UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
OFFICE OF ECOSYSTEM PROTECTION
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02114

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO.: MA0003832

PUBLIC COMMENT PERIOD: 6/13/03

NAME AND ADDRESS OF APPLICANT:

The Gillette Company
One Gillette Park
Boston, MA 02127

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:
The Gillette Company
One Gillette Park
Boston, MA 02127

RECEIVING WATER: **Fort Point Channel**
(Boston Inner Harbor Basin, MA70-02)

CLASSIFICATION: **SB (CSO)**

I. Proposed Action, Type of Facility, and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency for reissuance of its NPDES permit to discharge into Fort Point Channel, in Boston, Massachusetts. The discharges consist of non-contact cooling water, storm water, and low volume process water. The facility is engaged in the manufacture of razors and blades.

II. Limitations and Conditions.

The proposed effluent limitations and monitoring requirements may be found in the draft NPDES permit.

III Description of discharge

A summary of discharge monitoring report (DMR) data may be found in Fact Sheet Attachment C.

IV. Permit Basis and Explanation of Effluent Limitations Derivation.

A. 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.

EPA is required to consider a) technology-based requirements, b) water quality-based requirements, and c) all limitations and requirements in the current/existing permit, when developing permit limits. These requirements are described in the following paragraphs.

TECHNOLOGY-BASED REQUIREMENTS

Technology-based 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). For existing sources, technology-based requirements according to best practicable control technology currently available (BPT) are applied for conventional, non-conventional, and toxic pollutants. More stringent technology-based requirements are applied through best conventional control technology (BCT) for conventional pollutants; and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. New source performance standards (NSPS) are applied to new sources, to control conventional, non-conventional, and toxic pollutants.

EPA reviewed the Effluent Limitations Guidelines (ELG) and Standards requirements to determine if any will apply to Gillette's discharges. The ELGs for Plastic Molding, found at 40 CFR Part 463, Subchapter N, are the closest guidelines to Gillette's process. The Gillette operation does not utilize contact cooling or heating water for the plastic molding cooling, nor does it discharge cleaning water or finishing water from plastic molding to Fort Point Channel.

Therefore, neither Part 463, nor any other ELGs apply to the Gillette discharges. In the absence of published technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1) of the CWA to establish effluent limitations on a case-by-case basis using best professional judgement (BPJ). See 40 CFR §§125.3 (c)(2) and (c)(3).

The factors to be considered in developing BAT limits are set forth at 40 C.F.R. §§ 125.3(c)(2)(i) and (ii) and 125.3(d)(3)(i) - (vi) and include, among other things, the age of existing facilities, engineering issues, process changes, non-water quality-related environmental impacts, and the costs of achieving required effluent pollutant reductions.

WATER QUALITY-BASED REQUIREMENTS

Under Section 301(b)(1)(C) of the CWA and EPA regulations, NPDES permits must contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards.

Water quality standards consist of three parts: (1) beneficial designated uses for a water-body or a segment of a water-body; (2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (3) antidegradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards, 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 water quality standards 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 criteria is established.

The permit must limit 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 the "reasonable potential" to cause or contribute to an excursion above any water quality standard (see 40 CFR §122.44(d)). An excursion occurs if the projected or actual in-stream concentration exceeds an applicable water quality criterion. In determining "reasonable potential", EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from the permit's reissuance application, monthly discharge monitoring reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the indicator species used in toxicity testing; (4) known water quality impacts of processes on waste waters; and (5) where appropriate, dilution of the effluent in the receiving water.

STATE CERTIFICATION

Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located which determines that all water quality standards, in accordance with Section 301(b)(1)(C) of the CWA, will be satisfied. Regulations governing state certification are set forth in 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).

B. Water Quality Standards and Designated Uses for the Fort Point Channel

The Boston Inner Harbor has been classified as Class SB (CSO) in the Massachusetts Surface Water Quality Standards. The CSO designation identifies the waters as impacted by the discharge of combined sewer overflows (CSO), for all other discharges, SB standards apply. Title 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(b) states that Class SB waters have the following designated uses*: These waters are designated as habitat for fish, other aquatic wildlife and wildlife and for primary and secondary contact recreation. In approved areas they shall be suitable for shellfish harvesting with depuration (Restricted Shellfish Areas). These waters shall have consistently good aesthetic value*.

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those water-bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of total maximum daily loads (TMDL). The 1998, 303(d) report states that the Boston Inner Harbor (Basin MA70-02), is not attaining water quality standards because of pathogens.

C. Abridged Recent Permitting History

December 24, 1996	NPDES permit reissued
June 26, 1998	Public Notice of draft NPDES permit major modification
August 10, 1998	MA DEP Antidegradation reveiw and approval of modification
August 21, 1998	Coastal Zone Management (CZM) consistency approval of modification
September 3, 1998	NPDES permit modified
October 4, 2000	Agreement between EPA, Gillette, and MA Highway Dept (MHD), transferring responsibility for storm water compliance for Outfall 003 to MHD
June 8, 2001	NPDES re-application (dated 06/04/01) received by EPA
August 21, 2001	Meeting/tour at Gillette Steve Fradkoff (Gillette), D. Corb (EPA), and Peter Dore (Mass. Dept. of Environmental Protection - MADEP)
October 23, 2001	Meeting/tour at Gillette Steve Fradkoff (Gillette), D. Corb (EPA), and Paul Hogan (MADEP)
July 18, 2002	Meeting at EPA: D. Corb, Paul Hogan (MADE), Todd Callaghan (MACZM), Jack Schwartz (MADMF)
July 31, 2002	Meeting/tour at Gillette S. Fradkoff and P. Koloseus (Gillette), D. Corb (EPA), T. Callaghan (MACZM), and J. Schwartz (MADMF)

D. Description of Facility and Discharges

Some portions of the June 8, 2001 NPDES re-application and supporting materials submitted to EPA and DEP by The Gillette Company (Gillette), are paraphrased in this document without further reference. All such materials may be found in the permit administrative record.

