitoring has shown significant impacts to benthic habitats 3-years post construction. It is unclear why recovery of the benthic communities is not progressing as quickly as anticipated. Monitoring of the benthos is ongoing, however, and further mitigation may be required, if necessary. It also bears reiterating here that these effects are from physical construction activities and not from hydrostatic testwater discharges.

[16] Martin, Paul D., TRC, attachment to email received by Ellen Weitzler, EPA Region 1 re: "two more questions from EPA on NEG NPDES draft permit", April 27, 2007, 4:08 PM.

ATTACHMENT A



Algonquin and Northeast Gateway (NEG) Pipeline Route with Historic Disposal Site Survey Locations

Legend

Ocean Floor Survey Targets Investigated by ROV

- Drums found during Survey Investigation

Algonquin Pipeline Lateral Corridor

- Limit of Algonquin and NEG Geophysical Survey
- Expected Pipeline Route
- Port Bouys

Survey and Disposal Area Boundaries

- Massachusetts Bay Industrial Waste Site
- Designated Mass Bay Disposal Site
- Interim Mass Bay Disposal Site
- Boston Lightship Disposal Area Survey (1991)
- Industrial Waste Site Survey by IWC (1991)
- Marblehead Light Site Area Survey (1998)
- Town Boundary

Bathymetry of Massachusetts Bay

Depth Range in Meters Below Sea Level

- -5 TO -10
- -10 TO -15
- -15 TO -20
- -20 TO -30
- -30 TO -40
- -40 TO -50
- -50 TO -60
- -60 TO -70
- -70 TO -80
- -80 TO -90
- -90 TO -100
- -100 TO -120
- -120 TO -140
- -140 TO -160
- -160 TO -180

EPA United States Environmental Protection Agency New England

Chronology and Locations for Disposal of Hazardous Wastes in Massachusetts Bay

Massachusetts Bay has been a depository for industrial, chemical, and low level radioactive wastes and construction and dredged material since the 1940s. Industrial waste containers included 55 gallon metal drums (barrels), barrels encased in concrete, and coffin-shaped concrete containers. The proposed corridor for the Northeast Gateway Energy Bridge Pipeline Lateral is shown in relation to known disposal areas and survey areas on the attached map. The primary disposal sites included the:

Industrial Waste Site (IWS) - located 20 miles east of Boston at 290 feet depth, also known as the "Foul Area"; This includes parts of the areas known an the Massachusetts Bay Disposal Site (MBDS) and the Interim Massachusetts Bay Disposal Site (IMBDS).

Boston Lightship Disposal Site (BLDS) - located 10 miles east of Boston in 150 to 200 feet depth; and

Marblehead Light site (MLS) - located about 8 to 10 miles southeast of Marblehead at 210 to 230 feet depth.

Figure 1, below, shows the history of disposal activities in Massachusetts Bay.

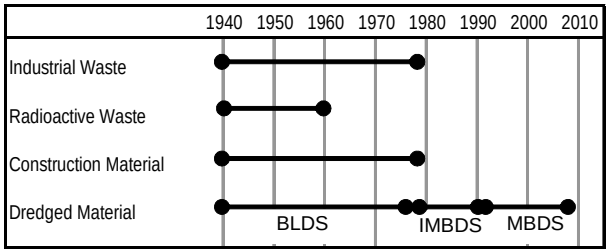


Figure 1 – Known Disposal History in Massachusetts Bay

Surveys for assessing locations and threats of hazardous waste disposal

Beginning in 1973, several federal and state agencies have assessed the threats of chemical and low level radioactive wastes to the marine environment. Six studies are highlighted here.

Industrial Waste Site Surveys

1991

Organization: International Wildlife Coalition (IWC) partially funded by EPA[i]

Methods: side scan, remotely operated vehicle (ROV).

Results: Using side scan sonar, targets were prioritized and visually investigated using a video camera on a ROV. An estimated 10,000 to 20,000 barrels were identified centered near the northern edge of the IWS, perhaps half experiencing severe corrosion (see attached map).

1992

Organizations: EPA, NOAA, Army Corps of Engineers, Department of Energy, FDA and Commonwealth of Massachusetts[ii]

Methods: ROV, submersible, fish, shellfish and sediment *in situ* and laboratory analyses for chemicals and radioactivity

Results: used ROV and submersible to confirm targets from 1991 IWC survey, and collected sediment and fish samples for chemical and radioisotope measurements. Except for one sediment sample, no radioactivity above background levels was detected. No concrete coffins were observed.

