

**APPENDIX B – SUMMARY OF NPDES PERMITTING INFORMATION
BOSTON HARBOR DRAINAGE SYSTEM**

Table B1. Permitting information for the active NPDES permits in the Boston Harbor Drainage System excluding construction dewatering permittees.

PERMITTEE Atlantic Marine Boston, LLC	NPDES # MA0040142	SEGMENT MA70-02
<p>Atlantic Marine Boston, LLC, a company engaged in the repair and modification of sea going vessels, is authorized (MA0040142 issued September 2007) to discharge the following from the facility located at 32A Drydock Avenue to Boston Inner Harbor (permit transferred from Boston Ship Repair, Inc. in June 2009):</p> <p>Outfall 001: Graving Dock Dewatering (Main Pump) water and storm water; report only (maximum daily flow)</p> <p>Outfall 002: Graving Dock Dewatering water (Stripping Pump) and storm water; report only (maximum daily flow, TSS, annual priority pollutant scan)</p> <p>Outfall 003: Non-contact ocean water associated with the Fire Suppression Main and Cooling Pump system. Report only (maximum daily flow when in use)</p> <p>Outfall 005: Ocean water from the Caisson Ballast system; Report only (maximum daily flow when in use)</p>		

PERMITTEE Boston Water and Sewer Commission	NPDES # MA0101192	SEGMENTS MA70-02, MA70-03
<p>The Boston Water and Sewer Commission (BWSC) is authorized (MA0101192 issued in March 2003 and modified in April 2007) to discharge from 21 Combined Sewer Overflows to various locations within Boston Inner Harbor including Boston Inner Harbor, Little Mystic Channel, Fort Point Channel, Reserved Channel. The Massachusetts Water Resources Authority was added as a co-permittee in the permit modification for Outfall MWR215*. The outfalls locations and current status are summarized below:</p> <p>Receiving water Inner Harbor-Upper: From an estimated 17.11 MG discharging 97 times/year to 1.63 MG discharging 9 times/year from five outfalls: BOS 009, BOS 012, BOS 019, BOS 057, BOS 060. Outfall BOS010 (from an estimated 8.34 MG discharging 35 times/year to 0.72 MG discharging 4 times/year – this outfall had been filled with sediment but has been cleaned and will remain open and active).</p> <p>Receiving water Inner Harbor-Lower: From an estimated 12.87 MG discharging 83 times/year to 2.65 MG discharging 12 times/year from five outfalls: BOS 003, BOS 004, BOS 005, BOS 006, BOS 007. NOTE: BOS006 and 007 permanently closed by BWSC (Kubiak 2010).</p> <p>Receiving water Inner Harbor- Fort Point Channel: From an estimated 167.68 MG discharging 103 times/year to 4.61 MG discharging 8 times/year (INCLUDED IN THIS ESTIMATE HOWEVER IS 3.14 MG FROM 4 EVENTS DURING BYPASSES AROUND UNION PARK CSO TREATMENT FACILITY DURING LARGE STORMS) from six outfalls: BOS 062, BOS 064, BOS 065, BOS 068, BOS 072, BOS 073 as well as BOS 070* also with the Internal Outfall MWR215 that applies here. This is the Union Park Pump Station which discharges into Fort Point Channel is estimated to discharge 17 times/year with a typical discharge of 71.4 MG.</p> <p>*Acute whole effluent toxicity tests (report only requirement) using <i>Mysidopsis bahia</i> and <i>Menidia beryllina</i> as test species on a biannual basis are required for the BWSC internal outfall MWR215 (Union Park CSO Treatment Facility) to MWRA's CSO Outfall BOS070. The discharge event maximum Total Residual Chlorine (TRC) limit (expressed as maximum hourly) is 0.25 mg/L.</p> <p>Effluent Ammonia-nitrogen concentrations ranged from <0.1 to 0.71 mg/L (n=7) in the whole effluent toxicity testing events conducted between January 2008 and November 2009. It should also be noted that pH measurements reported were generally notably low ranging from 3.19 to 6.57 SU with five of eight measurements <6.0 SU.</p> <p>Receiving water Inner Harbor-Reserved Channel: From an estimated 66.53 MG discharging 44 times/year to 0.0 from the following four outfalls: BOS 076, BOS 078, BOS 079, BOS 080.</p> <p>The following CSO outfalls discharging to Dorchester Bay (Segment MA70-03): BOS081, BOS082, BOS083, BOS084, BOS085, BOS086 and BOS087 (an estimated 9.03 MG discharging 78 times/year) were to be eliminated in 2008 by completion of CSO Abatement Facilities. Outfalls BOS088 and BOS089 (estimated 34.98 MG discharging 23 times/year) were eliminated in 2007.</p>		