The Gillette South Boston Manufacturing Center (SBMC) is located in Suffolk County at One Gillette Park, Boston, MA. The facility is bordered by West Second Street, A Street, the Third Harbor Tunnel casting basin, and the Fort Point Channel. (See Site Locus Map, Permit Attachment A).

The facility is classified as SIC Code 3421. SBMC is the largest blade and razor manufacturing facility in the world, producing 3.6 billion blades and 110 million razors annually. SBMC currently employs approximately 2,100 people. The site consists of approximately 43 acres and over 1.5 million square feet of manufacturing, office, warehouse, and R&D laboratory space in 20 buildings (plus four ancillary structures).

Major manufacturing related operations at the SBMC include plastic injection molding; plastic extrusion; metal stamping, forming, and fabrication; heat-treating; sharpening; aqueous cleaning; sputtering and low energy sintering; and assembly. Manufacturing support operations include: manufacturing and administrative offices, cafeteria, aboveground fuel storage (vaulted subsurface structure), gaseous hydrogen storage, liquid nitrogen storage, air compressors and dryers, vacuum pumps, water chillers and coolers, 10 MW co-generation power plant for steam/electric generation, electrical substations, deionized water pretreatment, wastewater treatment systems, and the meta-filter oil recycling system (closed loop). The municipality supplies potable water and sewage treatment. SBMC generates approximately 60% of its energy onsite, and purchases the rest. The facility is permitted by EPA/DEP to use natural gas and No. 6 fuel oil.

E. Outfall Descriptions (Current permit and draft permit)

Currently Permitted Outfalls

Outfall 001

The discharges from Outfall 001 regulated by the existing permit are low volume waste streams, non-contact cooling water and storm water runoff. The permit allows a total flow of 26 million gallons per day (MGD). The non-contact cooling water is pumped from and returned to Fort Point Channel.

Outfall 002

The discharge from Outfall 002 in the existing permit consists of non-contact cooling water. The current permit allows for flows of 19 MGD. The non-contact cooling water is pumped from Fort Point Channel through a common intake structure which provides water which is returned back to Fort Point Channel through outfalls, 001-004.

Outfall 003
The discharge from Outfall 003 is also non-contact cooling water and process water. The current permit allows for flows of 8.1 MGD. The (8.0 MGD) non-contact cooling water is pumped from Boston Harbor and returned via Fort Point Channel. The Massachusetts Highway Department (MHD) is permitted under NPDES Permit No. MA0039281 to discharge storm water into this outfall as well. Responsibility for storm water discharge through Outfall 003 has been transferred to the MHD with the approval of the EPA in a letter dated October 4, 2000. This shall be addressed more thoroughly later in this document.

Other discharges
Massachusetts Water Resource Authority Discharges: There are multiple connections to the Boston Water and Sewer Commission sewer system that are permitted under a separate Massachusetts Water Resource Authority (MWRA) Sewer Use Discharge Permit No. 55-001-985. These discharge points do not fall under the NPDES permit requirements, and these industrial wastewater discharges go directly to a publicly owned treatment works and not to surface waters.

The permittee has requested that the draft permit be reissued to reflect significant changes to the facility. The following tables illustrate the changes in the outfall flows and constituents from the current permit to the draft permit.

Current Permit		
Outfall	Constituents	Flow
001	Non-contact cooling water Low Volume waste streams filter back wash demineralize degeneration waste boiler blowdown Storm water	26 MGD
002	Non-contact cooling water	19 MGD
003	Storm water Non-contact cooling water	8.1 MGD
TOTAL FROM PERMITTED OUTFALLS		**53.1 MGD**

Draft Permit		
Outfall	Constituents	Flow
001	Non-contact cooling water Low Volume waste streams filter back wash demineralize degeneration waste boiler blowdown Storm water (Exclusion ?)	26 MGD
002	Non-contact cooling water	9 MGD (26 MGD)*
003	Storm water (NOW UNDER MASS HIGHWAYS) Non-contact cooling water	8.1 MGD
004	Non-contact cooling water	17 MGD
TOTAL FROM PERMITTED OUTFALLS		**60.1 MGD**

* Flow volumes may be shifted between Outfall 004 and Outfall 002. The total discharge from the two outfalls may not exceed 26 MGD.

The effluent flow rate from the four outfalls is estimated. The influent is measured and recorded at the pump house. The permit has an influent flow limit of 60.1 MGD. The CWA Section 316(b) and antiti-degradation reviews found latter in this fact sheet are based on the new 60.1 MGD maximum flow rate.

Draft Permit Limits

Outfall Number 001:

Flow
Flow shall be monitored in accordance with 40 CFR §122.44(i)(1(ii), which requires monitoring of *the volume of effluent discharged from each outfall.* The permittee shall report the estimated daily maximum and monthly average flow in MGD. The limit is 26.0 MGD based on the application amendments.

pH
The pH range of 6.5 to 8.5 standard units is based on the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(b). The permittee maintains that the influent pH may exceed the upper limit of the pH range causing the permit limit to be exceeded at the point of discharge. The draft permit allows Gillette to take a influent grab sample at the intake pump house to demonstrate that a pH limit excursion is due to activities beyond the control of the facility.

If the influent pH is within 0.1 standard units of the efffluent pH value, it will not be deemed a limits violation.

Temperature

The maximum effluent temperature limit of 83 °F shall be retained in the draft permit to ensure compliance with maximum temperature water quality criteria will be achieved at the edge of the mixing zone. Temperature limits (ΔT) and modeling to establish the mixing zone are addressed later in the fact sheet.

Potential Discharges from **Outfall 001** Below the Threshold Requirements for Individual Limits

Gillette uses several water conditioning formulations in boilers, cooling towers and filtration systems. Low volumes of treated water and equipment blowdown are discharged to Outfall 001. Blowdown effluent from the Power House accounts for approximately 7,000 GPD. The various treatment additives are maintained at between 1 and 20 ppm in Power House blowdown effluent. Treated filter backwash accounts for approximately 600 GPD of the total discharge from Outfall 001. Some treatment additive concentrations are higher in the treated filter back wash (the highest being160 ppm). See the flow diagram, Fact Sheet Attachment B.

