

**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),

Holyoke Gas and Electric Department (HG&E)

is authorized to discharge from the facility located at:

**Cabot Street Station
102 Cabot Street
Holyoke, Massachusetts 01040**

to receiving waters named the **Holyoke Canal System (tributary to Connecticut River)**

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

This permit shall become effective 60 days after signature.

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

This permit supersedes the permit issued on September 9, 1988.

This permit consists of 11 pages of Part I including Sections A through D with Effluent Limitations, Monitoring Requirements, and State Permit Conditions; 11 pages in Attachment A, and Part II Requirements containing General Conditions and Definitions.

Signed this 8th day of December, 2005

/s/ SIGNATURE ON FILE

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency (EPA)
Environmental
Boston, MA

Glenn Haas, Director
Division of Watershed Management
Massachusetts Department of
Protection (MADEP)
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 001**, condenser cooling water from Unit 6, Unit 8, and Unit 9. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Number of discharge days	---	Report	Continuous when discharging	Calculated
Flow Rate (mgd)	10.8	23.0	Continuous when discharging	Recorder ²
pH (standard units)	≥6.5 and ≤8.3		1/month	Grab
Temperature (°F)	---	102 ¹	Continuous when discharging	Recorder
Temperature Rise (°F) (Discharge °F minus Inlet °F)	---	30 ¹	Continuous when discharging	Calculated
Whole Effluent Toxicity ³	Report	Report	1 during permit	Composite

¹This limit is an instantaneous maximum (not to be exceeded at any time).

²Report average monthly and maximum daily values. The permittee may measure the flow at each condenser outlet prior to entering outfall 001 and sum the results for reporting.

³See Part I.A.21 of this permit.

- a. Effluent samples shall be taken on the discharge line after all condenser cooling waters combine and prior to entering the First Level Canal.
 - b. Chlorination is not conducted for these cooling units. The discharge of chlorine or any other biocide is not permitted.
 - c. The permittee shall continuously monitor temperature and temperature rise (ΔT) and report the highest daily instantaneous maximum values that occur for the month.
 - d. Discharge from 001 is prohibited when not necessary for electricity generation, maintenance or testing.
 - e. The pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units and not more than 0.5 units outside of the background range. There shall be no change from background conditions that would impair any use assigned to this Class B water.
2. During the period beginning on the effective date of the permit and lasting through

expiration, the permittee is authorized to discharge from **outfall serial number 002**, neutralization tank waste water. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate (gallons per day)	25,000	100,000	Continuous	Recorder
Oil and Grease (mg/l)	10.0	15.0	1/Week	Grab
Total Suspended Solids (mg/l)	30.0	100.0	1/Week	Composite ¹
pH (standard units)	≥6.5 and ≤8.3		1/Day	Grab
Priority Pollutants	---	Report	1/Year	Grab

¹A composite sample taken from the neutralization tank discharge pipe shall consist of a grab sample at the beginning, at the end, and once every hour during the period when a batch discharge occurs, all combined proportional to flow.

- a. Samples shall be taken from a valve on the discharge line below the neutralization tank prior to discharge into the Second Level Canal.
 - b. The pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units at any time.
3. During the period beginning on the effective date of the permit and lasting through expiration, the permittee is authorized to discharge those low volume waste streams coming from the hot well sump to **an internal outfall 004**, to the traveling screen well, and from there, to outfall 002 and/or outfall 001. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate (gallons per day)	---	Report	Continuous	Estimated
Oil and Grease (mg/l)	15.0	20.0	1/Week	Grab
Total Suspended Solids (mg/l)	30.0	100.0	1/Week	Composite ¹

¹A composite sample taken on the internal outfall will consist of at least eight (8) grab samples collected at equal intervals during a 24-hour period and combined proportionally to flow, or a sample continuously collected proportionally to flow over that same period.

- a. Samples shall be taken a location after the hot well, and before the traveling screen well,

before waste water is mixed with intake water and pumped either to outfall 002 and/or outfall 001.

4. During the period beginning on the effective date of the permit and lasting through expiration, the permittee is authorized to discharge filter backwash wastewater to **an internal outfall 005**, to the traveling screen well, and from there, to outfall 002 and/or outfall 001. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate (gallons per day)	---	Report	Continuous	Estimated
Oil and Grease (mg/l)	15.0	20.0	1/Week	Grab
Total Suspended Solids (mg/l)	30.0	100.0	1/Week	Composite ¹

¹A composite sample taken on the internal outfall will consist of a grab sample at the beginning, at the end, and once every hour during the period when a batch filter backwash discharge occurs.