PERMITTEE Exelon New Boston, LLC	NPDES # MA0004731	SEGMENT MA70-02
<p>The Exelon New Boston, LLC (former permit holder names Sithe New Boston LLC, Boston Edison Company New Boston Station) was authorized (MA0004731 issued December 1993) to discharge to the Reserved Channel section of Boston Inner Harbor.</p> <p>Outfall #001: 258.0 MGD monthly average and 258.0 MGD maximum daily flow of circulating water from Unit #1. The daily maximum Total Residual Chlorine (TRC) limit was 0.10 mg/L.</p> <p>Outfall #002: 232.0 MGD monthly average and 232.0 MGD maximum daily flow of circulating water from Unit #2. The daily maximum Total Residual Chlorine (TRC) limit was 0.10 mg/L.</p> <p>Outfall #005: 0.43 MGD monthly average and maximum daily flow of boiler condensate drains from Units #1 and #2</p> <p>Outfall #006 and #007: 40.0 MGD monthly average and maximum daily flow of condenser backwash from Units #1 and #2.</p> <p>Outfall #008: 0.87 MGD monthly average and maximum daily flow of intake screens backwash water.</p> <p>Outfall #011: 1.0 MGD monthly average and maximum daily flow of waste treatment system.</p> <p>Outfall #012, #013, #014: monitor only maximum daily flow of storm water discharges.</p> <p>In December 2007 EPA received notification of the permanent retirement of New Boston Station's steam boilers, turbine generators, associated cooling water systems and wastewater effluent discharge by the end of December 2007. The Station continues to maintain a peak-demand combustion turbine generating unit but there is no associated cooling water intake or discharge for operations. The only remaining discharge is from three stormwater outfalls. Facility closed December 2007, permit terminated June 2009 Exelon now has coverage for stormwater outfalls under the 2008 Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activities.</p>		

PERMITTEE The Gillette Company	NPDES # MA0003832	SEGMENT MA70-02
<p>The Gillette Company is authorized (MA0003832 issued September 2003) to discharge to Fort Point Channel in Boston Inner Harbor. The facility is engaged in the manufacture of razors and blades. The daily maximum temperature limit for all four outfalls is 83°F).</p> <p>Outfall #001: 26.0 MGD maximum daily flow of non-contact cooling water, process water, and storm water</p> <p>Outfall #002: 26.0 MGD maximum daily flow of non-contact cooling water</p> <p>Outfall #003: 8.1 MGD maximum daily flow of non-contact cooling water, process water, and storm water.</p> <p>Outfall #004: 17.0 MGD maximum daily flow of non-contact cooling water and storm water.</p> <p>The prior permit (issued in December 1996) required quarterly acute whole effluent toxicity testing with <i>M. bahia</i> and <i>M. beryllina</i> on combined non-contact cooling water and low volume waste streams. <i>M. beryllina</i> testing was discontinued in a permit modification effective September 1998. No WET testing is required in the current permit.</p> <p>The facility has a cooling water intake structure (CWIS) in Fort Point Channel seaward of the outfalls and the artery tunnel crossing that withdraws 60.1 MGD. The CWIS is currently comprised of four 24" wide by 48" high horizontal tunnels. The inlets are covered with cylindrical stainless steel intake screens. The stationary screens are equipped with an air blower system for debris removal. The rated flow capacity for each of the four screen assemblies is 15,000 GPM with a maximum through screen velocity of 0.5 fp. The nominal slot opening is 0.375 inches.</p> <p>The permit required entrainment monitoring between 15 May and 30 September. Tows were to be obtained between the Northern Avenue Bridge and the intake structure. Additionally, thermistors were to be deployed at the west side of the Northern Avenue Bridge as well as the west side of the Congress Street Bridge.</p>		

PERMITTEE Town of Hull Permanent Sewer Commission	NPDES # MA0101231	SEGMENT MA70-01
<p>The Hull Permanent Sewer Commission is authorized (MA0101231 September 2009) to discharge an average monthly flow of 3.07 MGD of treated industrial and sanitary wastewater from Hull Water Pollution Control Facility via outfall #001 to Massachusetts Bay/Atlantic Ocean (outfall is across from the facility at Stony Beach. The Total Residual Chlorine (TRC) limit is 0.7 and 1.0 mg/L (average monthly and maximum daily, respectively). The facility is required to conduct acute whole effluent toxicity tests, LC₅₀ ≥ 100%, using <i>Menidia Beryllina</i> as test species on a quarterly basis.</p> <p><u>Effluent</u> Concentrations of ammonia-nitrogen reported in the whole effluent toxicity reports between February 2004 and February 2010 ranged from <0.1 to 20 mg/L (n=25). TRC concentrations ranged from <0.02 to 1.2 mg/L; all but three measurements (n=24) were <0.05 mg/L. TRC exceeded the permit limit of 1.0 mg/L in one test event (November 2007).</p>		

PERMITTEE Massachusetts Port Authority and the CoPermittees of Logan International Airport	NPDES # MA0000787	SEGMENT MA70-02, MA70-10, MA70-01
<p>The Massachusetts Port Authority and the CoPermittees of Logan International Airport are authorized (MA0000787 issued July 2007) to discharge stormwater associated with industrial activity from vehicle maintenance areas, equipment cleaning areas and deicing activities from the following outfalls as well as other stormwater sources described below:</p> <p>North Outfall 001*: also includes above ground storage tank berms, other bermed area in the fuel farm area, and fuel loading</p>		

rack area, and stormwater from hydrant vaults and pits stored in the set-up tank (MA70-10)
 West Outfall 002*: (MA70-02)
 Porter Street Outfall 003*: (MA70-02)
 Maverick Street Outfall 004: (MA70-02)
 Northwest Outfall 005: stormwater associated with industrial activity and from pavement and runway activities (MA70-10)
 Runway/Perimeter Outfalls 006: stormwater associated with industrial activity and from pavement and runway activities from the 44 runway/perimeter outfalls (MA70-02, MA70-01, MA70-10)

*The permittees are required to conduct modified acute and chronic whole effluent toxicity tests (WET) on grab samples from each outfall using *Menidia Beryllina* and *Arbacia punctulata* as test species during the first and third year of the permit during a wet weather deicing episode.