These treated (neutralization) waste streams combine with non-contact cooling water and storm water runoff and are discharged to Outfall 001. The total discharge flow through Outfall 001 is permitted up to a maximum of 26 MGD. Based on average flow rates through Outfall 001 of approximately 18 MGD, the low volume boiler blowdown waste streams account for less than 0.04 percent of the combined discharge, and the filter backwash account for less than 0.003 percent of the combined discharge. Any residual treatment chemical concentration in the combined discharge from Outfall 001 is negligible. Gillette was required to monitor Outfall 001 for acute toxicity quarterly. Gillette consistently met the LC50 acute toxicity permit limitation at 100 percent effluent. These chemicals are discharged in such low concentration that they do not have a reasonable potential to cause or contribute to a violation of state WQS. Below are listed the treatment additives and water conditioners. The permittee provided Material Safety Data Sheets for these treatment products with the permit reapplication.

Additive Chemicals to Low Volume Waste Stream From Permit Reapplication

Treatment Chemical	Use	**Concentration in Low Volume Waste Stream** (Ppm)	**Calculated Concentration at Combined Outfall 001** (Ppm)
Disodium phosphate	Boiler water additive	20	0.008
sodium polyacrylate	Boiler water additive	5	0.002
organophosphonate	Boiler water additive	2	0.0008
diethylhydroxyamine	Boiler water additive	0.15	0.00006
hydroquinone	Boiler water additive	0.15	0.00006
morpholine	Boiler water additive	1	0.0004
cyclohexylamine	Boiler water additive	2	0.0008
benzotriazole	Mold cooling and chiller block process	20	0.0006

sodium nitrite	Mold cooling and chiller block process	160	0.0048
glutaraldehyde	Mold cooling and chiller block process	1.5	0.000045
sodium silicate	Mold cooling and chiller block process	3	0.00009

Monitoring for oil and grease and total suspended solids (TSS) is discontinued in this draft permit for this outfall based on significant changes to the facility that have removed exposure of storm water runoff to pollutants. This will be addressed at length later in the fact sheet.

Outfall Number 002:

Flow
Flow shall be monitored in accordance with 40 CFR §122.44(i)(1(ii),which requires monitoring of *the volume of effluent discharged from each outfall.* The permittee shall report the estimated daily maximum and monthly average flow in MGD. The limit is 9.0 MGD based on the application amendments.

pH
The pH range of 6.5 to 8.5 standard units is based on the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(b). [See the discussion of pH influent values for Outfall 001]

Temperature
The maximum efluent temperature limit of 83 °F shall be retained in the draft permit to ensure compliance with maximum temperature water quality criteria, which will be achieved at the edge of the mixing zone. Temperature limits (ΔT) and modeling to establish the mixing zone are addressed later in the fact sheet.

Outfall Number 003:
Since the permit modifications became effective on October 3, 1998, the facility has undergone a change that has had a significant impact on the wastewater quality. Increased activity of the Massachusetts Highway Department (MHD) and the Central Artery/Tunnel construction activity on Gillette property has directly affected storm water runoff that discharges to Outfall 003. With agreement of EPA, responsibility of storm water discharge to Outfall 003 has transferred from Gillette to MHD. MHD has taken over responsibility for all storm water discharge activities and monitoring requirements at this Outfall under its NPDES permit MA0039281. This was conveyed in a letter from EPA to Sandra Bisset/Gillette dated October 4, 2000.

Flow
Flow shall be monitored in accordance with 40 CFR §122.44(i)(1(ii), which requires monitoring of *the volume of effluent discharged from each outfall.* The permittee shall report the estimated daily maximum and monthly average flow in MGD. The limit is 8.1 MGD based on the application amendments.

pH
The pH range of 6.5 to 9.0 standard units is based on the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(b). The pH range was expanded up to 9.0 during the period of construction by Mass Highways in the current permit. The pH range will remain the same in the draft permit.

Temperature
The maximum effluent temperature limit of 83 °F shall be retained in the draft permit to ensure compliance with maximum temperature water quality standard will be achieved at the edge of the mixing zone. Temperature limits (ΔT) and modeling to establish the mixing zone are addressed later in the fact sheet.

OUTFALL 004 (New)
This draft permit will allow the discharge of 17.0 MGD of non-contact cooling water from an abandoned 72 inch intake structure. The intake structure is no longer used since the relocation and construction of the cooling water intake and pump house.

Currently, the 1000-ton chiller uses a cooling tower for cooling. The new 1500-ton unit will not use a cooling tower; instead it will use a new plate and frame heat exchanger. The new heat exchanger will require an additional 7.0 MGD of seawater for cooling. Therefore, the chiller building discharge will be increased to 17.0 MGD in this draft permit. Gillette will continue to maintain one spare heat exchanger for backup during cleaning.

Due to this increase in flow, the current powerhouse chiller discharge pipe is not adequate to accommodate the additional flow requirements at all times, therefore Gillette proposes to pipe the entire discharge (17.0 MGD) into the abandoned 72" supply line that is under the powerhouse. The draft permit refers to this as Outfall 004. During the periods when the entire powerhouse chiller building discharge is directed to Outfall 004, Outfall 002 will see a reduced flow rate, from 19.0 MGD to 9.0 MGD. The permittee has requested the flexibility to direct the additional 9.0 MGD Outfall 002 and take Outfall 004 out of service as needed, provided the total flow between the two outfalls does not exceed 26 MGD. In addition it is proposed (pending 2003 AR approval) that this new Chiller be the primary source of cooling for Z-Building. Overall flow for the site has the potential to increase by an additional 7.0 MGD for an overall flow rate of 60.1 MGD.

