



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 29, 1988

Mr. John M. Powers
Vice President, Energy Supply
Cambridge Electric Light Corp.
2421 Cranberry Highway
Wareham, MA 02571

Re: NPDES Application No. MA0004898

Dear Mr. Powers:

In accordance with Chapter 21, Sections 43-45 of the Massachusetts Clean Waters Act, as amended, and Section 402 of the Federal Clean Water Act, as amended, the Commonwealth of Massachusetts and the Environmental Protection Agency, Region I, intend to issue a National Pollutant Discharge Elimination System (NPDES) permit to your facility in the near future.

The enclosed draft permit has been developed by this office and the Massachusetts Division of Water Pollution Control (MDWPC) containing effluent limitations and conditions to assure that the discharge receives adequate treatment and will not violate water quality standards. Also, enclosed is the statement of basis or fact sheet which briefly describes the basis for the permit conditions. You are encouraged to closely review all terms and conditions contained in this draft. If you believe the permit does not accurately describe your discharge or contain a reasonable compliance schedule (where appropriate), you should notify each office, in writing, no later than 14 days from receipt of this letter. Particular attention should be given to the following sections:

A. Effluent Limitations and Monitoring Requirements.

This section contains listings of effluent characteristics, discharge limitations and monitoring requirements. The effective dates for various requirements are listed.

B. Schedule of Compliance.

This section contains any schedule of compliance applicable to your facility. If a schedule of compliance is listed, please note your responsibilities for reporting compliance.

C. Monitoring and Reporting.

This section contains your responsibilities for reporting monitoring results.

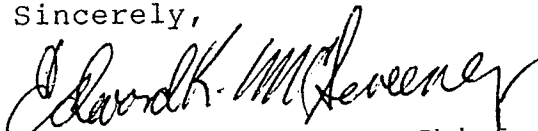
D. Other.

This section contains any other conditions specific to your facility not contained elsewhere in this permit.

Federal and Commonwealth law require public notice to be given of the preparation of a draft permit to allow opportunity for public comments and, if necessary, a public hearing. If we do not receive any comments from you, in the time specified above, EPA and the MDWPC will proceed to publish public notice of the proposed issuance of this permit. In order to preserve the right to a formal hearing to contest provisions in a final permit, all persons, including the applicant, who believe any condition of the draft is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period. See 40 C.F.R. §124.13, 48 Fed. Reg. 14271 (April 1, 1983). Following the close of the public comment period, your final permit will be issued providing no new substantial questions are raised. If new questions develop during the comment period, it may be necessary to draft a new permit, revise the statement of basis or fact sheet, and/or reopen the public comment period.

If you have any questions or would like to discuss any of the conditions contained in this draft permit, do not hesitate to contact Victor Alvarez of my staff. He may be reached at 617/565-3501.

Sincerely,


Edward K. McSweeney, Chief
Compliance Branch

Enclosure

cc: State

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203

FACT SHEET

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

NPDES PERMIT NO.: MA0004898

STATE PERMIT NO.: 287

NAME AND ADDRESS OF APPLICANT:

Cambridge Electric Light Company
46 Blackstone Street
Cambridge, MA 02139

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Kendall Square Station
265 First Street
Cambridge, MA 02142

RECEIVING WATER: Charles River

CLASSIFICATION: Class C

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 the designated receiving water. The facility is engaged in generation of electricity and steam. The discharge is from once through cooling water.

II. Description of Discharge.

A quantitative description of the discharge in terms of significant effluent parameters based on recent monitoring data is shown on Attachment A.

III. Limitations and Conditions.

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found on the following attachments: Attachment B

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

The Kendall Square Station of the Cambridge Electric Light Company is a 68 MW Electric Generating Station. It also generates steam, which is sold to district heating customers. The station is located north of the Longfellow Bridge in Cambridge, MA. Operation of this facility began in 1949. The station's circulating water system provides once-through cooling water to the condensers for units 1, 2 and 3. They require about 70 MGD from the Charles River. The cooling water passing through the condensers experience a temperature rise of approximately 20 degrees F. The heated effluent is discharged through two outfalls downstream of the intake structure. During the winter months, November through March, about half the flow is discharged to Broad Canal to prevent it from freezing. Chlorine is added to the cooling water to control condenser biofouling.

The Clean Water Act (CWA) requires that dischargers satisfy both minimum technology and water quality requirements. Section 301 (b)(1)(A) of the CWA requires industries to meet Best Practicable Control Technology (BPT) currently available by July 1, 1977. Sections 301 (b)(2)(A) and (E) of the CWA require industrial facilities to insure that the temperature rise of the cooling water is kept to the minimum. This also would take into account the optimum range for efficient production of electricity, reasonable cost and temperature of the intake water. EPA has considered BAT to be no discharge of heat, i.e. steam electric generating stations should employ closed-cycle cooling systems. This could be accomplished by mechanical draft cooling towers, cooling ponds and discharge canals. These technologies were not considered appropriate for this facility due to: (1) high cost to install, and a short remaining economic life in which to amortize the the costs; (2) land constraints; (3) increased water by employing closed-cycle cooling; and (4) no appreciable harm has resulted to the balanced indigenous community of shellfish, fish and wildlife in and on the receiving water from the station's operation. Therefore, BAT is equal to BPT for this station.