Effluent
 Outfall 001B:
 Outfall 002B: Ammonia-nitrogen was 5.8 mg/L (March 2008 WET test event).

The permit also requires the development and implementation of a detailed Storm Water Pollution Prevention Plan (SWPPP).

PERMITTEE Massachusetts Port Authority	NPDES # MA0004405	SEGMENT MA70-02
The Massachusetts Port Authority (former owner Coastal Oil New England, Inc.) is authorized (MA0004405 issued August 2006) to discharge treated stormwater runoff from the Coastal Oil South Boston Facility via Outfall 001 and 25 GPM treated ground water from the Coastal Oil South Boston facility via Outfall 002 to the Boston Water and Sewer Commission's Combined Sewer Overflow Number 080 to Reserved Channel.		
The permit also requires that the Storm Water Pollution Prevention Plan (SWPPP) be maintained, updated and implemented.		

PERMITTEE Massachusetts Port Authority	NPDES # MA0032751	SEGMENT MA70-02
The Massachusetts Port Authority is authorized (MA0032751 issued November 2006) to discharge 0.0864 MGD (60 GMP) when discharging treated effluent from the Logan International Airport Fire Training Facility via outfall #001 to Boston Harbor. The facility is required to conduct acute whole effluent toxicity tests, using <i>Menidia Beryllina</i> and <i>Mysidopsis bahia</i> as test species on an annual basis and report the LC ₅₀ .		

PERMITTEE Massachusetts Turnpike Authority	NPDES # MA0033928	SEGMENT MA70-02
The Massachusetts Turnpike Authority was authorized (MA0033928 issued April 2003) to discharge dry weather discharges including groundwater seepage, and construction operation runoff via multiple outfalls at 18 separate construction/design areas to Fort Channel, Millers River, and Boston Harbor as part of the Central Artery Tunnel Project. The permit was terminated by EPA in August 2008.		

PERMITTEE Massachusetts Water Resources Authority	NPDES # MA0103284	SEGMENT Massachusetts Bay (not a segment), MA70-02, MA70-03
The Massachusetts Water Resources Authority is authorized (MA0103284 issued May 1999 and modified July 2000) to discharge 436 MGD (average monthly dry day flow) of treated wastewater from the Deer Island Wastewater Treatment Plant via outfall #T01 to Massachusetts Bay. The Total Residual Chlorine (TRC) limit is 0.456 and 0.631 mg/L (average monthly and maximum daily, respectively). The facility is required to conduct acute and chronic whole effluent toxicity tests using <i>Menidia beryllina</i> , <i>Mysidopsis bahia</i> , and <i>Arbacia punctulata</i> as test species on a monthly basis with the following limits: LC ₅₀ ≥ 50% and C-NOEC ≥ 1.5% effluent.		
<p>Effluent T01</p> <p>A total of 113 valid acute whole effluent toxicity tests were conducted using <i>M. bahia</i> as a test organism between August 2000 and January 2010. Although acute toxicity was detected in 14 test events (LC₅₀s ranging 64.6 to 100% effluent), none were violations of the LC₅₀ limit. Similarly a total of 113 valid modified acute and chronic whole effluent toxicity tests were also conducted using <i>M. beryllina</i> as a test organism between August 2000 and January 2010. Acute toxicity was detected in 47 of the 113 test events (42%) with LC₅₀s ranging from 52.5 to 100% effluent although since 2006 acute toxicity was detected in 14 of the 49 tests (29%). There were no violations of the LC₅₀ limit. The CNOEC results for the <i>M. beryllina</i> tests ranged from <1.5 (2 test events – April 2001 and July 2006) to 100% effluent (n=113 valid test events). The July 2007 test event CNOEC result was 1.5% effluent. CNOEC results for <i>A. punctulata</i> tests since January 2006 ranged from 12.5 to 100% effluent (n=49).</p> <p>Ammonia-nitrogen concentrations reported in the whole effluent toxicity reports between August 2000 and January 2010</p>		

ranged from 4.4 to 34.0 mg/L (n=189). TRC concentrations were all ≤ 0.2 mg/L (n=186 measurements and almost all were below detection <0.05 mg/L).

Since there have been no violations of the acute limit and almost no violations of the CNOEC limit in the 113 test events conducted between August 2000 and January 2010 it is recommended that WET testing requirements be reduced to *M. beryllina* only as the test organism. (For the tests conducted since January 2006 *M. beryllina* were equally or more sensitive than *A. punctulata* 90% of tests and when acute toxicity was detected were twice as often more sensitive than *M. bahia*).