Flow
Flow shall be monitored in accordance with 40 CFR §122.44(i)(1(ii),which requires monitoring of *the volume of effluent discharged from each outfall*. The permittee shall report the estimated daily maximum and monthly average flow in MGD. The limit is 17.0 MGD based on the application amendments.

pH
The pH range of 6.5 to 8.5 standard units is based on the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(b). [See the discussion of pH influent values for Outfall 001]

Temperature

The maximum effluent temperature limit of 83 °F shall be added to the draft permit to ensure compliance with maximum temperature water quality criteria, which will be achieved at the edge of the mixing zone. Temperature limits (ΔT) and modeling to establish the mixing zone are addressed later in the fact sheet.

Temperature Requirements for the Sum of all Four Discharges

The draft permit redefines the mixing zone allocated to Gillette's discharge in order to meet the state ambient Water Quality Standards for temperature. The following describes the state temperature standards, mixing zone policy, the modeling effort to redefine the mixing zone, and data collection necessary to confirm the validity of the revised temperature model.

The State Water Quality Standards for SB waters (("CMR") 4.05(4)(b)) pertaining to temperature state: *Temperature* -

a. Shall not exceed 85 °F (29.4 °C) nor a maximum daily mean of 80 °F (26.7 °C), and the rise in temperature due to a discharge shall not exceed 1 .5 °F (0.8 °C) during the summer months (July through September) nor 4 °F (2.2 °C) during the winter months (October through June);

b. natural seasonal and daily variations shall be maintained; there shall be no changes from background that would impair any uses assigned to this class including site-specific limits necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms; and

c. any determinations concerning thermal discharge limitations in accordance with 33 U.S.C. 1251 §316(a) will be considered site-specific limitations in compliance with 314 CMR 4.00.

The Massachusetts requirements for mixing zones are found at *314 CMR 4.03(2).*

Mixing Zones - In applying these standards the Department [MADEP] *may recognize a limited area or volume of a waterbody as a mixing zone for the initial dilution of a discharge. Waters within a mixing zone may fail to meet specific water quality criteria provided the following conditions are met:*

(a) Mixing zones shall be limited to an area or volume as small as feasible. The location, design and operation of the discharge shall minimize impacts on aquatic life and other beneficial uses.

(b) Mixing zones shall not interfere with the migration or free movement of fish or other aquatic life. There shall be safe and adequate passage for swimming and drifting organisms with no deleterious effects on their populations.

(c) Mixing zones shall not create nuisance conditions, accumulate pollutants in sediments or biota in toxic amounts or otherwise diminish the existing or designated uses of the segment disproportionately.

Temperature Modeling

A series of thermal modeling efforts have been conducted on the discharges from Gillette into Fort Point Channel. The initial temperature modeling was conducted by HydroAnalysis, Inc. in April of 1993. HydroAnalysis, Inc. was subcontracted by Bechtel/Parsons Brinckerhoff, on behalf of the MA Highway Department, to prepare a predictive thermal model to assess the effects of the

construction of the Central Artery (I-93)/Tunnel (I-90) Project within Fort Point Channel. The placement of submerged tunnel sections in the channel in close proximity to the outfalls will effect the circulation and dilution of the heated effluents. The Gillette cooling water intake structure (CWIS) was relocated from the edge of the Gillette property between the Dorchester Avenue Bridge and the three current discharge outfalls to a new site approximately 600 feet North (seaward) of the existing intake structure. This places the new intake seaward of the outfalls and the artery tunnel crossing. The new intake draws cooler water at depth and reduces the reintroduction (short circuiting) of heated water from the three outfalls.

Gillette proposes to convert the abandoned CWIS into Outfall 004 (This shall be discussed later in this document).

The initial thermal modeling was supplemented in April and December of 1995 to address issues pertaining to the height of the tunnel sections and associated filling in the channel. Gillette again contracted HydroAnalysis, Inc. to further update the thermal model to include proposed flow from Outfall 004 and the reduction in flow from Outfall 002.

The revised modeling report dated December 18, 2001 indicated that the temperature rise in the Fort Point Channel would be greater than predicted by the previous runs of the model.

Staff from the MADMF, CZM, and EPA held a series of meetings in 2002 with Gillette and HydroAnalysis, Inc. to discuss the scope, limitations, and refinements necessary to further enhance the model. Dr. Peter Shanahan of HydroAnalysis, Inc. delivered a draft report derived from CORMIX on April 25, 2002. The model was again critiqued by EPA and state staff. The final revision of the report, Analysis of the Thermal Discharge, Gillette Company, Boston, Massachusetts, dated July 2002 was accepted by the regulatory agencies.

The refined model predicts the size of the mixing zone needed to meet the state Water Quality Standards (WQS) for the ΔT. New sampling locations were chosen for temperature probes with data loggers to verify the assertions made by the model. The U.S. EPA CORMIX (Cornell University Mixing Zone Expert System -Jirka et al., 1996) model was used to predict the increase in temperature in Fort Point Channel, as a result of the four cooling-water discharges proposed to be operated by Gillette. The CORMIX system offers the distinct advantage of incorporating laboratory results and computer models for a wide variety of discharge and receiving water conditions into a single analysis tool. The user specifies the properties of the installation being modeled, and the expert system chooses the appropriate model and performs the simulation. CORMIX considers three basic types of discharges: surface jets, submerged multiport diffusers, and submerged jets.

The CORMIX program was selected for this application over other potentially applicable models for several reasons. First, it is more versatile, incorporating algorithms to simulate the thermal plume along its entire length. Other available models are often limited to either the near-field or the far-field region only. Second, CORMIX is more reliable. U.S. EPA documentation (Jirka et al., 1996) indicates that CORMIX was developed partially in response to the failure of a previous EPA model (PLUMES) to make accurate predictions in all situations, particularly in shallow receiving waters. Third, CORMIX is better supported. The CORMIX code has been updated several times

over the past few years and is actively supported by the U.S. EPA Center for Environmental Exposure Assessment and the Oregon Graduate Center. Finally, CORMIX is recommended by the U.S. EPA. Recent regulatory guidance (U.S. EPA, 1991; Jirka, 1992) favors CORMIX for mixing-zone analysis.