Boston Lightship Disposal Site Surveys

1991

Organizations: EPA 1991[iii].

Methods: side scan sonar

Results: EPA mapped a 16 nautical mile square area, and observed targets including dredged material disposal, shipwrecks, and possible barrel fields.

1994

Organization: Army Corps of Engineers[iv]

Method: sediment profile imaging camera and plan view camera

Results: confirmed that many of the probable dredged material targets, mapped in 1991, were dredged material.

1997

Organizations: EPA and NOAA[v]

Methods: re-analysis of 1991 side scan images[vi] to prioritize targets for direct visual observations using video, acoustical and optical methods on ROV and submersible platforms.

Results: none of the probable barrels or unidentified targets located by the side scan sonar was confirmed as a waste container.

Marblehead Light Site Surveys

1998

Organizations: EPA, Navy, Mass DPH[vii]

Methods: side scan and experimental

Results: only a few potential targets were identified, and they did not appear to be distinct from lobster pots.

Conclusions

Using a screening approach, government sponsored studies have found potentially hazardous containers at or near the IWS, but not the BLDS or MLS. It is unlikely that significant barrel fields are located in the BLDS or the MLS. Most of the visually observed barrels or drums are corroded and it is assumed that much of the constituents have dispersed. Direct radiation measurements from barrels, or from sediments adjacent to barrels, are at background levels or do not pose risks to human health.

Based on the survey conducted in 1992 at the IWS, the contributing agencies concluded that the low level radioactive waste or the hazardous substances investigated did not pose an imminent and widespread human health or ecological threat. "However the documented presence and large concentration of waste containers along with know ordnance disposal in some area of the IWS, pose potentially significant occupational risks to users of bottom-tending mobile gear."

"The existing fishing advisory and the closure for surf clam and ocean quahog harvesting should continue. Further documentation of the locations of likely waste containers fields within and contiguous to the IWS should be undertaken. Positions of concentrations of likely waste containers should be noted on nautical charts." [ii]

Although no new studies are contemplated at this time, EPA anticipates continuing to assess the extent of historically disposed containers into Massachusetts Bay as information becomes available.

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[i] Wiley, D.N, V. Capone, D.A. Carey, and J.P. Fish. 1992. Location survey and condition inspection of waste containers at the Massachusetts Bay Industrial Waste Site and surrounding areas, Internal Report submitted to US EPA Region 1. International Wildlife Coalition, Falmouth, MA. 59 pp.

[ii] National Oceanic and Atmospheric Administration (NOAA). 1996. The Massachusetts Bay Industrial Waste Site: A Preliminary Survey of Hazardous Waste Containers and an Assessment of Seafood Safety. (May and June 1992). NOAA Technical Memorandum NOS ORCA 99. Edited by John Lindsay.

[iii] Keith, D., J. Schoenherr, J. Cook, D. Carey, and G. Tracey. 1992. U.S. Environmental Protection Agency. 1992. Final cruise report: Location survey and condition inspection of waste containers at the Boston Lightship dumping ground and surrounding area. ERL-N Contribution No. 1405. US EPA Environmental Research Laboratory-Narragansett. Narragansett, RI. 76 pp.

[iv] SAIC, 1994. Monitoring Cruise at the Historic Boston Lightship Disposal Site august 1994. DAMOS contribution #113.

[v] Lindsay, J.A., B. Coles, I. Babb, D. Tomey, M. Liebman, A. Nevis, J.S. Taylor, T. Askew, K. Keay, H.Louft, T. Fredette and R. Regan. 1998. Acoustical/optical Technology Integration with a Manned Submersible and a ROV for the Investigation of a Radioactive Materials Disposal Site and Sewage Diffuser Outfall. Underwater Technology '98. Japan, 1998.

[vi] Polaris Imaging and Berger Associates. 1997. Boston Lightship Dumping Ground Area, Massachusetts Bay -- Processing and Analysis of 1991 Sidescan Sonar Data. U.S EPA New England Regional Office. December 1997. Boston, MA.

[vii] Polaris Imaging. 1998. Northern Massachusetts Bay container study. Data Processing and Analysis Report of 19098 Sidescan sonar data Draft Final Report, September 1998. Submitted by P olaris Imaging to US EPA Region 1, Boston, MA.

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