The permit also authorizes CSO discharges in Boston Harbor (excluding CSO discharges in the Charles and Mystic River Watersheds) as described below. The permit requires definitive 24-hour acute toxicity tests twice a year using *Menidia beryllina* and *Mysidopsis bahia* as test species with LC₅₀ (report only), and a TRC limit of 0.1 and 0.25 mg/L (average and maximum hourly, respectively).

Inner Harbor (Segment MA70-02)

Outfall #203: Prison Point CSO Treatment Facility. No detectable concentrations of TRC were reported in the WET tests conducted between March 2001 and December 2009 (n=21 measurements).

Dorchester Bay (MA70-03)

Outfall #209: Fox Point via BOS088/089. Concentrations of TRC reported in the WET tests conducted between March 2001 and October 2003 ranged were extremely high ranging from 0.9 to 30.0 mg/L (n=6) but all measurements reported in tests between April 2004 and September 2007 (n=8) were below detection (i.e., <0.05 mg/L). Eliminated in 2007 as a result of sewer separation work in South Dorchester Bay.

PERMITTEE Massachusetts Water Resources Authority	NPDES # MAG910128	SEGMENT MA70-11, MA70-02
<p>The Massachusetts Water Resources Authority was authorized to discharge under the Remediation General Permit (MAG910128) at the Pleasure Bay Stormwater Relocation project in South Boston (permit issued November 2005 to expire September 2010).</p> <p>The project entailed diverting Pleasure Bay stormwater drainage away from the beach area and into the Reserved Channel requiring the construction of 4,600 feet of new drain piping ranging from 18 to 48 inches. Since known groundwater contamination existed within and nearby the northwest portion of the proposed construction area, contaminated water encountered during dewatering activities was to be pumped to a mobile treatment train consisting of an oil/water separator and a GAC filter prior to discharge. Discharges of treated groundwater authorized under this general permit were routed to either BOS 080 (MA70-02) or one of 13 storm drains to Pleasure Bay (MA70-11).</p> <p>The project was a component of MWRA's Long-Term CSO Control Plan for North Dorchester Bay and Reserved Channel. The new storm drains run along Day Boulevard and Shore Road and ultimately connected to the existing BOS080 outfall at Reserved Channel. Additionally, five catch basins collecting stormwater along the southern portion of Marine Park were connected to the proposed 24inch diameter, 680' pipeline and rerouted to BOS081 (which discharged to North Dorchester Bay. Upon completion of the North Dorchester Bay Storage Tunnel in 2008, the discharge from BOS 081 was eliminated.</p> <p>Since the project was completed in 2006, EPA is terminating this permit.</p>		

PERMITTEE MGH Institute of Health Professionals	NPDES # MAG250019	SEGMENT MA70-02
<p>The MGH Institute of Health Professionals (formerly Incubator Associates) is authorized (MAG250019 issued December 2002) to discharge 0.864MGD (max daily) non-contact cooling water (NCCW) to Boston Inner Harbor. Permit application indicated discharge is continuous. Source of water Boston Inner Harbor.</p> <p>In September 2008 MGH Institute of Health Professionals submitted an application requesting to continue coverage under their NPDES NCCW permit MAG250019. EPA Region 1 finalized requirements for the general NCCW permit in July 2008 (replacing the general permit established in 2000 and adding requirements for meeting Best Technology Available (BTA) for cooling water intake structures (CWIS). The purpose of the BTA is to limit the environmental impact to aquatic life due to impingement/entrainment in the CWIS. Information on the current CWIS for this facility, located at the Charlestown Navy Yard Dry Dock Two, was excerpted from Markey 2009):</p> <p><i>"The dry dock is a concrete structure approximately five-hundred feet long, seventy-five feet wide, and one-hundred feet deep... Two intake lines travel approximately one hundred feet to a seawater pump containment room, which has two pumps. The two pump lines combine to a single line and the water travels approximately one-hundred fifty feet to the MGH building's mechanical room and into the heat exchangers. Since the CWIS was built before the current management acquired the property, the original design measures are not known. Information is based on current observations and maintenance in addition to anecdotal evidence from a police dive in the area. According to Boston police divers, who spoke with a MGH representative, there are two intake lines that protrude from the dry dock north wall which run down concrete steps about twenty-five feet below the water surface. There are no screens on either line. The lines are cast iron and are approximately six inches in diameter. These two lines correspond to the two seawater pumps located in the</i></p>		

seawater pump room. These pumps are able to pump water at a six-hundred gallons per minute (GPM) rate to the heat exchangers. Only one pump operates at any given time. The pipe from the pumps to the heat exchangers is a four-inch PVC pipe that runs under the walkway to the MGH building. The pipe discharges to two stainless-steel basket strainers in the mechanical room prior to the heat exchangers. The basket strainer screen size is approximately 1/16 of an inch wide. The system piping is scoped twice per year to check for system integrity. The basket strainers are cleaned and checked once per week. A flow meter located in the mechanical room measures the flow to the heat exchangers. The maximum operational flow is six hundred gpm. This flow rate is controlled by the operator by throttling the exchanger valves. The flow rate is adjusted as needed to maintain proper pressures within the cooling system through valves located in the mechanical room. The system will only run if the building needs to be cooled down. According to the operator, the cooling system usage is higher in the summer months than in the spring fall and winter months."