The CORMIX model predicts a very thin surface plume that is generally less than one foot thick for Outfalls 001, 002, and 003. The plume predicted for Outfall 004 is also thin, less than 2 feet thick, and is also predicted to rise to the surface. Based on the model results, the extent of the mixing zone is defined as from the point of discharge from the outfalls to roughly midway between the Congress Street and Northern Avenue bridges over Fort Point Channel. The permittee requested that the permit allow for the diversion of flow from Outfall 004 to Outfall 002, during periods when Outfall 004 is offline. The draft permit allows this diversion with the provision that there is no increase above the combined total of 26 MGD for the two outfalls. Gillette again contacted HydroAnalysis, Inc. who confirmed that the diversion of the flow from Outfall 004 to Outfall 002 would not significantly change the results of the temperature model. See Fact Sheet Attachment D.

Another function of the revised analysis is to determine an appropriate location for an ambient temperature monitoring stations to ensure that the ΔT limits are met at the edge of the mixing zone. The CWIS draws cool water at depth such that temperature measurements taken in the influent water would not be indicative of the ambient surface water temperature outside the mixing zone. One criteria for the station location was that it should be in a location that can be sampled from shore or a bridge. This is a practical constraint; given the considerable shoreline and bridge access available to Fort Point Channel, the expense, inconvenience, and hazard of sampling from boats seems to be avoidable. Dr. Shanahan recommended sampling from the Northern Avenue bridge for the ambient temperatures.

A second station will record the temperature at the Congress Street Bridge (near the edge of the mixing zone) to assess the validity of the modeled mixing zone. The maximum effluent temperature limit of 83 °F shall be retained at the point of discharge for each outfall to ensure compliance with maximum temperature water quality standard will be achieved at the edge of the mixing zone.

The model predicts that the thermal plume will encompass the entire width of the channel on the surface. The DEP Thermal Discharge, NPDES Review Memorandum, dated June 9, 1992, states that a mixing zone should *provide a zone of passage for migrating organisms.* The mixing zone should not exceed 50% of surface water cross section from bank to bank. *...50% of the volume and 50% of the surface area from bank to bank shall be excluded from the mixing zone unless expert advice of a fisheries biologist is available for the specific case.* Dr. Jack Schwartz of the Massachusetts Dept. of Marine Fisheries and Dr. Todd Callaghan of the Massachusetts Office of Coastal Zone Management have been actively involved in the pre-permitting discussions relative to the thermal modeling.

Storm Water Permit Requirements

The permittee has requested again during this permit reinsurance that EPA and MADEP remove storm water monitoring requirements from Outfalls 001 and 003. The permittee meets the substantive requirements of the "no exposure" exclusion for Massachusetts Storm Water General Permit (MSWGP).

"No exposure" means that all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.

Because the storm water is commingled with non-contact cooling water, EPA and MADEP will not directly apply the exclusion certification process, but rather use the criteria for exclusion as justification for removing the storm water (only) monitoring requirements from this draft.

To qualify for the no exposure exclusion under the MSWGP, the permittee must indicate that none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation:
Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water; Materials or residuals on the ground or in storm water inlets from spills/leaks; Materials or products from past industrial activity; Material handling equipment (except adequately maintained vehicles); Materials or products during loading/unloading or transporting activities; Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants); Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers; Materials or products handled/stored on roads or railways owned or maintained by the discharger; Waste material (except waste in covered, non-leaking containers, e.g., dumpsters); Application or disposal of process wastewater (unless otherwise permitted); and Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow.

Gillette operations are conducted completely within the confines of closed manufacturing buildings. Paved areas outside of the building are used exclusively for employee and visitor parking. Gillette uses closed solid waste compactors that are not exposed to storm events. Gillette does not store machinery, chemicals, waste material or raw materials outside the building where they could be exposed to rain or snow and potentially contaminate storm water runoff. Gillette maintains seven steel silos for the bulk storage of polyethylene, polypropylene, and polystyrene pellets. These pellets are used as raw materials in the production of razors and blades. The seven silos are completely enclosed within a concrete dike. The unloading of bulk pellets occurs inside of the diked areas where the hose connections from a bulk truck are located. The normal procedure for the unloading of pellets is for the truck to attach unloading hoses to the silo fittings. There is no open handling of pellets.

Once the pellets have been pneumatically transferred into the storage silos, the hose connections are removed. Since the connections are located inside of the silo dike area, in the event of an accidental release or uncoupling of the transfer hose, plastic pellets would be contained within the dike area. Operators are trained in specific unloading procedures and detailed work instructions are followed for every unloading event. This written procedure is part of the Gillette Environmental Management System that is ISO 14001 certified.

There is no potential for the release of plastic pellets to the environment where they could

contaminate storm water. Storm water from these areas is discharged along A Street to a combined storm water sewer that discharges to a MWRA sewer line.

Bulk shipments of #6 fuel oil are received from tanker trucks for the two 175,000-gallon main fuel tanks located below grade in a completely enclosed vault on the west side of the property. The fuel tanks were installed and the head house receiving building was constructed in 1996. Gillette Power House employees supervise and attend all deliveries of fuel oil. They follow detailed procedures for the unloading of bulk fuel oil. To prevent accidental releases of fuel oil during delivery, the hose connections are contained entirely within the head house. The Gillette employee must unlock the head house and supervise the transfer.

Any accidental release of oil would be entirely contained within the vault. There is no potential storm water contamination from this activity. The bulk fuel oil tanker parks in a designated area that is sloped to an isolated drip basin. Any incidental drips would be contained in this unloading area and cleaned immediately. There are no stains or evidence of oil contamination in this area.

In November 2000, EPA acknowledged that because of the activities of MHD and the Central Artery/Tunnel project on Gillette property, Outfall 003 storm water discharge was reassigned to the Mass Highway under storm water NPDES Permit No. MA0038291. The MHD has an easement on Gillette property at the casting basin and the northwest comer of parking lot #4 as part of the Central Artery/Tunnel project. The MHD controls an area of Gillette property for construction related activities. All storm water control measures for this area are the responsibility of MHD. This storm water discharges to Gillette Outfall 003.

