

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

FACT SHEET

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

NPDES PERMIT NUMBER: MA0003123

PUBLIC NOTICE START AND END DATES:

NAME AND MAILING ADDRESS OF APPLICANT:

**New England Aquarium Corporation
Central Wharf
Boston, MA 02110**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**New England Aquarium
Central Wharf
Boston, MA 02110**

**RECEIVING WATER(S): Boston Inner Harbor
{USGS Hydrologic Code #01090001 – Boston Harbor Watershed (70)}**

RECEIVING WATER CLASSIFICATION(S): Class SB, CSO

SIC CODES: 8422, 0279, 0921

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Figure 1 - Facility Location, Intake and Outfall

Figure 2 - Facility Location

Table 1 - List of Medications and Chemicals Used at Facility

I. Proposed Action, Type of Facility and Discharge Location

The New England Aquarium (NEA) is a public aquarium that is owned and operated by the New England Aquarium Corporation (NEAC), the permittee. This reissued permit will authorize the discharge of tank and aquaria water at a rate of up to 150,000 gallons per day (GPD) through Outfall 001 to Boston Inner Harbor. See **Figures 1 and 2** for the facility and outfall location.

II. Description of Treatment System and Discharges

Outfall 001

The permittee utilizes 2 water intakes 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. This water is used in at least 14 separate areas, mainly exhibits and galleries which contain a variety of aquatic plants and animals for display. Water from these tanks is periodically pumped to a main sump in the basement of the building. This water contains low levels of medicines and other chemicals, including chlorine, as shown in **Table 1**. These chemicals and medications are required to maintain healthy animals, to prevent and control the spread of disease in these exhibits, and to control the presence of non-native organisms that could be pathogenic to the fishery resources of Inner Boston Harbor. Some exhibits pump out water continuously at low flow rates, while others, such as the main marine mammal exhibits, are periodically drained out to perform medical procedures. Hypochlorite (chlorine solution) is added to 3 separate areas in the aquarium and also added to the outlet pipe of the sump for disinfection. There is no other treatment provided in this sump. This sump settles out accumulated solids and these solids are periodically pumped out and disposed of off site. This sump discharges water through a pipe with a discharge point at about 300 feet out into Inner Boston Harbor and about one meter from the surface bottom. The 2001 permit had limited flow to a monthly average of 200,000 GPD which reflected a planned aquarium expansion. This expansion did not take place and effluent flows have ranged between 10,000 and 50,000 GPD since 2004.

III. Receiving Water Description

Under the Massachusetts water use classification system, the Massachusetts Department of Environmental Protection (MassDEP) has designated Boston Inner Harbor as a Class SB water (314 CMR 4.00), with some Combined Sewer Overflows (CSO). Class SB waters are designated as a habitat for fish, other aquatic life and wildlife and for primary and secondary recreation. In approved areas, they shall be suitable for shellfish harvesting with depuration (Restricted Shellfish Areas). These waters shall have consistently good aesthetic value. This water segment, #MA70-02, is on the MassDEP's 2004 303(d) list of impaired waters for priority organics and pathogens.

IV. Limitations and Conditions

The effluent limitations and all other requirements described in Part VI of this Fact Sheet may be found in the draft permit.

V. Permit Basis: Statutory and Regulatory Authority

General Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and any applicable State regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136.

When developing permit limits, EPA must consider the most recent technology-based treatment and water quality-based requirements. Subpart A of 40 CFR Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA-promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA. EPA is required to consider technology and water quality-based requirements as well as all limitations and requirements in the existing permit when developing permit limits.

Technology-Based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants.

In general, the statutory deadline for non-POTW, technology-based effluent limitations must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 (see 40 CFR §125.3(a)(2)). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA can not be authorized by a NPDES permit.

In the absence of published technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ).

The effluent monitoring requirements have been established to yield data representative of the discharges under the authority of Section 308(a) of the Clean Water Act, according to regulations set forth at 40 CFR § 122.41(j), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide continuous information on the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures are to be found in 40 CFR 136 unless other procedures are explicitly required in the permit.