PERMITTEE New England Aquarium Corporation	NPDES # MA0003123	SEGMENT MA70-02
<p>The New England Aquarium Corporation is authorized (MA0003123 July 2007) to discharge 0.15 MGD (monthly average) of disinfected tank and aquaria waters from their facility at Central Wharf in Boston via outfall #001 to the Boston Inner Harbor. The Total Residual Chlorine (TRC) limit is 1.0 mg/L (average monthly and maximum daily). The facility is required to conduct acute whole effluent toxicity tests, LC₅₀ ≥ 100% and report only A-NOEC%, using <i>Menidia beryllina</i> and <i>Mysidopsis bahia</i> as test species on an annual basis.</p>		
<p><u>Effluent</u> Outfall 001: Concentrations of ammonia-nitrogen reported in the whole effluent toxicity reports between February 2002 and August 2009 ranged from 0.04 to 0.13 mg/L (n=15 although 7 measurements were reported as <0.1 mg/L). TRC concentrations ranged from <0.02 to 11.0 mg/L (n=15). Three measurements were at concentrations of concern (2.7 mg/L in September 2002 test event, 11.0 mg/L in February 2003 test event, and 1.7 mg/L in February 2007 test event).</p> <p>New England Aquarium Corporation has two water intake pipes which extend about 300 feet out into Boston Inner Harbor from the facility. The intakes are about three feet above the surface bottom and draw water for use in the aquarium's tanks and aquaria. According to the permit fact sheet, low levels of medicines and other chemicals including chlorine are required to maintain healthy animals and prevent the spread of disease in exhibits and to control the presence of non-native organisms that could be pathogenic to the fishery resources of Boston Inner Harbor. Hypochlorite (chlorine solution) is added to three separate areas in the aquarium and is also added to the outlet pipe of the sump for disinfection. Accumulated solids settled in the pump are periodically pumped out and disposed of off site. The sump discharges water through a pipe about 300' out into Boston Inner Harbor about one meter off the bottom.</p>		

PERMITTEE University of Massachusetts-Boston	NPDES # MAG250004	SEGMENT MA70-03
<p>The University of Massachusetts-Boston is authorized (MAG250004 issued August 2000) to discharge 12.15 MGD (maximum daily flow) of non-contact cooling water to Dorchester Bay from their facility at Columbia Point Campus. Both the intake (source of cooling water for the facility) in Savin Cove and the discharge off Columbia Point are located in Dorchester Bay. The permittee was required to conduct one acute whole effluent toxicity test using <i>Mysidopsis bahia</i>.</p>		
<p>Brief permit history (Eisenberg 2010): February 2005: UMass filed a renewal application for their NCCW permit, July 2008: EPA issues new NCCW permit, August 2008: EPA notifies UMass they can no longer be covered by general NCCW permit, they need to file for an individual permit October 2008 through August 2009: Addressing requests for additional information in order to develop individual NPDES permit. Permit application includes max daily discharge of 16.2 MGD (to accommodate expansion of campus).</p> <p>Sea water is withdrawn by a single cooling water intake structure (CWIS) on the southwest side of Columbia Point peninsula in Savin Hill Cove. The CWIS is 10' deep, 7'2" wide and is oriented perpendicular to the shore. The structure is fully submerged at low tide (dredging has been conducted to allow clear passage to the CWIS). Depth immediately adjacent to the intake is 19' at mean low water (outside of the dredged channel mudflats are exposed at low tide). There is a 5' high baffle wall at the mouth of the intake that was inserted to discourage benthic organisms (e.g., lobsters) from entering the intake. Sea water is withdrawn through a traveling screen filter (operated for 15 minutes once every 8 hours) and over a 4' high fiberglass baffle before passing up the pump shaft and through a strainer (with a pore size of 1/16th inch) to the heat exchanger by one of four single speed pumps. After the sea water passes through the heat exchanger, it joins flow from any other pumps operating and is discharged through a single 36" underground pipe which extends approximately 2 m out from the Columbia Point shore and is nearly exposed at low tide. Fish impinged on the traveling screens are washed off the screens with a spray wash of unknown pressure and shunted into a fish return system that joins with the heated discharge water. The discharge water moves through a pipe which is about 1/3 of a mile long to the point of discharge.</p> <p>Pump capacities: one small pump (#24) 5.4 MGD, three large pumps (#21, 22, 23) 10.8 MGD. The maximum pumping capacity is 37.8 MGD (all four pumps in use). The CWIS generally operates 24 hours/day, 365 days/year. Typical cooling water use is between 5.4 and 16.2 MGD. During the winter months when less cooling is needed only the smallest pump is in</p>		

use (5.4 MGD). During the spring and fall, the small pump is shut off and one of the large pumps is activated (10.8 MGD). During the summer months one large and the small pump are generally in use (16.2 MGD) although two large pumps may be utilized during a hot spell (21.6 MGD). The University is contemplating an expansion which could increase the total intake and discharge rates. Water velocity across the intake screens would also increase.

Recommendations: obtain more information from the permittee on the following under current and proposed (after expansion) operations: pressure of spray wash used on the intake screens; rates of impingement, rates of entrainment, the potential for operation of heat exchanges without the 1/16-inch mesh strainers; water velocities at the face of the intake screen under various pumping scenarios and tidal stages; delta temperature of intake water prior to and after heat exchangers; travel time of fish from point of release into the screen wash water to point of discharge into Dorchester Bay.