MHD conducts daily sweeping of areas under their control to prevent any accumulation of construction dirt and debris. MHD and Gillette personnel meet monthly to review issues and concerns related to the coordination of the Central Artery/Tunnel project activities on Gillette property. The easement and storm water permit coverage should end with the conclusion of the MHD project slated for April of 2004. The effluent from Outfall 003 will then contain only stormwater runoff from Employee Parking Area Number4. There are two loading docks where material is received and boxed product is shipped out. The loading docks have dock bumpers that seal the open portion of the trailer to the building. There is no exposure to storm water when material is loaded or unloaded. All transfer activities are conducted within the sealed spaces.

The rooftops of the various Gillette building are not used for any industrial activities, and there is no potential contamination of storm water from exposure. Gillette uses all other potentially exposed spaces for employee parking. These areas are excluded from storm water requirements. Gillette maintenance personnel regularly monitor paved parking areas and periodically sweep paved parking areas. Gillette applies sand and sodium chloride during winter weather. This is applied sparingly in conjunction with plowing activities.

SIGNIFICANT CHANGES THAT HAVE REDUCED STORMWATER EXPOSURE

- Conversion from 1,1,1-trichloroethane to aqueous parts cleaning March, 1991
- Conversion from trichloroethylene to aqueous wash blade washing August,1991

- Conversion from trichloroethylene to aqueous parts washing July,1993
- Elimination of use and outside storage of liquid anhydrous ammonia June,1995
- New fuel oil vault constructed with inside fill station and full containment, 1996
- Conversion from isopropyl alcohol based coatings to aqueous based coating on some products, 1997
- A new sharpening oil filter system in a self contained building, to be fully operational in 2003, will reduce oil from 30,000 gallons presently in the system to 13,000 gallons
- Reverse Osmosis system to be installed and operational early in, 2003 for deionized water eliminating use of sulfuric acid and sodium hydroxide
- Improved preventative measures for storm water control such as written procedures for receiving oil and chemicals.

V. Narrative Conditions

The narrative conditions found in Part I.A (a-d) are based on the provisions found at Chapter 314 of the Code of Massachusetts Regulations (CMR) Surface Water Quality Standards, Number 4.05(5), Additional Minimum Criteria Applicable to All Surface Waters.

VI. Spill Prevention Control and Countermeasure Plan (SPCC)

The permittee is required by 40 CFR §112.1(e) to maintain a current Spill Prevention Control and Countermeasure Plan (SPCC). The SPCC is a plan prepared by a facility to minimize the likelihood of a spill and to expedite control and cleanup activities should a spill occur.

VII. Monitoring Frequency

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA as required by 40 CFR 122.41 (j), 122.41 (j)(4), (5) and 122.44 and 122.48.

VIII. Essential Fish Habitat

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 Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse 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. Id.

Essential fish habitat is only designated for fish 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 Fort Point Channel is designated essential fish habitat (EFH) for the species of finfish and

mollusks listed on the next page. Based on the effluent limitations and other permit requirements identified in this Fact Sheet that are designed to be protective of all aquatic species, including those with designated EFH, EPA has determined that a formal EFH consultation with NMFS is not required because the proposed discharge will not adversely impact EFH.

EFH Species

Summary of Essential Fish Habitat (EFH) Designation 10' x 10' Square Coordinates:				
Boundary	North	East	South	West
Coordinate	42° 20.0' N	71° 00.0' W	42° 10.0' N	71° 10.0' W

Square Description (i.e. habitat, landmarks, coastline markers): Waters within the Atlantic Ocean within the square within Massachusetts Bay and within Boston Harbor affecting South Boston, MA....

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X
haddock *(Melanogrammus aeglefinus)*	X	X		
pollock *(Pollachius virens)*	X	X	X	X
whiting *(Merluccius bilinearis)*	X	X	X	X
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*	X	X	X	X
redfish *(Sebastes fasciatus)*	n/a			
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*	X	X	X	X
windowpane flounder *(Scopthalmus aquosus)*	X	X	X	X
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*		X	X	X
bluefish *(Pomatomus saltatrix)*			X	X
long finned squid *(Loligo pealei)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*				X
scup *(Stenotomus chrysops)*	n/a	n/a	X	X
black sea bass *(Centropristus striata)*	n/a		X	X
surf clam *(Spisula solidissima)*	n/a	n/a	X	X

ocean quahog *(Artica islandica)*	n/a	n/a		
spiny dogfish *(Squalus acanthias)*	n/a	n/a		
bluefin tuna *(Thunnus thynnus)*			X	X

IX. Cooling Water Intake Structure, CWA Sections 316(b)

With any National Pollutant Discharge Elimination System (NPDES) permit issuance or reissuance, EPA is required to evaluate or re-evaluate compliance with applicable standards, including those stated in Clean Water Act (CWA) Section 316(b) regarding cooling water intake structures. CWA § 316(b) applies if the permit applicant seeks to withdraw cooling water from a water of the United States. To satisfy § 316(b) the permit applicant must demonstrate to the satisfaction of the EPA (or, if appropriate, the State) that the location, design, construction, and capacity of the facility's cooling water intake structure(s) (CWIS) reflect the Best Technology Available (BTA) for minimizing adverse environmental impacts. CWA §§ 316 applies to this permit; § 316(a) due to the presence and operation of cooling water intake structures.

Description of the seawater system:

The seawater system supplies cooling water taken from the Fort Point Channel to the Turbine Condenser, Basco Condenser, the Trantor plate and frame heat exchangers in the powerhouse, the Alfa-Laval plate and frame heat exchangers in the chiller building, the Patterson Kelley process water heat exchangers and the Patterson Kelley condenser water heat exchangers in the 'Z' building and Plastics building.