This aquarium is characterized as a Concentrated Aquatic Animal Production (CAAP) facility, as defined at 40 CFR §122.24 and Appendix C of 40 CFR Part 122. A hatchery, fish farm, or other facility is a CAAP facility for purposes of 40 CFR §122.24 if it contains grows, or holds aquatic animals in ponds, raceways, or other similar structures and produces either (1) more than 9,090 harvest weight kilograms (about 20,000 pounds) of cold water species per year, but not including facilities which feed less than 2,272 kilograms (about 5,000 pounds) of feed during the calendar month of maximum feeding or (2) more than 45,454 kilograms (about 100,000 pounds) of warm water species per calendar year. NEA raises approximately 5380 pounds of a variety of cold water species annually and 9,150 pounds of a variety of warm water species annually and uses about 10,795 pounds of feed in the highest feeding month of the calendar year. Although neither weight threshold is reached, the permittee feeds more than 5,000 pounds of feed in the highest feed month and is therefore characterized as a CAAP and subject to NPDES permitting.

On August 23, 2004, the EPA promulgated new Effluent Limitation Guidelines (ELGs) and New Source Performance Standards (NSPS) for CAAP facilities at 40 CFR Part 451. Typically, ELGs express effluent limitations in the form of numeric standards for specific pollutants, but these ELGs express effluent limitations in the form of narrative standards in order to achieve reduced discharges of TSS and other materials that are associated with the raising of aquatic animals. These ELGs apply to the discharge of pollutants from facilities that produce 100,000 pounds or more per year of aquatic animals using flow-through, net pens or recirculating or submerged cage systems and became effective on September 22, 2004 [See Federal Register (FR) on August 23, 2004 (69FR 51892 – 51930)].

Since the NEA produces less than 15,000 pounds of aquatic animals annually, far below the 100,000 pounds for which these ELGs apply, it will not be subject to such guidelines. However, there have been chemical storage and spill control measures established in Part I.A.4.c of this permit which are derived from these guidelines. EPA has established this requirement based on BPJ due to the variety of chemicals and medications which are used at this site.

Water Quality-Based Requirements

Water quality-based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water quality standards (WQS). See Section 301(b)(1)(C) of the CWA.

Receiving water requirements are established according to numerical and narrative standards adopted under state law for each water quality classification. When using chemical-specific numeric criteria to develop permit limits, both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR § 122.44(d)(1) and are implemented under 40 CFR § 122.45(d). The Region has established, pursuant to 40 CFR 122.45(d)(2), a maximum daily limit and average monthly discharge limits for specific chemical pollutants.

A facility's design flow is used when deriving constituent limits for daily and monthly time periods as well as weekly periods where appropriate. Also, the dilution provided by the receiving water is factored into this process where appropriate. Narrative criteria from the state's WQS are often used to limit toxicity in discharges where (a) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (b) toxicity cannot be traced to a specific pollutant.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal WQS. The permit must address any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion. See 40 CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers (a) existing controls on point and non-point sources of pollution; (b) pollutant concentration and variability in the effluent and receiving water as determined from the permit application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (c) sensitivity of the species to toxicity testing; (d) known water quality impacts of processes on wastewater; and, where appropriate, (e) dilution of the effluent in the receiving water.

Water quality standards consist of three parts: (a) beneficial designated uses for a water body or a segment of a water body; (b) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (c) antidegradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards (MA SWQS), found at 314 CMR 4.00, include these elements.

The state will limit or prohibit discharges of pollutants to surface waters to assure that surface WQS of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site-specific criterion is established. The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards.

Consistent with the MA SWQS promulgated at 314 CMR 4.03(2) and MassDEP guidance documents, MassDEP may set water quality based discharge limits based on a “mixing zone”. Generally, mixing zones are areas in which exceedances of numeric WQS are allowed, provided that, among other things, these exceedances do not result in acute toxicity and that the mixing zone will still be protective of the narrative requirements of the WQS. In addition, mixing zones cannot be disproportionately large so as to interfere with the attainment of the designated uses assigned to the water body segment. All applicable numeric water quality criteria must be met at the edge of the mixing zone, and the other requirements of the state mixing zone must also be satisfied.

Antibacksliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(1)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA. Since all proposed permit limitations are at least as stringent as those of the current permit, antibacksliding is not applicable for this permit reissuance.

Antidegradation

Federal regulations found at 40 CFR Section 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Regulations are found at 314 CMR 4.04.

State Certification

Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located that all water quality standards or other applicable requirements of state law, in accordance with Section 301(b)(1)(C) of the CWA, are satisfied. EPA permits are to include any conditions required in the state's certification as being necessary to ensure compliance with state water quality standards or other applicable requirements of state law. (See CWA Section 401(a) and 40 CFR §124.53(e).)

Regulations governing state certification are set out at 40 CFR §124.53 and §124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

VI. Explanation of Permit's Effluent Limitations

Outfall 001

Flow

The current flow limit is 200,000 GPD, which allowed for increased flows due to a planned aquarium expansion which was envisioned during the 2001 reissuance process. This limit was expressed as a 12 month rolling average. The flow limit in this draft permit has been revised back to 150,000 GPD to reflect the fact that the planned expansion did not take place. This limit will be expressed as a monthly average since the month to month or seasonal fluctuations in flow are not significant enough to warrant that flows be averaged over a full year. There are no current plans for any expansion at the facility which would require an increase in effluent flows. Effluent flows have ranged between 10,000 and 50,000 GPD since 2004. For the 2006 calendar year, the permittee discharged approximately 15.7 million gallons, which is about a daily average of 43,000 GPD. The flow is measured continuously when the sump is discharging.

pH

The pH range is limited to the Class SB range of 6.5 to 8.5 standard units which is the range required by state WQS and which can be found at 314 CMR 4.05. Since 2004, the effluent pH has ranged from 7.6 to 8.0 s.u.

Total Suspended Solids (TSS)

Total suspended solids continue to be limited in this permit, due to solids originating in the tanks that accumulate in the sump. The 2001 permit limited TSS to 30 mg/l as a monthly average and 60 mg/l as a daily maximum. Since 2004, effluent TSS values have ranged from 4 to 52 mg/l. EPA believes that these limits are still appropriate and achievable by this treatment system and are consistent with State WQS which require that waters be free from floating, suspended or settleable solids in concentrations that would impair any use assigned to this Class SB water. In addition, the 2001 permit had established a mass limit for TSS to control the mass loading to Boston Harbor. These mass limits of 38 lbs/day and 75 lbs/day were based on the flow of 150,000 GPD, which was a previously permitted flow level. Although the flow limit was changed to 200,000 GPD in the 2001 permit, the TSS mass limits continued to be limited based on the 150,000 GPD figure, due to antidegradation regulations noted earlier. Since this permit has reduced the flow limit back to 150,000 GPD, these mass limits will remain the same. The monitoring frequency has been increased from once to twice per month to better assure that these limits are met on a consistent basis and to more quickly detect sudden increases in TSS levels which may indicate a need to pump solids out of the sump.

Bacteria

Since there is fecal matter in the tanks and aquaria that is discharged to the sump, the current permit included year round bacteria limits to assure that there is adequate disinfection of these bacteria. The 2001 permit limited fecal coliform bacteria, consistent with the then current Massachusetts SWQS for Class SB waters. There have been no violations of the fecal coliform limits since 2004 with a range of 0 to 76 colonies per 100 ml. The State's Class SB standards have been revised to change the bacteria parameter to enterococcus. These new standards are 35 colonies per 100 ml expressed as a geometric mean and a daily maximum limit of 104 colonies per 100 ml. However, the EPA has yet to adopt these criteria and establishing limits on enterococcus cannot be done at this time. Therefore, the fecal coliform limits will remain in this permit and there has been an enterococcus monthly monitoring requirement established. The sample type for fecal coliform has been changed from a 24 hour composite to a grab sample.