PERMITTEE U.S. Coast Guard Integrated Support Command	NPDES # MA0090671	SEGMENT MA70-02
The U.S. Coast Guard Integrated Support Command in Boston, MA was authorized (MA0090671 issued October 2001) to discharge treated salt water intrusion from an underdrain system, boiler blow down, boiler condensate, and stormwater runoff via outfall #002 to Boston Inner Harbor. The permit required acute whole effluent toxicity testing using <i>Menidia beryllina</i> and <i>Mysidopsis bahia</i> as test species 3 times per year with an LC ₅₀ >50%effluent limit. The permit was terminated by EPA in November 2006 since the USCG no longer discharged from the oil/water separator and the permitted boiler blowdown/condensate was tied into the sanitary sewer.		

PERMITTEE U.S. Department of Homeland Security U.S. Coast Guard	NPDES # MA0090433	SEGMENT Just outside/north MA70-01
The U.S. Department of Homeland Security/U.S. Coast Guard is authorized (MA0090433 issued September 2007) to discharge an average monthly flow of 500 GPD treated sanitary wastewater from the U.S. Coast Guard Light Station Boston, Little Brewster Island via outfall #001 to Massachusetts Bay. The Total Residual Chlorine (TRC) limit is 1.0 mg/L maximum daily. The Outfall discharges onto the rocky shoreline on the north side of the island (not in segment area).		

Union Wharf Condominium Trust (“Union”), located at 343 Commercial Street, Boston, operates a once through non-contact cooling water system that utilizes an intake and discharge of seawater from Boston Inner Harbor (segment MA70-02). The NCCW system was installed in 1996 although their NPDES permit application was never acted upon. According to the files the system operates continuously between 1 May and 1 November each year. The company is currently providing information to the regulatory authorities for permit development. According to the application there are two intake pipes approximately 6” in diameter. The pipes are fitted with strainers which are manually cleaned by a diver on an annual basis. The maximum and average daily discharge is reportedly 1.584 MGD (1100 gpm). The intake pipes are attached to a granite bulkhead wall located 26 feet above the harbor bottom. The discharge pipe is also attached to the bulkhead wall 10 feet away from the intake pipes. According to the original permit application, no chemicals are used for biofouling and the ΔT is 10°F.

STORMWATER

The [NPDES Phase I Stormwater Program](#), ([EPA HQ](#)) in place since 1990, regulates cities and counties with populations of 100,000 that operate a municipal separate storm sewer system (MS4), specific industrial operations (as defined at [40 CFR 122.26\(b\)\(14\)](#) [EXIT Disclaimer](#)), and construction activities that disturb 5 or more acres of land. The Boston Water and Sewer Commission's (BWSC) NPDES Phase I Stormwater Program permit is summarized below (Tables B2 and B3).

Table B2. Phase I Stormwater NPDES Permit Boston Water and Sewer Commission.

PERMITTEE Boston Water and Sewer Commission	NPDES # MAS010001	SEGMENTS MA70-01, MA72-02
<p>The Boston Water and Sewer Commission (BWSC) is authorized (MAS010001 issued in September 1999) to discharge from the separate storm drainage system. The permit identified 195 storm water outfalls to various waterbodies including Boston Inner Harbor (including both Fort Point and Reserved channels) and Boston Harbor. The permit required the development, implementation, and revision as necessary of a storm water pollution prevention and management program designed to reduce, to the maximum extent practicable, the discharge of pollutants from the Municipal Separate Storm Sewer System (MS4). The Commission has filed annual reports to the EPA and DEP regarding the status of its pollution prevention and stormwater management programs, outfall screening and stormwater and receiving water monitoring programs. The reports also discuss any modifications made to the programs, annual expenditures, water quality improvements, and an assessment of structural controls. BWSC defines <i>Major Outfalls</i> as a storm drain that as a storm drain that discharges from a single pipe with an inside diameter of 36" or more or its equivalent, a storm drain that serves more than 50 acres, or a storm drain Outfall that discharges from a single pipe with an inside diameter of 12" or more serving an industrial-zoned area (BWSC 2007). <i>Non-major Outfalls</i> are defined as any outfall that is not a Major Outfall. Table B3 identifies the major and non-major stormwater Outfalls in Boston Harbor.</p>		
<p>According to the BWSC 2009 Annual Stormwater Management Report (BWSC 2010) the following improvements were made:</p> <p><u>Illegal Connection Elimination</u> In 2009: 44 illegal connections eliminated (an estimated 8,594 gpd of wastewater to drainage system) Overall since 1986: 1,075 illegal connections eliminated (an estimated 567,217 gpd of wastewater to drainage system)</p> <p><u>Sewer, Drain, Catch Basin and Particle Separator Cleaning</u> In 2009: removal of an estimated 18,430 cubic yards of material</p> <p><u>BMPs on Private Property</u> In 2009: 147 infiltration device installations approved, installation of particle separators at 23 locations approved.</p>		

Table B3. Major and Non-Major stormwater outfalls permitted to the Boston Water and Sewer Commission in Boston Harbor (BWSC 2007 and BWSC 2010).

