

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

The Gillette Company

is authorized to discharge from the facility located at

**One Gillette Park
Boston, MA 02127**

to receiving water named

**Fort Point Channel
Boston Inner Harbor (MA70-02)**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on the first day of the calendar month following 60 days after signature. If no comments are received, this permit shall become effective following signature.

This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 17, 2003.

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements, and state permit conditions; Attachment A Marine Acute Toxicity Test Procedure and Protocol (September 1996); Attachment B List of Approved Treatment Chemicals; and 25 pages in Part II including Standard Conditions.

Signed this day of , 2011

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

David Ferris, Director
Massachusetts Wastewater Management
Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge **process water, boiler blowdown, and non-contact cooling water** from **outfall 001** to the Fort Point Channel. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement ¹	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow	MGD	Report	26.0	1/Day	Estimate
pH Range	S.U.	6.5 to 8.5		5/Week ²	Grab
Temperature	°F	Report	83.0	Continuous ³	Grab
Rise in Temperature (ΔT)	°F	Report	Report	Hourly ³	Calculation
Total Suspended Solids	mg/l	--	Report	1/Quarter ⁴	Grab
Oil and Grease	mg/l	--	Report	1/Quarter ⁴	Grab
Whole Effluent Toxicity ^{5,6}	%	--	Report LC50	1/Year	Grab ⁷

See pages 7-8 for explanation of footnotes

2. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge **process water, filter backwash, and non-contact cooling water** from **outfall 002** to the Fort Point Channel. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement ¹	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow ⁸	MGD	Report	26.0	1/Day	Estimate
pH Range	S.U.	6.5 to 8.5		5/Week ²	Grab
Temperature	°F	Report	83.0	Continuous ³	Grab
Rise in Temperature (ΔT)	°F	Report	Report	Hourly ³	Calculation
Total Suspended Solids	mg/l	--	Report	1/Quarter ⁴	Grab
Oil and Grease	mg/l	--	Report	1/Quarter ⁴	Grab

See pages 7-8 for explanation of footnotes

3. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge **process water, strainer flush, and non-contact cooling water** from **outfall 003** to the Fort Point Channel. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement ¹	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow	MGD	Report	8.1	1/Day	Estimate
pH Range	S.U.	6.5 to 8.5		5/Week ²	Grab
Temperature	°F	Report	83.0	Continuous ³	Grab
Rise in Temperature (ΔT)	°F	Report	Report	Hourly ³	Calculation
Total Suspended Solids	mg/l	--	Report	1/Quarter ⁴	Grab
Oil and Grease	mg/l	--	Report	1/Quarter ⁴	Grab

See pages 7-8 for explanation of footnotes

4. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge **non-contact cooling water** from **outfall 004** to the Fort Point Channel. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement ¹	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow ⁸	MGD	Report	16.0	1/Day	Estimate
pH Range	S.U.	6.5 to 8.5		5/Week ²	Grab
Temperature	°F	Report	83.0	Continuous ³	Grab
Rise in Temperature (ΔT)	°F	Report	Report	Hourly ³	Calculation

5. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to withdraw **seawater** at **outfall 005 (cooling water intake structure)** from the Fort Point Channel. Such withdrawals shall be limited and monitored by the permittee as specified below:

Withdrawal Characteristic	Units	Withdrawal Limitation		Monitoring Requirement ¹	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Intake Flow	MGD	35	39	Continuous	Meter

See pages 7-8 for explanation of footnotes

6. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge **heated effluent** from **outfalls 001, 002, 003, and 004 (SUM H)** to the Fort Point Channel. The total discharge from all outfalls shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement ¹	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Heat Load ⁹	mBTU	Report	9,400	5/Week	Calculation

See pages 7-8 for explanation of footnotes

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Footnotes:

1. Samples taken in compliance with the monitoring requirements specified above shall be taken at the point of discharge prior to mixing with the receiving water, except for monitoring of intake flow at the cooling water intake structure, which shall be continuously recorded via flow meter.
2. pH samples at Outfalls 001,002, and 004 shall be collected from the end of the outfall pipe prior to mixing with the receiving water five days per week, Monday through Friday. pH samples at Outfall 003 shall be collected at the North Dock Sample Port five days per week, Monday through Friday.
3. The temperature rise (ΔT) is the difference between the discharge temperature (measured at each of the four outfalls) and the intake temperature (measured at the CWIS after the wedgewire screens but prior to being pumped to buildings). The intake and discharge temperatures shall be continuously measured and recorded by instruments or computers (thermistors) which record a minimum of 12 times per hour.

The temperature rise shall be calculated as an hourly average, based on the hourly average intake temperature at the CWIS and the hourly average discharge temperature over all outfalls from which effluent is discharged during the measured hour. The hourly average intake temperature shall be calculated as a flow weighted hourly average intake using the hourly average intake and the hourly average flow rate.