Copper

The 2001 permit established a monthly total copper monitoring requirement because the permittee used a copper sulfate solution in one or more tanks to control for certain diseases. Since copper sulfate is still used at the aquarium, monitoring for copper has been maintained in this permit. The marine water quality criteria for total copper are 3.1 ug/l (chronic) and 4.8 ug/l (acute). Since 2004, total copper has been found to range from below detection limits to 53 ug/l, averaging 15 ug/l.

In order to determine whether the discharge levels of total copper would cause or contribute to surface water quality violations, an assessment of the dilution available in Boston Harbor was made. Modeling has been conducted on the tidal exchange experienced in Boston Harbor by Signell and Butman (1992)¹. The authors used a box model, which is a hydrodynamic model to describe flushing dynamics between Massachusetts Bay and Boston Harbor. As described in Kelly (1998)², this modeling showed that the volume of water exchanged during tidal mixing represented an annual average of 3500 to 4300 m³/sec. The lower figure is equivalent to about 123,500 cfs or 79,840 MGD. In comparison to tidal exchange, the average freshwater flow to the entire harbor was 37 m³/sec, or about 1300 cfs. Thus, the available dilution is dominated by the tidal exchange. It is assumed that the Inner Harbor, where NEA's discharge is located, experiences a moderate amount of the estimated 79,840 MGD of tidal flushing that occurs in the main harbor. Since NEA's discharge is limited at 150,000 GPD or 0.15 MGD, there appears to be several hundred times this flow as dilution available for this discharge. With this magnitude of available dilution, there is not a reasonable potential that the discharge of copper will cause or contribute to a water quality violation.

1 Signell, R.P. Butman, B. (1992) Modeling tidal exchange and dispersion in Boston Harbor. J. Geophysical Resources 97:15191-15606

2. Kelly, J.R. (1988) Quantification and potential role of ocean nutrient loading to Boston Harbor, MA Marine Ecology Progress Series, Vol. 173: 53-65, 1998

The permit requires that the permittee evaluate its use of copper containing compounds, including copper sulfate and Cupramine and consider ways to reduce the discharge of copper to the receiving water. The permittee shall consider the use of alternative chemicals or methods to achieve the objective of parasite control. See Part I.A.4.d of the permit for this specific requirement.

Total Residual Chlorine (TRC)

Sodium hypochlorite is used in some tanks and also added to the outlet pipe of the sump to control bacteria and non-native organisms. The TRC limit in the 2001 permit was a monthly average of 1.0 mg/l. The permittee injects the hypochlorite solution at the outlet of the sump at about 0.15 mg/l in order to sufficiently disinfect the discharge.

There are three separate areas in the aquarium where chlorination is conducted. The 185,000 gallon penguin tray is chlorinated at between 0.15 and 0.20 mg/l, the two (2) pools in the Animal Care Center, comprising a total volume of 10,600 gallons are chlorinated at between 0.20 and 0.40 mg/l and the seasonal turtle tanks, with a volume of 12,200 gallons is chlorinated at about 0.20 to 0.40 mg/l. Since 2004, the permittee has been in compliance with its TRC limit and has only exceeded 1.0 mg/l one time, with a reading of 1.35 mg/l in November of 2004. During this period, TRC has averaged 0.15 mg/l. For TRC, the marine water quality criteria are 7.5 ug/l for the chronic and 13 ug/l for the acute. Since the permittee feeds hypochlorite to the sump's outlet pipe to a level of 0.15 mg/l and keeps a few tanks at similar TRC levels, the permit limit for TRC has been maintained at 1.0 mg/l, as a monthly average. A daily maximum limit for TRC of 1.0 mg/l has been established to assure that the monthly average level is consistently kept below 1.0 mg/l. EPA has made a determination that the instream TRC criteria will be met based on the dilution available for this discharge, as noted in the copper discussion above. In addition, there is some degradation of TRC in the 300 foot length of the discharge pipe prior to the discharge.