MAJOR OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	BWSC RECEIVING WATERBODY NAME	MassDEP SEGMENT
28N207	MOORE ST	EAST BOSTON	54X57	BOSTON HARBOR	MA70-10
29O001	BENNINGTON ST (CONSTITUTION BEACH)	EAST BOSTON	66	BOSTON HARBOR NEAR CONSTITUTION BEACH	MA70-10
28K010	OLD LANDING WAY EXT	CHARLESTOWN	42	LITTLE MYSTIC CHANNEL	MA70-02
28K061	EASEMENT/MEDFORD ST	CHARLESTOWN	42	LITTLE MYSTIC CHANNEL	MA70-02
28K386	EASEMENT/TERMINAL ST	CHARLESTOWN	30	LITTLE MYSTIC CHANNEL	MA70-02
28L074	16TH ST/4TH AVE - NAVY YARD	CHARLESTOWN	3-30	LITTLE MYSTIC CHANNEL	MA70-02
28L075	16TH ST/4TH AVE - NAVY YARD	CHARLESTOWN	30	LITTLE MYSTIC CHANNEL	MA70-02
28L076	16TH ST/4TH AVE - NAVY YARD	CHARLESTOWN	30	LITTLE MYSTIC CHANNEL	MA70-02
27L020	PIER 4 EASEMENT - NAVY YARD	CHARLESTOWN	20	BOSTON INNER HARBOR	MA70-02
27L022	PIER 4 EASEMENT - NAVY YARD	CHARLESTOWN	24	BOSTON INNER HARBOR	MA70-02
26K099	CHELSEA ST EXT (JOINER ST)	CHARLESTOWN	84	CHARLES RIVER	MA70-02
26L084	LEWIS STREET	EAST BOSTON	18	BOSTON INNER HARBOR	MA70-02
24L233	ROWE'S WHARF/ATLANTIC AVE	BOSTON PROPER	42	BOSTON HARBOR	MA70-02
23L195	NORTHERN AVE	SOUTH BOSTON	36	BOSTON INNER HARBOR	MA70-02
23L202	NORTHERN AVE	SOUTH BOSTON	36	BOSTON INNER HARBOR	MA70-02
25L058	CHRISTOPHER COLUMBUS PARK-WATERFRONT	BOSTON PROPER	84	BOSTON INNER HARBOR	MA70-02
26L055	NEAR BATTERY WHARF	BOSTON PROPER	24X24	BOSTON INNER HARBOR	MA70-02
26L070	HANOVER ST EXT	BOSTON PROPER	36	BOSTON INNER HARBOR	MA70-02
21K069	125' NORTH OF W.FOURTH STREET (RELOCATED BY CA/T)	BOSTON PROPER	48	FORT POINT CHANNEL	MA70-02
22L580	NECCO STREET EXTENDED	SOUTH BOSTON	54	FORT POINT CHANNEL CONSTRUCTED BY CA/THT AND GIVEN OVER TO BWSC	MA70-02
23L075	CONGRESS ST BRIDGE	SOUTH BOSTON	54	FORT POINT CHANNEL	MA70-02
23L164	CONGRESS ST BRIDGE	BOSTON PROPER	48	FORT POINT CHANNEL	MA70-02
23L196	NEW NORTHERN AVE BRIDGE	SOUTH BOSTON	36	FORT POINT CHANNEL	MA70-02
21M010	D STREET EXTENDED	SOUTH BOSTON	30	RESERVED CHANNEL	MA70-02
21M050	SUMMER STREET	SOUTH BOSTON	72	RESERVED CHANNEL BUILT FOR CONVEN CENTER AND SB REVITALIZATION/21M005 permanently blocked	MA70-02
17M033	HARBOR POINT PARK (RELOCATED MT VERNON ST DRAIN)	DORCHESTER	72	OLD HARBOR	MA70-03
15L088	FREEMPORT WAY EXTENDED	DORCHESTER	2-78"	DORCHESTER BAY	MA70-03
15L089	FOX POINT RD EXTENDED	DORCHESTER	2-90X82"	DORCHESTER BAY	MA70-03

NON MAJOR OUTFALL NUMBER	LOCATION	NEIGHBORHOOD	SIZE (INCHES)	BWSC RECEIVING WATERBODY NAME	MassDEP Segment
28N156	COLERIDGE ST EXT	EAST BOSTON	12	BOSTON HARBOR	MA70-10
28O025	COLERIDGE/WADSWORTH ST. EXT	EAST BOSTON	30	BOSTON HARBOR	MA70-10
29P044	SHAWSHEEN ST	EAST BOSTON	12	BOSTON HARBOR	MA70-10
28P001	EASEMENT/NANCIA STREET	EAST BOSTON	12	BOSTON HARBOR NEAR CONSTITUTION BEACH	MA70-10
28L073	EASEMENT/4TH ST - NAVY YARD	CHARLESTOWN	6	LITTLE MYSTIC CHANNEL	MA70-02
28L077	EASEMENT/4TH ST - NAVY YARD	CHARLESTOWN	10	LITTLE MYSTIC CHANNEL	MA70-02
26K245	EASEMENT	CHARLESTOWN	15	CHARLES RIVER	MA70-02
23L015	NORTHERN AVE	SOUTH BOSTON	24	BOSTON INNER HARBOR Added during CA/T construction	MA70-02
23L016	NORTHERN AVE	SOUTH BOSTON	2-15&16	BOSTON INNER HARBOR	MA70-02
24L057	STATE STREET EXT	BOSTON PROPER	18X18	BOSTON INNER HARBOR	MA70-02
25L144	CLARK STREET	BOSTON PROPER	12	BOSTON INNER HARBOR	MA70-02
23L074	SUMMER ST BRIDGE	SOUTH BOSTON	15	FORT POINT CHANNEL	MA70-02
20L081	EAST FIRST STREET	SOUTH BOSTON	20	RESERVED CHANNEL	MA70-02
20L083	EAST FIRST STREET	SOUTH BOSTON	20	RESERVED CHANNEL	MA70-02
16L097	EASEMENT/OFF SAVIN HILL AVE	DORCHESTER	24	PATTEN'S COVE	MA70-03

