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To: Matt Schweisberg, EPA Region 1
From: Philip Weinberg, MassDEP, Office of Operations and Environmental Compliance
Re: South Terminal ARARs Overview
Date: February 10, 2012

The South Terminal project is comprehensively described in the report entitled Enhanced Remedy in New Bedford, South Terminal, January 18, 2012 ("SER Report" or "Report"). This Report supplements and updates the Report previously submitted to EPA on or about August 25, 2010. The project envisions the construction and operation of a marine terminal of approximately 28.25 acres within the Designated Port Area of the New Bedford Harbor at a site north of and proximate to the Harbor's Hurricane Barrier. The project will be subject to three regulatory programs: Wetlands, 310 CMR 10.00; Waterways, 310 CMR 9.00; and Water Quality, 314 CMR 9.00. The project's components include:

1. Construction of a 1200 linear foot bulkhead that will fill in approximately 5.49 acres of shallow, near shore and intertidal habitat and 0.18 acres of salt marsh;
2. Improvement dredging to provide navigational access to the terminal resulting in permanent impacts of approximately 12.14 acres in near shore, subtidal habitat and 43.38 acres of temporary impact of which 19.6 acres is maintenance dredging of the Federal Navigation Project; and
3. Mitigation for impacts to winter flounder, shellfish and salt marsh.

Designated Port Area

All the activities associated with the project lie within a Designated Port Area (DPA), locations dedicated to marine industrial and commercial purposes.¹ The Wetland Regulations at 310 CMR 10.26 establish the performance standards for activities proposed in wetland resource areas within a DPA. The regulation designates land under the ocean in a DPA as significant to the wetland interests of marine fisheries, storm damage prevention and flood control, and presumes

¹ A locale is established as a DPA pursuant to the Coastal Zone Management Regulations at 301 CMR 25.00.

that such land is not significant to other interests including salt marsh, land containing shellfish, coastal beaches, and tidal flats. Therefore, the performance standards applicable to those marine resource areas are not applicable to projects within the DPA absent unique conditions not present in the site of this DPA. Moreover, impacts to these areas from filling have been compensated for through mitigation discussed below.

Projects in the DPA must be designed and constructed using best practical measures to minimize adverse effects on: (a) fisheries through changes in water circulation and water quality; and (b) storm damage prevention or flood control caused by changes in the land's ability to provide support for adjacent coastal banks or engineering structures. There is nothing unique about the construction or location of the bulkhead to suggest that it would have an adverse impact on water circulation which is driven primarily by meteorology and tides in this locale. Dredging and filling activities may cause temporary impacts to water quality, which is discussed in further detail below. Similarly, given the bulkhead's location in relation to the hurricane barrier, there is no reason to conclude that the terminal will have an adverse impact from storm damage or flooding to the coastal bank, or boat ramp or marine industrial bulkhead located on adjacent parcels.

Terminal

The South Terminal's bulkhead is to be constructed with sheetpiling and backfilled with 150,000 cubic yards of clean sand generated by navigational dredging projects undertaken in the Harbor. The bulkhead will infill approximately 5.49 acres of near shore habitat and 0.18 acres of salt marsh. The intertidal and subtidal areas of the proposed bulkhead are currently contaminated with lower levels of PCBs. An additional 34,000 cy of clean material generated from navigational dredging will be used to grade the upland portions of the facility for the wind blade lay down area and ancillary staging and loading uses.