Whole Effluent Toxicity

Whole effluent toxicity (WET) testing is conducted to assess whether certain effluents, often containing potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

There are two specific sources of legal authority which explain how regulatory authorities have the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Sections 402(a)(2) and 308(a) of the Clean Water Act provide EPA and States with the authority to require toxicity testing data. Section 308 specifically describes biological monitoring methods as techniques which may be used to carry out objectives of the Act. Under certain State narrative water quality standards, and Sections 301, 303 and 402 of the Clean Water Act, EPA and the States may establish

toxicity-based limits to implement the narrative "no toxics in toxic amounts". The EPA and MassDEP believe that the complexity of this effluent is such that toxicity testing and limitations are required to evaluate and address any water quality impacts.

WET testing was included in the 2001 permit due to the use of various chemicals and medications used at the facility. There were violations of the LC50 limit for the shrimp species on 2 occasions with LC50 values of 34.8% in September 2002 and of less than 6.25% in February of 2003. Since 2004, there have been no violations of the LC50 requirement of 100% for either species tested. Since WET testing has been in compliance with the permit limits for the last 3 years, with LC50 values of 100% for both species tested, this permit has reduced the testing frequency from twice per year to once per year. The permit maintains an LC50 limit of 100% in order to ensure that there are no effects to organisms in the vicinity of the discharge. The permittee shall also report the acute no effect concentration level (A-NOEC) for both species. The WET testing will use the Mysid Shrimp, *Mysidopsis bahia* and the Inland Silverside, *Menidia beryllina* in accordance with EPA Region I protocol. See Permit **Attachment A** in the draft permit for a description of toxicity testing requirements.

VII. Essential Fish Habitat Determination (EFH)

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any EFH such as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

As described in Section I of this Fact Sheet, NEAC has applied for reissuance of the NPDES Permit for the NEA on July 12, 2006. With limitations, the permit allows NEA to discharge chlorinated tank and aquaria water to Inner Boston Harbor. EPA intends to reissue the facility's NPDES permit for this discharge. Thus, NEA will continue to discharge these waters to Inner Boston Harbor through Outfall 001. This outfall's characteristics are described earlier in this Fact Sheet.

EFH is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. The following is a list of the EFH species and applicable lifestage(s) for Massachusetts Bay, which includes Inner Boston Harbor:

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod (<i>Gadus morhua</i>)	X	X	X	X
Haddock (<i>Melanogrammus aeglefinus</i>)	X	X		
pollock (<i>Pollachius virens</i>)	X	X	X	X
whiting (<i>Merluccius bilinearis</i>)	X	X	X	X
Red hake (<i>Urophycis chuss</i>)	X	X	X	X
white hake (<i>Urophycis tenuis</i>)	X	X	X	X
winter flounder (<i>Pseudopleuronectes americanus</i>)	X	X	X	X
yellowtail flounder (<i>Pleuronectes ferruginea</i>)	X	X	X	X
windowpane flounder (<i>Scophthalmus aquosus</i>)	X	X	X	X
American plaice (<i>Hippoglossoides platessoides</i>)	X	X	X	X
ocean pout (<i>Macrozoarces americanus</i>)	X	X	X	X
Atlantic halibut (<i>Hippoglossus hippoglossus</i>)	X	X	X	X
Atlantic sea scallop (<i>Placopecten magellanicus</i>)	X	X	X	X
Atlantic sea herring (<i>Clupea harengus</i>)		X	X	X
long finned squid (<i>Loligo pealei</i>)	n/a	n/a	X	X
short finned squid (<i>Illex illecebrosus</i>)	n/a	n/a	X	X
Atlantic butterfish (<i>Peprilus triacanthus</i>)	X	X	X	X
Atlantic mackerel (<i>Scomber scombrus</i>)	X	X	X	X
Summer flounder (<i>Paralichthys dentatus</i>)				X
scup (<i>Stenotomus chrysops</i>)	n/a	n/a	X	X
black sea bass (<i>Centropristus striata</i>)	n/a		X	X
surf clam (<i>Spisula solidissima</i>)	n/a	n/a	X	X
bluefin tuna (<i>Thunnus thynnus</i>)			X	X

A review of the relevant essential fish habitat information provided by NMFS indicates that EFH has been designated for 23 managed species within the NMFS boundaries encompassing Massachusetts Bay. It is possible that a number of these species utilize these receiving waters for spawning, while others are present seasonally.