The maximum temperature limit is based on Massachusetts Certification Requirements and Water Quality Standards pursuant to Section 401(d) of the CWA and 40 CFR 124.53 and 124.56.

Section 316 (a) and (b) of the Clean Water Act.

Section 316 (a) of the Clean Water Act (CWA) addresses the thermal component of any effluent discharge. EPA has not developed best practicable control technology currently available (BPT) for thermal discharges from point sources. However, EPA assumes that if thermal limits satisfying BPT were developed in accordance with Section 301(b)(1)(A) of the CWA, they would be more stringent than what would be proposed by the NPDES Permit applicant. This is based upon the premise that the water quality criteria developed by EPA or by individual water quality standards, developed by states would be the limiting factor in the development of the NPDES Permit. It should also be noted that thermal discharges (heat) is not subject to the technology standards required by Best Conventional Pollutant Control Technology Economically Achievable since heat is not considered to be a toxic pollutant or a conventional pollutant as defined by the CWA and outlined in 40 CFR 401.15 or 401.16.

Section 316(a) of the CWA gives the Administrator of the EPA the authority to impose alternative effluent limitations for the control of the thermal component of any discharge. However, the owner or operator of the point source must demonstrate to the satisfaction of the Administrator that existing effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the receiving water.

Similarly, Section 316(b) of the CWA gives the Administrator of the EPA the authority to determine if the location, design, construction, and capacity of the cooling water intake structures reflect BPT for minimizing adverse environmental impact.

The authority of these two sections of the CWA has been delegated to the Regional Administrators or their designees in accordance with regulatory procedures outlined under 40 CFR 125.

During the years of 1974 and 1975, Kendall Square Station provided 316 (a) and (b) demonstration documents showing that the proposed thermal effluent limitations and that the design of the intake structure would protect the aquatic life in and on the Charles River. The Regional Administrator granted the 316 (a) variance based upon previous hydrological and biological studies and upon the absence of obvious environmental degradation during the operating history of the station. Likewise, the Regional Administrator determined that the location, design, and capacity of the cooling water intake reflected best available technology for minimizing adverse environmental impact.

In the current reapplication for a NPDES Permit, Kendall Square Station has demonstrated to EPA that since the last reissuance of the NPDES Permit:

- a. There had been no significant changes to the design or to the operation of the station and, in particular, no changes to the circulating cooling water system.
- b. There has been no significant changes in the hydrology or in the biology of the Charles River.
- c. There have been no fish kills or any other observable environmental impact on the river.

Therefore, the Regional Administrator has determined that a 316 (a) variance could be granted and that the design of the intake structure satisfies the best technology available requirements.

The effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA as required by 40 C.F.R. 122.41(j), 122.44 and 122.47.

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.

V. State Certification Requirements.

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

VI. Comment Period, Hearing Requests, 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 their arguments in full by the close of the public comment period, to the U.S. EPA, Compliance Branch, JFK Federal Building, Boston, Massachusetts 02203. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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

VII. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:0 p.m., Monday through Friday excluding holidays from:

Victor Alvarez
John F. Kennedy Federal Building
Boston, Massachusetts 02203
Telephone: (617)565-3501

David A. Fierra, Director
Water Management Division
Environmental Protection Agency

Date

ATTACHMENT A

DESCRIPTION OF DISCHARGE: Cooling Water

DISCHARGE 001, 002, 003, 004

Summary of recent monitoring data from discharge of condenser cooling water.

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE

Parameter	Average	Maximum
Flow, MGD	41.2	62
Temperature, °F	67	102
Temperature rise, Δ°F	12	20
pH, S.U.	6.9 to 7.6	-
Total Chlorine Residual	0.1 mg/l	0.1 mg/.

ATTACHMENT B

2. During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to discharge from outfall serial number 001 and 002, condenser cooling water.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		Other Units(Specify)	Monitoring Requirements Measurement Frequency	Sample Type
	kg/day (lbs/day)	Avg. Monthly			
Flow-m ³ /Day (MGD)	-	-	(70)	Continuous*	Report Avg. Max/Min
Total Residual Chlorine	-	-	0.1 mg/l	Daily when in use	Grab

The temperature of the discharge shall at no time exceed a 20°F rise over the intake water temperature and at no time exceed a maximum of 105°F. Temperature shall be monitored continuously to report daily average and range.

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units and shall be monitored daily when in operation.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at a representative point prior to discharge to the Charles River.

* The flow rate shall be estimated from the pump capacity curves and operational hours.