The Water Quality Regulations at 314 CMR 9.06(1) require an alternative analysis that demonstrates no practicable alternative to the project will have a less adverse effect on the aquatic environment. The SER Report sets out the basis for the Department's conclusion that there is no other practicable location or configuration for the project that will meet its primary purpose in serving the off-shore renewable energy. The Report satisfies the regulation's alternative analysis performance standard. Moreover, the regulations provide at 310 CMR 9.06(8) that, notwithstanding the requirement for a *Least Environmental Damaging Practical Alternative* ("LEDPA")-type analysis, the Department may approve a project that will otherwise improve the natural capacity of wetlands or any water of the Commonwealth. The South Terminal project will improve the Harbor's and its surrounding habitat's natural capacity in that it provides (a) a construction-related reuse for CAD generated material, (b) a location capable of providing future means to store and reuse CAD sediment, and (c) the mechanisms by which the

proposed mitigation measures will eliminate exposure of the aquatic environment to PCB contamination. The terminal also allows the project to comply with the provision of 314 CMR 9.07(1)(e), which compels reuse or recycling of dredged material rather than its disposal.

The regulation at 314 CMR 9.06(2) requires that appropriate and practicable steps be taken to avoid and minimize potential adverse impacts to land under water or the intertidal zone. The Department has developed standard protocols to regulate construction activities in shoreline areas to avoid and minimize adverse impacts to water quality and benthic habitat through the use of time of year restrictions and best management practices. In regard to the bulkhead, most of the impacts to the intertidal areas will occur behind the sheet piling. There is nothing unique about this project that indicates that through site-specific application of these protocols the avoidance and minimization standard cannot be achieved.

When MassDEP previously determined which MassDEP regulations apply to the project, it was contemplated that the bulkhead could potentially incorporate anthropogenic, contaminated dredge spoils. As a consequence, it was determined that the terminal would be regulated as a Confined Disposal Facility (CDF) pursuant to 314 CMR 9.07(8). In light of the representation that the bulkhead construction and lay down area grading material will be composed only of clean sand, the CDF performance standards are no longer relevant. The bulkhead construction and site grading material may be regulated as the reuse of dredged material under the appropriate reuse alternatives set out in 314 CMR 9.07(9)(a) and (b). 314 CMR 9.07(9)(a) allows for the shoreline placement of dredged material proximate to the dredging activity that lies with a flood plain and identifies placement of material behind a bulkhead as valid reuse alternative. The SER report identifies the site as within the FEMA mapped 100-year flood plain.

The use of clean, dredged sand for the purpose of grading the upland areas of the site is regulated pursuant to 314 CMR 9.07(9)(b). This provision provides for the placement of dredged material in an upland area for fill or reuse, provided the concentration of contaminants in the material (1) do not exceed the S-1 applicable at the receiving location, as specified in 310 CMR 40.0975, (2) is not a hazardous waste, and (3) will not adversely affect a potable water supply. Additional provisions require that contaminants in the material not be significantly different or greater than the receiving location's background conditions, the reuse occur in a DPA if practicable, and the material be appropriately dewatered and otherwise managed in accordance with applicable regulations at 314 CMR 9.07. The Report's representation that only clean sand would be employed makes it reasonably likely that the material would not exceed S-1 standards or the background conditions at the proposed reuse locations. Based on historic sampling data and standard sampling protocols, MassDEP would establish an appropriate construction sampling methodology to confirm that the material designated for upland reuse met the applicable compliance standard.

The terminal is also regulated under the Waterways regulations, 310 CMR 9.00. The terminal's functions classify it as a water dependent-industrial facility under the criteria at 310 CMR 9.12: a facility related to the construction and storage of marine structures, a marine terminal for transfer between ship and shore of water-borne goods, and an ancillary activity to offshore renewable energy infrastructure. As a water dependent facility, the project is presumed to serve a proper public purpose (310 CMR 9.31). There is nothing in the record to indicate that this project is displacing an established, reasonably continuous water-dependent use in contravention to 310 CMR 9.36(4). Water dependent industrial structures within the tideland area of a DPA may be constructed with fill, provided that neither pile supported, nor floating structures are a reasonable alternative.