The NPDES Phase II General Permit program requires NPDES permit coverage for stormwater discharges from small municipal separate storm sewer systems (MS4s), and construction activity disturbing one acre or more of land in a mapped "urbanized area" defined and delineated by the US Bureau of Census in 2000 <http://www.epa.gov/npdes/pubs/fact2-2.pdf>. Large and medium MS4s (populations over 100,000) were permitted during Phase I of the NPDES stormwater program. Under EPA's Phase II program, the definition of "municipal" includes Massachusetts communities, U.S. military installations, state or federal owned facilities such as hospitals, prison complexes, state colleges or universities and state highways. An MS4 is a system that: discharges at one or more a point sources; is a separate storm sewer system (not designed to carry combined stormwater and sanitary waste water); is operated by a public body; discharges to the Waters of the United States or to another MS4; and, is located in an "Urbanized Area". The NPDES Phase II General Permit requires operators of regulated MS4s to develop and implement a stormwater management program that prevents harmful pollutants from being washed or dumped directly into the storm sewer system which is subsequently discharged into local waterbodies. The NPDES Stormwater Phase II General Permit requires operators of regulated small municipal separate storm sewer systems (MS4s) to develop a stormwater management program that prevents harmful pollutants from being washed or dumped directly into the storm sewer system, and then discharged into local waterbodies. Certain Massachusetts communities were automatically designated (either in full or part) by the Phase II rule based on the urbanized area delineations from the 2000 U.S. Census.

As a result of the census mapping, seven communities (excluding Boston) in the Boston Harbor Watershed were located either totally or partially in the regulated Urbanized Area (see below Table B4). Municipalities that are totally regulated must implement the requirements of the Phase II permit in the entire town, while communities that are partially regulated need to comply with the Phase II permit only in the mapped Urbanized Areas. All Boston Harbor drainage area communities applied to EPA and MassDEP for coverage under the Phase II stormwater general permit, issued on 1 May 2003. EPA issued stormwater general permits to all seven Boston Harbor Watershed municipalities after administrative review and, in coordination with MassDEP, and was to complete a thorough review of the communities' stormwater management program during the five-year permit term. Phase II stormwater general permits expired on 1 May 2008 but are currently administratively continued since a new general permit has not yet been authorized. For detailed community maps see <http://www.epa.gov/region01/npdes/stormwater/ma.html>.

Table B4. NPDES Phase II stormwater permit information for the Boston Harbor Watershed (excluding Mystic, Neponset and Weir river subwatershed) Communities.

Community	Permit #	Permit Issued	Mapped Regulatory area in community
Chelsea	MAR041077	9/18/2003	Total
Hull	MAR041040	1/8/2004	Total
Quincy	MAR041081	10/23/2003	Total
Winthrop	MAR041084	10/29/2003	Total
Hingham	MAR041038	9/18/2003	Partial
Weymouth	MAR041070	12/5/2003	Total

Information for other general NPDES permittees are available online at:
<http://cfpub.epa.gov/npdes/stormwater/noi/noisearch.cfm>.

LITERATURE CITED

BWSC. 2007. *2006 Stormwater Management Report*. Boston Water and Sewer Commission, Boston, MA.

BWSC. 2010. *2009 Stormwater Management Report*. Boston Water and Sewer Commission, Boston, MA.

Eisenberg, B. 2010. Letter to Ms. Danielle Gaito, U.S. EPA Region 1, Boston, MA dated 24 March 2010. *Re: University of Massachusetts Boston Non Contact Cooling Water Permit Application (MA0040304) Update for Supplemental Application Process*. Vanasse Hangen Brustlin, Inc. Watertown, MA.

Kubiak, D. (david.kubiak@mwra.state.ma.us). 2010. *BOS 010*. MWRA Wastewater Engineering, Chelsea, MA. Email to Kevin Brander, Massachusetts Department of Environmental Protection, Wilmington, MA.

Markey, J.L. 2009. Letter to Mr. John Nagle, US Environmental Protection Agency, Water Technical Unit, Boston, MA dated 30 June 2009. *Re: BTA Assessment for Appendix 5: Notice of Intent for the Noncontact Cooling Water Genreal Permit for MGH PDES permit MAG250019*. Practical Applications, Inc., Boston, MA.