The Seawater System consists of two major subsystems. The first subsystem includes the intake structure tunnels, gate valves and screens which admits the seawater from the Fort Point Channel into the north and south wetwells where the water can be pumped by the seawater pumps. The second subsystem includes the seawater pumping system consisting of 3 single-stage horizontal split-case centrifugal pumps, variable-speed drives and various motor-operated valves to control the flow of the water throughout the Gillette site. Normally, 2 of the seawater pumps operate to supply water with the third pump off. System operation is normally controlled automatically by a Programmable Logic Controller (PLC) system with control stations located in both the power plant control room and the intake structure electrical room.

The seawater system consists of the following components. The intake structure consists of a 60 foot deep by 70 foot wide single story building containing an electrical equipment room and a pump room. The electrical equipment room contains the 13,200/460 volt transformers, 460 volt switchgear, 460 volt motor control centers, seawater pump motor variable speed drives and the PLC control panel. The pump room contains the 3 seawater pumps, service air compressors, vacuum priming skid, various motor operated valves and instrumentation for control of the seawater system.

Below the pump room are two concrete seawater wetwells, identified as the north and south wetwells. The wetwells extend 30 feet down from the pump room floor. Seawater pumps 1 A, and 1B are located above the south wetwell and seawater pump 1 C is located above the north wetwell. Provisions have been made for the future installation of a fourth pump above the north wetwell, if

necessary. The wetwells are connected to the Fort Point Channel through four 24" wide by 48" high horizontal tunnels located near the bottom of the wetwells.

Two tunnels connect each wetwell to the channel, and each tunnel has a motor-operated butterfly valve on the wetwell end for isolation of the wetwell from the channel so the wetwell can be dewatered for maintenance or repair. The two wetwells also have a manually-operated interconnecting sluice gate between them so that any of the 4 inlet tunnels can provide water to any seawater pump.

The inlet tunnels and wetwells are protected from being filled with debris from the channel by 4 cylindrical intake screens located on the channel end of the inlet tunnels. These screens are made of AL6XN stainless steel and are installed parallel to the bulkhead in front of the intake structure. The screens are 12 feet long by 54" diameter with solid hemispherical heads on each end.

The rated flow capaity for each of the four screen assemblies is 15,000 gallons per minute. The maximum through screen slot velocity is 0.5 feet per second at the rated flow capacity. The nominal slot opening is 0.375 inches, open area is 74%. The pressure drop through the clean screen surface at the design condition does not exceed 0.1 psi.

The screens are attached to the inlet tunnels by a section of 24" wide by 48" high rectangular piping that matches the shape of the inlet tunnels. The entire screen assembly is mounted to the bulkhead on a rail system which allows the screens to be withdrawn from the channel for cleaning and inspection as required. Two 3 ton capacity jib cranes with 2 ton capacity electric hoists have been installed on the deck in front of the intake structure for the purpose of lifting the screens out of the water.

The intake screens are equipped with an air blow system which is used to remove any debris that accumulates on the screens which could reduce the flow of water into the system. The air blow system operates automatically when initiated by the operators. Once started, the air blow system will clean each of the four intake screens in sequence under the control of the PLC system. The air blow system utilizes 125 psi air to clean the screens. The intake structure is equipped with a differential pressure transmitter which monitors the pressure difference across the intake screens. This pressure difference is caused by a change in the level between the wetwell and the Fort Point Channel. The level of the water in the wetwell and in the Fort Point Channel is monitored by a bubbler type level transmitter. The bubbler works by admitting a regulated flow of compressed air from the service air system through tubes located both in the wetwell and in the Fort Point Channel. The level of the water above the end of the tube applies a resistance to the flow of air thereby raising the pressure of the air in the tube. The higher the water level, the higher the observed pressure. The 0 to 30 inch of water range pressure transmitter monitors the difference in the two pressures and transmits a 4 to 20 mA signal to the PLC for display. When the differential pressure reaches a level difference equal to 20 inches of water an alarm is initiated on the air system control screen on the PLC monitor. The operators monitor the pressure differential and at an indicated differential level of 7 to 10 inches of water, they will manually initiate a cleaning cycle from the air system control screen, preferably on an outgoing tide. When activated the system sequentially isolates each intake screen by closing the screens associate butterfly valve and opening an air supply valve which delivers the air to the intake screens in the reverse direction to "blow" debris off the outside of the

screens.

The "blow" continues until the service air system pressure reaches approximately 30 psi, at which time the service air supply valve is closed and the butterfly valve is returned to the open position. Following the completion of this cycle the system automatically lines up to blowdown the next intake screen and repeats the process until all 4 screens are cleaned.

The seawater pumps (SWS-P-1 A, 1 B, and 1 C) are Patterson model 30 x 24 MAA, horizontal, single stage, split case centrifugal pumps rated at 15000 gpm at 130 ft of head. Each pump is powered by a 600 hp, 3 phase, squirrel cage, 460 volt motor. The pumps are located inside the new intake structure building, above the two intake structure wet wells. The pumps are arranged perpendicular to the channel and draw water from the wetwells through 30 " diameter suction lines that extend to within 3 feet of the bottom of the wetwells. The pumps discharge into individual 24" discharge lines which are connected to a common fiberglass reinforced plastic (FRP) 48" discharge header located along the east wall of the intake structure. Three parallel seawater lines deliver water to the Gillette facilities. A 36" diameter line supplies seawater to the powerhouse and the chiller building, a 24 " diameter line supplies seawater to the 'Z' building and Plastics building, and a 42" diameter line is capable of supplying all locations. Two of the lines, the 24" and 36", are normally in service and used to supply seawater to the facilities heat exchangers with the third, the 42", normally being isolated but available if maintenance or repairs are needed to either of the other two lines. The 36" intakes pipes are located 18 feet below the surface at mean tide, at their center point. The tidal range is 95.2 - 104.8 ft, with a mean of 100 ft using the Artery Project datum. The center point of the intake structure is 82 feet using the same datum. The channel floor was dredged to depth of greater than 60 ft with a bottom sloping away from the suction crib down to that depth.