4. Total suspended solids and oil and grease samples shall be taken at a point representative of the discharge through the outfall prior to mixing with non-contact cooling water or any other discharges.
5. The Permittee shall conduct 48-Hour Static Acute Whole Effluent Toxicity (WET) tests on effluent samples once each year in August using mysid shrimp (*Mysidopsis bahia*) following the protocol in Attachment A (Marine Acute Toxicity Test Procedure and Protocol, dated September 1996).

LC₅₀ (Lethal Concentration 50 Percent) is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

For each WET test the Permittee shall report on the appropriate Discharge Monitoring Report (DMR), the concentrations of the salinity, total residual oxidants, total solids, ammonia, total organic carbon, aluminum, cadmium, copper, chromium, lead, nickel and zinc found in the 100 percent effluent sample. These chemical parameters shall be determined to at least the minimum quantification level shown in Attachment A, page 6, or as amended. Also, the Permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

After submitting three years and a minimum of three consecutive sets of WET test results the permittee may request a reduction in the frequency of WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from EPA that the WET testing frequency requirement has been changed.

6. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol) Section IV., DILUTION WATER** in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region I web site at <http://www.epa.gov/Region1/enforcementandassistance/dmr.html>. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.
7. A grab sample for whole effluent toxicity shall be taken from a point representative of the discharge from Outfall 001 after mixing with non-contact cooling water but before comingling with any other waste streams. The sample shall be representative of discharge from the boiler blowdown and two reverse osmosis system waste streams comingled with non-contact cooling water.
8. Non-contact cooling water flow volumes may be diverted from Outfall 004 to Outfall 002 when Outfall 004 is taken offline. The total combined maximum daily discharge from the two outfalls may not exceed 26 MGD.
9. The heat load shall be calculated on an hourly basis using the following equation:

$$Q = C_p m \Delta T$$

where:

Q = Heat load, million British Thermal Units (mBTU)/hour

C_p = Heat capacity (specific heat) of water = 1.0 BTU/pound °F

m = mass of water = cooling water flow rate (million gallons per hour) x
density of river water = cooling water flow rate x 8.34
pounds/gallon

ΔT = discharge temperature – intake temperature, °F

The permittee shall report the daily heat load calculated by adding each hour's heat load for that day. Only hours in which the facility was discharging through any of the four outfalls shall be included in the calculation of daily heat load.

PART I.A. (continued)

6. The discharge shall not cause a violation of the water quality standards of the receiving waters.
7. The pH of the effluent shall not be less than 6.5 Standard Units (SU), nor greater than 8.5 SU at any time, and no more than 0.2 units outside the background range, unless these values are exceeded due to natural causes.
8. The discharge shall not cause objectionable color, odor, or turbidity to the receiving waters.
9. The discharge shall not contain a visible oil sheen, foam, or floating solids at any time.
10. The thermal discharge shall not interfere with spawning of indigenous populations nor harm the balanced, indigenous population of the receiving water.
11. The effluent shall not contain materials in concentrations or in combinations which are hazardous or toxic to aquatic life or which would impair the uses designated by the classification of the receiving water.
12. Pollutants which are not limited by this permit, but which have been specifically disclosed in the permit application, may be discharged up to the frequency and level disclosed in the application and included as Attachment B to this permit, provided that such discharge does not violate Section 307 or 311 of the Clean Water Act (CWA) or applicable state water quality standards.
13. Notwithstanding specific conditions of this permit, the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.
14. This permit shall be modified, or revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - a. contains different conditions or is otherwise more stringent than any effluent limitation in this permit; or
 - b. controls any pollutant not limited by this permit.

If the permit is modified or reissued, it shall be revised to reflect all currently applicable requirements of the Act.

15. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe (40 CFR §122.42):
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (i) One hundred micrograms per liter (100 µg/l);
 - (ii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
 - (iii) Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and Massachusetts regulations.
 - b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (i) Five hundred micrograms per liter (500 µg/l);
 - (ii) One milligram per liter (1 mg/l) for antimony;
 - (iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
 - (iv) Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and Massachusetts regulations.
 - c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.
16. Toxics Control
- a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.
 - b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

B. UNAUTHORIZED DISCHARGES

This permit authorizes the permittee to discharge only in accordance with the terms and conditions of this permit and only from outfalls listed in Part I.A. of this permit. Discharges of wastewater from any other point sources which are not authorized by this permit or other NPDES permits shall be reported in accordance with Section D.1.e.(1) of the Standard Conditions of this permit (twenty-four hour reporting).