Based on the relevant information examined, EPA finds that adoption of the draft permit will satisfy EFH requirements. The discharge of this tank and aquaria water is not expected to adversely impact the EFH directly or indirectly. As described in Section VI of this Fact Sheet, the dilution available to this discharge along with the effluent limits are expected to be protective of the aquatic species in Inner Boston Harbor and to result in compliance with applicable Federal and State water quality standards. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to NMFS for consultation with NMFS under Section 305(b)(2) of the Magnuson-Stevens Act for EFH.

VIII. Endangered Species Act

Section 7(a) of the Endangered Species Act (ESA) of 1973, as amended grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (“listed species”) and habitat of such species that has been designated as critical (a “critical habitat”). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The U.S. Fish and Wildlife Service (USFWS) typically administers Section 7 consultations for bird, terrestrial, and freshwater aquatic species. The National Marine Fisheries Service (NMFS) typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered and threatened species of fish, wildlife, and plants to see if any such listed species might potentially be impacted by the reissuance of this NPDES permit. The review has focused primarily on marine mammals, sea turtles and anadromous fish since the discharge is into Inner Boston Harbor. Based on the normal distribution of these species, it is highly unlikely that they would be present in the vicinity of this discharge. Furthermore, effluent limitations and other permit conditions which are in place in this draft permit should preclude any adverse effects should there be any incidental contact with listed species either in Boston Harbor.

The proposed effluent limits in the draft permit are sufficiently stringent to assure that WQS will be met for aquatic life protection and for all species, including endangered and threatened species. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS.

Other Conditions

The remaining conditions of the permit are based on the NPDES regulations, 40 CFR Parts 122 through 125, and consist of management requirements common to all permits.

IX. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of MassDEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

X. Public Comment Period, Public Hearing, and Procedures for Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the U.S. EPA, Massachusetts Office of Ecosystem Protection (CIP), 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 CFR 124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

XI. EPA & MassDEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from the EPA and MassDEP contacts below:

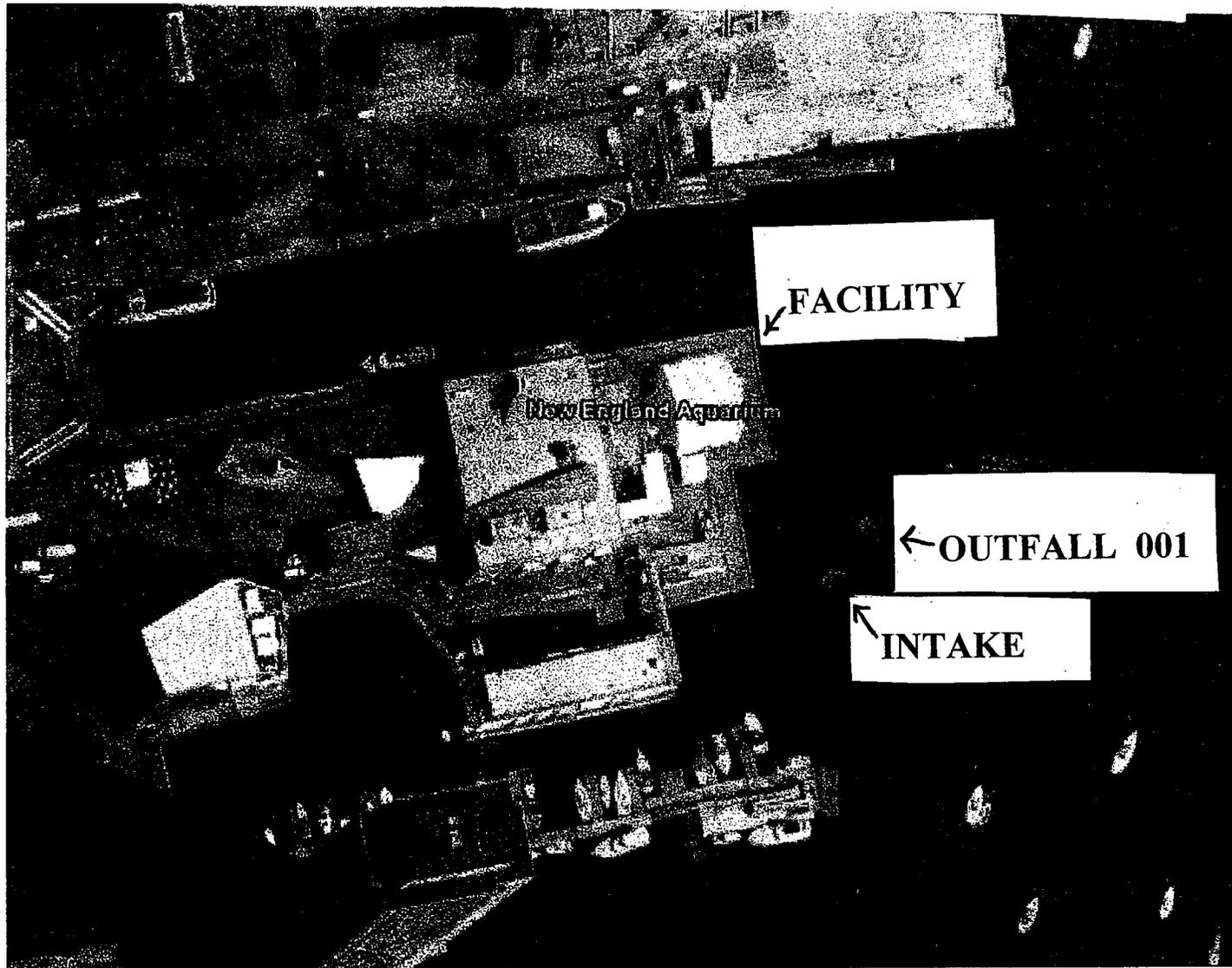
George Papadopoulos, Massachusetts Office of Ecosystem Protection
One Congress Street Suite 1100 - Mailcode CIP
Boston, MA 02114-2023
Telephone: (617) 918-1579 FAX: (617) 918-1505