ABBSAMI STAR variable frequency drives control the starting, stopping and flow control of the seawater pumps. The variable frequency drive system is normally operated under remote control from the PLC system. There are no automatic start features provided on the seawater pumps. They are manually started and stopped, either remotely through the PLC system or locally from the Variable Speed Drive (VSD) Cabinets in the intake structure. Manual start permissives from both the Seawater system and the VSD system must be met before the pumps can be started from any location. Manual stops and automatic trips are also provided. While the pumps must be manually started, the PLC will automatically control the operating speed of the pumps during normal system operation to control the system flow rates as needed by the Gillette facilities.

The design conditions under which the screens are to operate are generally based on particle size removal, pressure differential, and hydraulic performance. The screen surface establishes small openings through which water and particles can flow. The opening is nominally 0.375 inches. As material builds up on the screen surface, flow will be reduced. When this occurs, the screens are backwashed and cleaned as necessary to remove surface retained materials.

The intake screen system is designed to require little maintenance as the screens have no moving parts. They are designed with low through slot velocities. The air burst screen scour system will normally remove debris that accumulates on the screen surface. The scour system will however have limited effectiveness in removing items (such as biofouling) that are physically attached to the screens.

The screens are simple stationary items and no "wear" related maintenance is expected, with the possible exception of the seal gaskets. During operation the screens can become plugged with particles wedged into the spaces between the wires or from biofouling. Scraping the surface area will normally remove the material, or change its size sufficiently so that it will pass through the screens.

A periodic inspection (at least annually) is recommended. More frequent inspections may be scheduled depending upon the probability of physical damage, vandalism, sediment deposition, corrosion, biofouling, etc. Debris load and biofouling rates can vary during the year.

The screen assemblies are designed to be lifted to the surface for inspection and cleaning; guiderails will need to be inspected and cleaned using divers. The Seal Plate Assembly is designed to be lowered into place whenever a screen is removed. If biological growth and attachment is evident on the screen wire surfaces, frequent air backwashing may be of benefit. Antifouling coatings may also help minimize attachment of biofouling.

In order to more accurately determine if there are any adverse environmental impacts caused by current and future operations, EPA is requiring under this draft NPDES permit that Gillette perform biomonitoring, and thermal monitoring.

Under CWA §316(b) the draft permit requires the gathering of bio-monitoring data. EPA sees these permit requirements as part of a comprehensive approach to improving the Boston Harbor ecosystem. The Fort Point Channel provides habitat for a variety of fish, crustaceans, seabirds, benthic organisms, and occasionally marine mammals (e.g., harbor porpoises, seals).

Although the Boston Harbor ecosystem has been viewed as a degraded water body, it continues to support large populations of organisms dependent on the marine environment. Moreover, as a result of substantial capital investments and improvements in wastewater treatment facilities, water quality is dramatically improving in Boston Harbor. Where in the 1970s and 1980s only pollution tolerant worms were being found in the benthos, now pollution intolerant crustacean species are recolonizing large areas of the Harbor bottom. As conditions in Boston Harbor continue to improve with the removal of the outfall from the Massachusetts Water Resources Authority Treatment Plant, EPA expects that improvements in water quality will result in some changes in the types of species utilizing this area. To enhance the recovery of this water body, EPA is trying to minimize impacts of all remaining facilities discharging wastewater to Boston Harbor.

316(b): Determination of Best Technology Available for Cooling Water Intake Structures

The operation of the Gillette CWIS has the potential adverse environmental impacts. These include the entrainment of lobster larvae. Entrainment seriously injures or kills a large percentage of the organisms involved.

The draft permit will allow the CWIS to ingest up to 60.1 million gallons per day of water from the Fort Point Channel, entraining marine organisms present in that water. As the health of the larger Boston Harbor ecosystem improves, the quantity of marine life in the Fort Point Channel is expected to increase.

While EPA is aware that Gillette's use of cooling water may have adverse environmental effects, the limited nature of the available biological monitoring leaves EPA unable to fully quantify or characterize the full magnitude of that impact. In prescribing NPDES permit requirements for existing plants under CWA § 316(b) that might necessitate CWIS modifications, EPA considers whether the costs of the required modifications would be "wholly disproportionate" to the environmental benefits to be gained from the modifications. EPA does not presently have adequate information to assess whether or not substantial changes to the CWIS and its operations would be environmentally warranted in light of the high costs that might be involved. Therefore, EPA is not prepared at this time to propose modifications to the permit that would demand extensive technological upgrades. EPA is proposing biological monitoring requirements for this permit to better determine whether such major changes to the facility's CWA 316(b)-related permit requirements would be warranted in the future, either in a reissued or modified permit.

The low influent velocity at the suction crib and screening will allow easy egress for swimming organisms. Collectively, these features of the facility cooling water intake are considered BTA for minimizing adverse environmental impacts. EPA may reevaluate this determination upon completion of the biomonitoring.

X. Antibacksliding

Anti-backsliding as defined at 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. Anti-backsliding does not apply to these limits because of material and substantial alterations to the permitted facility which justify the application of less stringent limitations, as defined at 40 CFR § 122.44(l)(2)(i)(A).

XI. Antidegradation

The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. All existing uses of the Fort Point Channel must be protected. The EPA anticipates that the MADEP shall make a determination that there shall be no significant adverse impacts to the receiving waters and no loss of existing uses as a result of the reissuance of this permit. The public is invited to participate in the anti-degradation finding through the permit public notice process.

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

XII. State Certification Requirements.

EPA may not issue a permit in the Commonwealth of Massachusetts unless the Massachusetts Department of Environmental Protection (MA DEP) 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 the MA DEP has reviewed the draft permit. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

XIII. Comment Period and Procedures for Final Decisions.

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 the arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection (CPE), One 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.

XIV. EPA Contact.

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:
Douglas M. Corb

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April 30, 2003
Date

Linda Murphy, Director*
Office of Ecosystem Protection
U.S. Environmental Protection Agency

* Please address comments to Douglas Corb