C. BEST TECHNOLOGY AVAILABLE

1. The location, design, construction, and capacity of the permittee's non-contact cooling water intake structure (CWIS) shall reflect the best technology available (BTA) for minimizing the adverse environmental impacts from entrainment of fish eggs and larvae. In order to satisfy this BTA requirement, the permittee shall operate the CWIS in compliance with the following specifications:
 - a. The permittee shall, to the extent practicable, schedule annual maintenance outages between May 15th and June 1st. The permittee shall report the dates of all scheduled outages and submit them to EPA and MassDEP along with the subsequent monthly DMR. For maintenance outages not scheduled between May 15th and June 1st, the permittee shall include an explanation of why it was not practicable for the outage to occur within this time period.
 - b. The permittee shall use the existing variable frequency drives to limit the monthly average intake flow at the CWIS to 35 MGD and the maximum daily intake flow to 39.0 MGD.
2. The location, design, construction, and capacity of the permittee's CWIS shall reflect the BTA for minimizing the adverse environmental impacts from the impingement of aquatic organisms. In order to satisfy this BTA requirement, the permittee shall continue to intake all cooling water through the existing 9.5 mm wedgewire screens at a maximum through-screen velocity no greater than 0.5 fps at all times.
3. Any change in the location, design, or capacity of the intake structure outside of the specifications of this Permit must be approved in advance in writing by the Regional Administrator and Director of the Watershed Management of MassDEP. The design of the intake structure shall be reviewed for conformity to applicable regulations pursuant to Section 316(b) of the CWA when such regulations are promulgated.

D. BIOLOGICAL MONITORING

1. The Permittee shall conduct entrainment sampling three (3) times per week between February 15 and July 30th for three years. Three entrainment samples shall be collected each sampling week and shall target three separate periods of the diurnal cycle (for example, once on Monday morning at 8:00 am, once on Wednesday afternoon at 2:00 pm, and once on Friday night at 8:00 pm). At a minimum, the sampling program shall address the following:

- a. Samples shall be collected from the manhole cover in the pump house using the same methodology as the permittee's 2004 entrainment study. Sampling shall be conducted using a 0.333 millimeter mesh 60-centimeter plankton net. The volume of water sampled shall be measured and equal to approximately 100 cubic meters (m^3). A standard mesh of 0.202 mm shall be required during the period of highest abundance of early stage winter flounder (March 15 to April 30).
 - b. In the laboratory, all eggs and larvae shall be identified to the lowest practical taxa and counted. Subsampling with a plankton splitter shall be used if the count of eggs and larvae in a sample is greater than 400 organisms so that a minimum of 200 eggs and larvae will be present in any subsample.
2. Ichthyoplankton counts shall be converted to densities per 100 m^3 of water based on the flow through the sampling net and the data shall be presented in the annual Biological Monitoring Report (BMR) detailed in Part D.4 below. Estimates of total numbers of ichthyoplankton based on facility flow rates shall also be provided. Entrainment losses shall be converted from weekly estimates of density per unit volume, to monthly and annual loss estimates based on the permitted flow. In addition, loss estimates should be converted to adult equivalents for species for which regionally specific larval survival rates are available. (See "Case Study Analysis for the Proposed 316(b) Phase II Existing Facilities Rule" Chapter A7, EPA-821-R-02-002, February 2002.)
 3. Larval winter flounder shall be enumerated by stage as follows:
 - a. Stage 1 - From hatching until the yolk sac is fully absorbed (approximately 2.3 to approximately 3.8 mm);
 - b. Stage 2: From the end of Stage 1 until a loop or coil forms in the gut (approximately 2.6 to approximately 4.0 mm)
 - c. Stage 3: From the end of Stage 2 until the left eye migrates past the midline of the head during transformation (approximately 3.5 to approximately 8.0 mm)
 - d. Stage 4: From the end of Stage 3 until the full complement of juvenile characteristics is present (approximately 7.5 to approximately 8.2mm).
 4. Results of the entrainment monitoring shall be reported in a CWIS Biological Monitoring Report following each year of the study, which shall include monitoring logs and raw data collected in the previous year and summarize the data both graphically, where appropriate, and in text. The monitoring report shall also include the results of all calculations conducted in accordance with Part I.D.2. The CWIS Biological Monitoring Report shall be submitted to EPA and MassDEP by February 28th each year.

E. MONITORING AND REPORTING

1. **For a period of one year from the effective date of the permit**, the permittee may either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

- a. Submittal of Reports Using NetDMR

NetDMR is accessed from: <http://www.epa.gov/netdmr>. **Within one year of the effective date of this permit**, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports (“opt out request”).

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

- b. Submittal of NetDMR Opt Out Requests

Opt out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt out request and such request is approved by EPA. All opt out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

and

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor

Worcester, Massachusetts 01608

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

**U.S. Environmental Protection Agency
Water Technical Unit (OES04-SMR)
5 Post Office Square - Suite 100
Boston, MA 02109-3912**

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following addresses:

**Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887**

and

**Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608**

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA New England and to MassDEP.

F. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

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Attachment B

List of Approved Treatment Chemicals

Treatment Chemical	Concentration in Boiler Blowdown (mg/L)	Calculated Concentration at Outfall 001 (mg/L)
Disodium phosphate	20	0.008
Polymethacrylate	7	0.0028
Acrylic copolymer	9	0.0036
Molybdenum	0.9	0.00036
Diethylhydroxyamine	0.15	0.00006
Hydroquinone	0.15	0.00006
Morpholine	1	0.0004
Cyclohexylamine	2	0.0008
Benzotriazole	3	0.00009
Tolyltriazole	2	0.00006
Sodium nitrite	150	0.0045
Sodium nitrate	33	0.00099
Molybdenum	14	0.00042
Isothiazolin	1.5	0.000045