Paul Hogan, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor, Worcester, Massachusetts 01608
Telephone: (508) 767-2796 FAX: (508) 791-4131

March 23, 2007
Date

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

FIGURE 1 - FACILITY LOCATION INTAKE AND OUTFALL LOCATION



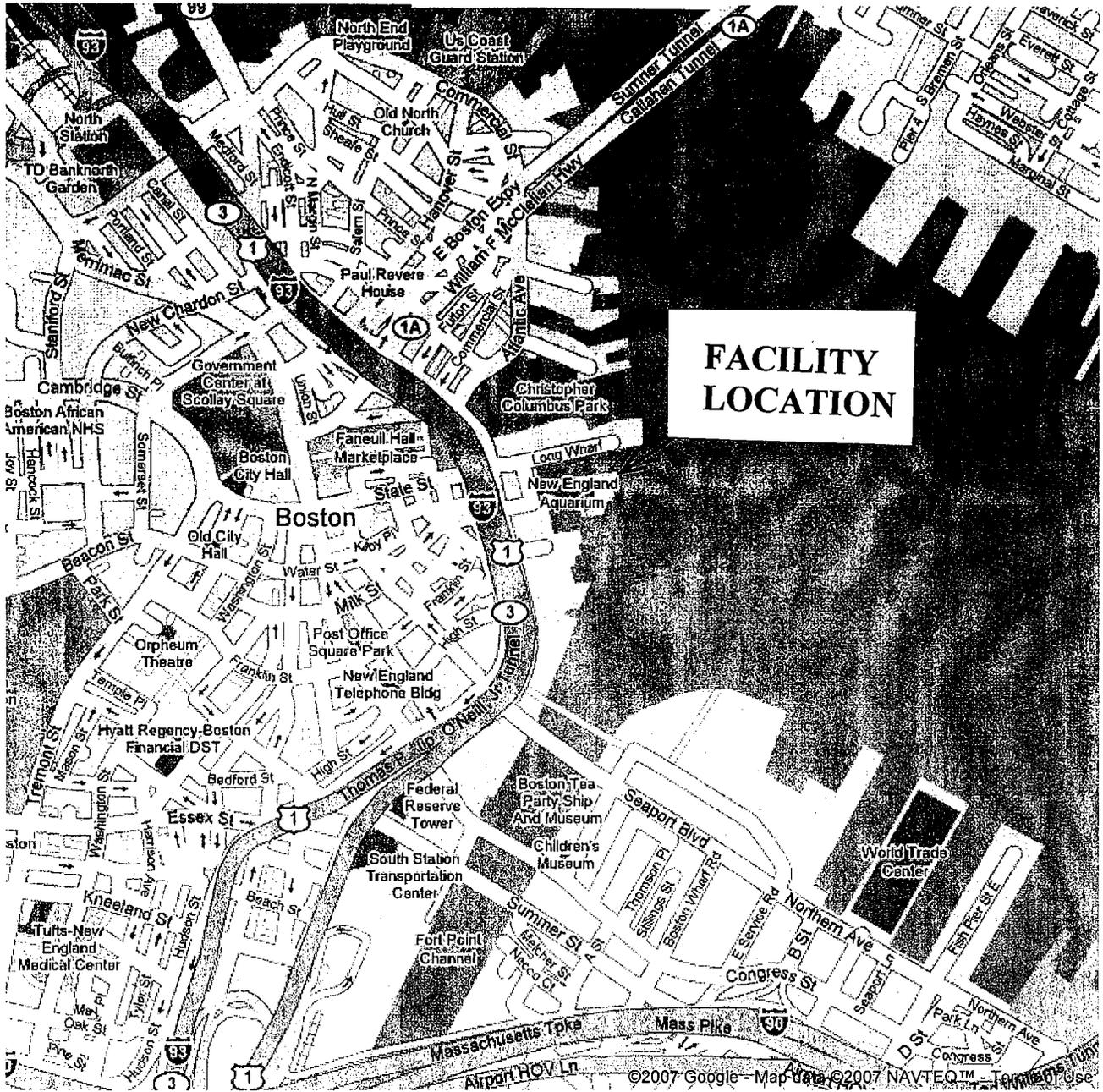


TABLE 1 - NE AQUARIUM CHEMICAL USAGE LIST

CHEMICAL (for formulation see MSDS)	USE	DOSAGE	DURATION	DISPOSAL	MSDS	YTD USAGE	PPM calculated from usage (not from test results)
CHLORINE	disinfection	To maintain .15 - .40 ppm residual in exhibits. (hand add or injector)	continuous	sump	4	continuous	
COPPER SULFATE	anti-parasite	.2 ppm (hand add or injector)	21 days	CupriSorb® resin⇒ then sump	4	.5 kg	.008
CUPRAMINE®	anti-parasite	.6 ppm (hand add)	21 days	CupriSorb® resin⇒ then sump	4	2.36 liters	.039
DOXYCYCLINE	antibiotic	2.69 ppm	24 hours	sump	4	200 mg	.0000032
FORMALIN	anti-parasite	1 ml/gal (hand add)	1 hour	sump	4	1.89 liters	.03234
METHYLENE BLUE	antifungal	.5-1 ppm (hand add)	10-14 days	sump	4	1 liter	.0167244
NITROFURAZONE	antibiotic bath	20 ppm (hand add)	10-14 days	sump	4	.5 kg	.004158
OXYTETRACYCLINE	antibiotic	20-50 ppm (hand add)	5 - 7 days	sump	4	50 grams	.0008316
PRAZIQUANTEL	anti-parasite	2 ppm (hand add)	21 days	carbon filter⇒ then sump	4	1 kg	.008316
SODA ASH	pH control	To maintain pH at 7.8 to 8.2 (hand add or injector)	continuous	sump	4	continuous	
TRICAINE METHANE-SULFONATE (ms222)	anesthesia	90 ppm	As needed	sump	4	7.5 grams	.0001247
Virkon	disinfectant	1% - 2%	As needed	sump		900 lbs	0.679 ppm

Σ CFR 1910, 1200 B6VII Prescription pills are not required to have MSDS's.