The SER Report presents convincing information that the massive weight and pounds per square inch pressure exerted by the mobile cranes used to unload and stage the turbine components establish that a pile supported or floating structure are not practicable alternatives to meet the operational design requirements of the Terminal (See, Sec. 4.3.2). This section incorporates information previously provided to the Department on May 6, 2011 to further analyze the relationship between the required weight bearing capacity of the terminal and its design. The Report describes how a typical mobile crane weighing 600 metric tons can, in the course of an unloading operation, generate in excess of 12,000 psf. Those estimates are consistent with the load designs of European ports that have supported off-shore wind installations. The vibration produced as the cranes move from the unloading to the staging area can also severely impact structures with fixed point load bearing, such as pile supported structures, disrupting the connection points and causing early failure.

The need for crane mobility and their operating loads require, as a practical necessity, a crushed stone surface, rather than a concrete operating surface, to prevent the cracking of the concrete deck due to settlement and wear and tear. To avoid cracking the deck on a pile supported structure, the project requires an additional three feet of fill that will further increase the load bearing demands on a pile structure and raise its elevation 7 feet more than the current bulkhead alignment. A pile supported structure built to carry these loads would require pilings of a dimension and density that would reasonably preclude navigating or walking under the structure, thereby virtually eliminating any public access opportunities that a standard pier pile supported structure might provide, and having sufficient density as to have the effect of being fill in terms of its effect on marine resources.

These factors combine to preclude reliance on a pile supported structure as a reasonable design choice. This conclusion is further supported by the Department's records, which indicate that these cranes weigh 12 times and 6 times more than the cranes at the largest cargo marine terminals operating in Boston and New Bedford, respectively. Floating structures are also incompatible with the primary purpose of the terminal, given the foregoing load bearing

constraints and the need for a stable infrastructure to transfer and stage these heavy turbines. The terminal also meets the Engineering and Construction standards at 310 CMR 9.37.

The site investigation of the upland portion of the terminal site identified that major portions of the site were underlain at relatively near surface depths with a variety of waste materials. Certain test pits also showed the presence of hydric soils and invasive plants that can propagate in anaerobic conditions. The Department does not consider those areas jurisdictional wetlands. In addition, the SER Report noted that at least one area has been identified as the site of release regulated under M.G.L. c. 21E. The Department anticipates that as the project progresses a more detailed site assessment will be conducted pursuant to Massachusetts Contingency Plan regulations, 310 CMR 40.000, and the appropriate response actions will be implemented, if required.

The proposed site development design the Department reviewed in 2010 incorporated a temporary bridge between two parcels of land that traversed an intertidal salt marsh. The current design connects those parcels through an entirely different route outside of the intertidal area and salt marsh. Therefore, the discussion in the Department's August 25th memo on the temporary impacts associated with the bridge is no longer relevant.

Navigational Dredging

Navigational access to the terminal requires a combination of improvement and maintenance dredging in excess of 17 acres of intertidal and subtidal areas to between- 20MMLW to - 30MMLW as described and delineated in the SER Report and accompanying Appendix. The water quality regulations require a "LEDPA"-type analysis for dredge projects (314 CMR 9.07(1)(a)). The SER Report sets out a sufficient rationale for the extent of the proposed dredging. The rationale is based upon a best information available analysis of the configuration and number of primary and support vessels that will be required to implement the project, consistent with the wind turbine facility's transportation and construction predicates. *Similar to the provision discussed earlier in connection the discharge of fill associated with the terminal,* the regulations at 314 CMR 9.07(1)(l) create an exception to the applicability of the alternative analysis requirement at 314 CMR 9.07(1)(a) and the other dredging performance standards where the dredge components of the project will restore or otherwise improve the natural capacity of the wetland or other water of the commonwealth. As noted, we believe various components of this project will serve such a purpose.