- a. Samples shall be taken a location after the pressure filters and before the traveling screen well, before waste water is mixed with intake water and pumped either to outfall 002 and/or outfall 001.
5. Conditions for outfall 001 and outfall 002
 - a. The discharge shall not cause a violation of the water quality standards of the receiving waters.
 - b. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
 - c. The results of sampling for any parameter conducted in addition to its required frequency must also be reported, in accordance with 40 CFR §122.41(l)(4)(ii).
 6. The discharge of chemical metal cleaning waste water is prohibited.
 7. Station Cooling Water Intake Structure

The Cabot Street Station Cooling Water Intake Structure (CWIS) shall maintain best technology available (BTA), based on its present location, design, and capacity which is subject to the flow limitations described in Part I.A.1. of this permit. The present location of the CWIS isolates adult and juvenile fish from the Connecticut River from the CWIS through the effective, continuous operation of the full depth fish excluder system (FES), located near the headgates of the canal system.

8. Except as specified in Parts I.A.1. through I.A.5. herein, the permittee shall not discharge to the First and Second Level Canals a final effluent to which it has added any pollutants.

9. Discharges shall not impair any Class B use of the First and Second Level Canals, and the downstream Connecticut River, and shall not violate any applicable narrative criteria from the State water quality standards, unless in accordance with a variance to temperature State water quality standards pursuant to Section 316(a) of the Clean Water Act.
10. The thermal plume from the Station shall: (a) not block zones of fish passage, (b) not interfere with spawning of indigenous populations, (c) not change the balanced indigenous population of the receiving water, and (d) have minimum contact with surrounding shorelines. In order to verify the characteristics of the thermal plume from the Station during the warmest days of the year, **the following canal thermal sampling shall be performed annually during the first three years of the effective period of this permit during July or August.** Each of these canal thermal sampling events shall be conducted during a period of electricity production at the Station with an outfall 001 discharge of at least four continuous hours. If there is no four hour period of electricity production during the July to August period in a particular year, the temperature sampling event shall be postponed to another year when no sampling was required. On one day in each of the first three summers of the effective period of this permit when these conditions exist, the permittee is required to measure the Station's thermal plume in the First Level Canal as follows.

- a. Along four transects perpendicular to the flow of the First Level Canal, the permittee shall measure a grid of canal water temperatures. Along each transect, temperatures shall be measured at three evenly spaced horizontal positions (left, center and right), three evenly spaced depths at each position (near surface, mid-depth, and near bottom), and one measurement at the sediment/water interface at each position. These twelve temperature measurement points make up one temperature sampling transect in the canal.

Measurements in the Second Level Canal shall be taken as follows: three evenly spaced depths (near surface, mid-depth, and near bottom), and one measurement at the sediment/water interface shall be taken at a single location just downstream of Outfall 002; a near surface, a near bottom, a mid-depth, and a water/sediment interface sample shall be taken at a single location approximately 300 meters east of the Boat Lock Station and 50 meters west of the Route 116 bridge, corresponding to sampling location T2 in the 2003 Holyoke Canal Mussel Survey (Kleinschmidt, 2004).

Additionally, a near surface, mid-depth, a near bottom, and a water/sediment interface sample shall be taken in the Connecticut River mainstream, just after the downstream confluence with the canal system.

- b. While the Station outfall 001 discharge characteristics remain relatively constant, the permittee shall record these canal water temperatures and Connecticut River

temperatures on the same day and, to the extent possible, within a time period of no longer than one hour.

- c. The initial First Level Canal temperature sampling transect shall be located just upstream of the CWIS, the next three shall be located 100 feet, 200 feet and 300 feet downstream from outfall 001.
- d. Temperature instruments used for this sampling event must be calibrated to manufacturer's specifications and must be sensitive enough to report temperatures with confidence to the nearest 0.2 °F.
- e. A **canal thermal sampling report** shall be submitted to EPA and MA DEP within ninety (90) days of each sampling event. The report shall identify the date of sampling, the flow in the Holyoke Canal System during information collection, the general weather conditions, the ambient air temperature during sampling, the exact location and depths of the sampling positions, the temperatures recorded, and the time each temperature was recorded. Each report shall also identify station operational information recorded at outfall 001 every fifteen (15) minutes during a time period starting four hours before canal temperatures were first measured and ending one hour after the last canal temperature was measured. This operational information shall include the CWIS intake temperature, the outfall 001 discharge temperature, the temperature rise, the discharge flow, and the flow from any internal discharges from internal outfalls 004 or 005 if they were discharging during this time period. Each report also shall include an assessment of whether or not the sampling conditions on this day represent typical or worst case thermal discharge conditions.

11. Unusual Event Allowing Fish Into Canal System

Based on the expected performance of the fish excluder system (FES), which diverts fish away from the Holyoke Canal System where the Station is located, no adult or juvenile fish are expected to be present near the intake of the Station. In the event that the FES fails to exclude adult and/or juvenile fish from the canal system or that the permittee becomes aware that there are a sizable number (e.g. more than ten fish observed in a day) of adult and/or juvenile fish in the canal system, the following protocol shall be followed and continued until adult and juvenile fish are again excluded from the canal system and there is no longer a sizable number of adult and/or juvenile fish in the canal system.

- a. Whenever producing electricity, the permittee shall rotate the intake screens of the cooling water intake structure at a minimum frequency of every eight hours and visually inspect the intake screens for dead and live fish.
- b. If the permittee observes on the cooling water intake screens, or estimates, based on temporally-limited observations, 25 or more dead fish within any 24-hour period, the

permittee shall:

1. Initiate continuous screen washes.
 2. Report to the EPA and the MADEP within 24 hours by telephone as required by Part II of this permit. Submit a written confirmation report to the Regional Administrator and the Director within five business days. These oral and written reports shall include the following information:
 - i. All dead fish shall be enumerated and recorded by species. Report the size range for each species (minimum and maximum total lengths), and approximate number of organisms, by species, involved in the incident. In addition, each fish shall be measured to the nearest centimeter total length, up to 25 fish per species. If more than 25 fish for a given species make up the impingement event, then from the remaining number of fish present (in excess for 25 per species), a representative sample of 25% of the fish, up to a maximum of 25 additional fish specimens from each species, shall be measured to the nearest centimeter total length.
 - ii. The time and date of the occurrence.
 - iii. The operational mode of the specific system that preceded and coincided with the occurrence.
 - iv. The opinion of the permittee as to the reason the incident occurred, including the reason why the FES near the entrance of the canal did not divert fish away from the Station intake.
 - v. The remedial actions that the permittee has taken and the remedial actions that the permittee recommends to reduce or eliminate this type of incident.
 - c. The permittee shall visually inspect the First Level Canal daily, and in the event of fish mortalities in the discharge or in the thermal plume, the permittee will begin removing all dead fish from the receiving waters within four hours after the fish mortalities have been observed, while also complying with all the monitoring and reporting requirements in this permit. If the permittee observes 25 or more dead fish within any 24-hour period, the permittee shall follow all applicable collection, measurement, and reporting requirements listed in Part I.A.11.b.2.
12. All material shall be removed from the intake screens and disposed of in accordance with all existing Federal, State, and/or local laws and regulations that apply to waste disposal. Such material shall not be returned to the receiving waters.
 13. There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those

commonly used for transformer fluid. The permittee shall dispose of all known PCB equipment, articles, and wastes in accordance with 40 CFR §761. The permittee shall certify that this disposal has been accomplished.

14. No discharge shall cause visible discoloration or turbidity in the receiving waters which would impair the uses designated by the classification of the receiving waters.
15. The effluent shall not contain metals and/or 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 waters.
16. No biocide shall be used without explicit approval from the EPA and the MADEP.
17. The permittee may propose to conduct feasibility studies involving new chemicals not currently approved for water discharge. The permittee shall gain approval from the EPA and the MADEP before any such studies take place. A report summarizing the results of any such studies shall be submitted to the EPA and the MADEP regarding discharge frequency, concentration, and the impact, if any, on the indigenous populations of the receiving water. The EPA or the MADEP may require Whole Effluent Toxicity testing as part of feasibility studies.
18. Discharges to the Holyoke Canal System, and the downstream Connecticut River, shall be adequately treated to insure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. They shall be adequately treated to insure that the surface waters remain free from pollutants which produce odor, color, taste, or turbidity in the receiving water which are not naturally occurring and would render it unsuitable for its designated uses.
19. The permittee must notify the EPA and the MADEP 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":
 1. One hundred micrograms per liter (100 ug/l);
 2. 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
 3. Any other notification level established by the Regional Administrator or 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:"
 1. Five hundred micrograms per liter (500 ug/l);
 2. One milligram per liter (1 mg/l) for antimony;
 3. 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
 4. Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and Massachusetts regulations.
20. This permit shall be modified, or alternatively, revoked or 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.
21. The permittee is required to report the results of chronic (and modified acute)WET tests using Daphnid (Ceriodaphnia dubia) and Fathead Minnow (Pimephales promelas) once during this permit cycle. A 24-hour composite sample is the required "sample type" for WET testing. The permittee shall use the protocol contained in Attachment A to this permit when conducting the WET testing.

B. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate **discharge monitoring report (DMR) forms postmarked no later than the 15th day of the month following the effective date of the permit.**

HG&E may assert a business confidentiality claim with respect to part or all of the information submitted to EPA in the manner described at 40 CFR Part 2.203(b). Information covered by such a claim will be disclosed by EPA only to the extent, and by means, of the procedures set forth in 40 CFR Part 2, Subpart B. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to HG&E. Effluent information shall not be regarded as confidential.

Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

U.S. Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114

The State Agency is:

Massachusetts Department of Environmental Protection
Western Regional Office- Bureau of Waste Prevention
436 Dwight Street
Springfield, Massachusetts 01103

In addition, copies of all Discharge Monitoring Reports and all other notifications and reports required by this permit shall be submitted to the following address:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

In addition, the Canal Thermal Sampling Reports, Unusual Event Reports, Discharge Related Mortality Notifications, relevant environmental monitoring reports generated as a requirement of the FERC Holyoke Hydroelectric License, and other reports required by this permit shall also be submitted to:

John H. Nagle (Phone Number: 617-918-1054)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023

C. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this permit modification are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection pursuant to M.G.L. Chap. 21, §43.

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 an 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.