The water quality regulations also require that appropriate and practicable steps be taken to avoid or, if avoidance is not possible, minimize and thereafter mitigate adverse impacts to land under water and the intertidal zone. 314 CMR 9.07(1)(a). Dredging performance standards at 314 CMR 9.07(3) reiterate and expand upon the need to avoid and minimize impacts, including a

conditional prohibition on dredging within the migration, spawning or juvenile development of aquatic species. Although this project involves improvement dredging, as compared to the maintenance dredging conducted under the prior three phases of SER-approved dredge projects, the performance standards imposed in those previous projects would be equally appropriate and applicable to the navigational dredging associated with this project. In addition to aligning the dredging scheduling in regard to the times of the year when resident and migratory species are in their vulnerable phases of their life cycles, the establishment of mixing zones, the use of silt curtains and environmental dredge buckets, real time dredge and dewatering related turbidity monitoring and response plans, and environmental monitors' oversight will act in concert to satisfy the "avoid and minimize" standard. The Waterways regulations, at 310 CMR 9.40(2) and (3), impose more explicit dredge performance standards, such as conditionally precluding dredging between March 15th and June 15th of any year, to avoid interference with fish runs, but which can be met within the parameters of the scheduling, design and operating conditions discussed above.

Mitigation for Unavoidable Impacts

The SER Report identifies a matrix of potential mitigation projects within and proximate to the terminal that replicate or improve the resource areas impacted by the project, including salt marsh, intertidal and the subtidal areas. The proposed mitigation will result in the creation of 17.73 acres of Winter Flounder spawning habitat, creation/enhancement of 3.47 acres of intertidal area and enhancement of 10.91 acres of near-shore, shallow, sub-tidal areas located in the outer harbor, immediately southwest of the Hurricane Barrier, creation/enhancement of up to approximately 1.9 acres of a combination of successional marsh areas (mudflat, low marsh, high marsh, and transitional area), completion of a Tern Monitoring program to provide additional information on the utilization of New Bedford Harbor by terns, and a combination of transplanting and/or seeding of shellfish (however, no shellfish will be transplanted from Fish Closure Area 1 to areas outside of Fish Closure Area 1). The selection principles applied in identifying the prospective mitigation measure are consistent with the criteria the Department applies in reviewing compensatory mitigation measures. The Department has consulted with the Division of Marine Fisheries who has confirmed that the areas and depths identified for the creation of flounder habitat are appropriate. The sub-tidal and inter-tidal habitat mitigation area is proposed at a location that was previously an intertidal area. Thus, it constitutes restoration of inter-tidal area, is desirable as a mitigation location, and has a high degree of likelihood of success. The Mass Department of Public Health has confirmed in writing that the shellfish transfer from the contaminated areas would not meet DPH regulatory requirements because of the levels of contamination in the shellfish. Therefore, the mitigation proposal was revised to indicate this restriction, and accordingly satisfy DPH's concerns. The proponent now proposes as mitigation that shellfish be re-seeded or transplanted from uncontaminated areas. None of the proposed mitigation will displace an established water dependent use.

The concept of capping contaminated areas to improve benthic water quality and, in effect, create improved habitat, as proposed in the OU3 area, is a mitigation approach the Department recognizes as an acceptable mechanism to redress impacts from hazardous waste remediation projects, including dredging and filling projects. The salt marsh mitigation area includes an area of PCB contaminated sediments located within a drainage swale. Further review and analysis provides persuasive evidence that the PCB contamination in the drainage swale was likely from discontinued CSO discharges to the area known as OU-3, and therefore would not be likely to provide future contamination of the restored salt marsh.

There are several prospective mitigation measures that currently lack a financial commitment to conduct or complete. The Department anticipates that prior to the commencement of the project's construction, further clarification of the funding and scheduling of the selected mitigation measures will be documented and implemented. As further details of the dredging design are formalized, the Department will exercise oversight in the adoption of the final group of mitigation measures, and review the final designs, engineering controls, monitoring and contingency plans to ensure that project's impacts to essential fish habitat are adequately addressed and impacts during the construction period of the project and the selected mitigation measures are minimized.