ATTACHMENT B

3. During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to discharge from outfall serial number 003 and 004, Condenser Cooling Water.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	kg/day (lbs/day)	Other Units (Specify)	Measurement Frequency	Sample Type
Flow-m ³ /Day (MGD)	-	(35)	Continuous*	Report Avg. Max/Min
Total Residual Chlorine	-	0.1 mg/l	Daily when in use	Grab

The temperature of the discharge shall at no time exceed a 20°F rise over the intake water temperature and at no time exceed a maximum of 105°F. Temperature shall be monitored continuously to report daily average and range.

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units and shall be monitored daily when in operation.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at a representative point prior to discharge to the Broad Canal.

* The flow rate shall be estimated from the pump capacity curves and operational hours.

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),

Cambridge Electric Light Company
Kendall Square Station

is authorized to discharge from the facility located at

265 First Street
Cambridge, MA 02142

to receiving waters named

Charles River

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

This permit shall become effective on

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

This permit supersedes the permit issued on September 29, 1983.

This permit consists of 9 pages in Part I including effluent limitations, monitoring requirements, etc., and 19 pages in Part II including General Conditions and Definitions.

Signed this _____ day of _____

DRAFT PERMIT FOR REVIEW

Director
Water Management Division
Environmental Protection Agency
Region I
Boston, MA

Director, Division of Water
Pollution Control
Department of Environmental
Quality Engineering
Commonwealth of Massachusetts
Boston, MA

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is not authorized to discharge to the Charles River a final effluent to which it has added any pollutants, except as specified in this paragraph and in paragraphs 2 (page 5 of 9) and paragraph 3 (page 6 of 9).

- a. Chlorine may be used as a biocide. No other biocide shall be used without explicit approval from EPA and the Director. Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day.

(1) The quantity of total residual chlorine (total residual oxidants) discharged in once through cooling water from each discharge point shall not exceed a maximum concentration of 0.1 mg/l.

- b. The discharges shall not jeopardize any Class C use of the Charles River and shall not violate applicable water quality standards. Pollutants which are not limited by this permit, but which have been specifically disclosed in the permit application, may be discharged at the frequency and level disclosed in the application, provided that such discharge does not violate Sections 307 or 311 of the Act or applicable water quality standards.

- c. 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 Act, if the effluent standard or limitation so issued or approved:

(1) contains different conditions or is otherwise more stringent than any effluent limitation in this permit; or

(2) 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.

- d. The term "EPA" means the Regional Administrator (or designee) of Region I of the U.S. Environmental Protection Agency and the term "Director" means the Director of the Division of Water Pollution Control of the Massachusetts Water Resources Commission.
- e. There shall be no discharge of polychlorinated biphenyl compounds such as commonly used for transformer fluid.

DRAFT PERMIT FOR REVIEW

- f. The thermal plumes from the station:
- (1) shall not deleteriously interfere with the natural movements, reproductive cycles, or migratory pathways of the indigenous populations within the water body segment;
 - (2) shall have minimal contact with the surrounding shorelines.
- g. It has been determined that the circulating water intake structure employs the best technology available for minimizing adverse environmental impact. No change in the location, design or capacity of the present structure can be made without prior approval of EPA and the Director. The present design shall be reviewed for conformity to regulations pursuant to Section 316(b) when such are promulgated.
- h. All live fish, shellfish, and other aquatic organisms collected or trapped on the intake screens shall be returned to water of ambient temperature sufficiently distant from the intake structures to prevent reimpingement. All solid materials except leaves and twigs removed from the screens shall be disposed of on land.

DRAFT PERMIT FOR REVIEW

2. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

- 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) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or
 - (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).
- 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 C.F.R. §122.21(g)(7); or
 - (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).
- 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.

DRAFT PERMIT FOR REVIEW

2. During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to discharge from outfall serial number 001 and 002, condenser cooling water.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>			Other Units (Specify) Max. Daily	Monitoring Requirements Measurement Frequency	Sample Type
	kg/day (lbs/day) Avg. Monthly	Max. Daily	Avg. Monthly			
Flow-m ³ /Day (MGD)	-	-	(70)	(80)	Continuous*	Report Avg. Max/Min
Total Residual Chlorine	-	-	0.1 mg/l	0.1 mg/l	Daily when in use	Grab

The temperature of the discharge shall at no time exceed a 20°F rise over the intake water temperature and at no time exceed a maximum of 105°F. Temperature shall be monitored continuously to report daily average and range.

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units and shall be monitored daily when in operation.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at a representative point prior to discharge to the Charles River.

* The flow rate shall be estimated from the pump capacity curves and operational hours.

DRAFT PERMIT FOR REVIEW

3. During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to discharge from outfall serial number 003 and 004, Condenser Cooling Water.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		Other Units (Specify)	Monitoring Requirements Measurement Frequency	Sample Type	Report Avg. Max/Min
	kg/day (lbs/day)	Avg. Monthly				
Flow-m ³ /Day (MGD)	-	-	(35)	(40)	Continuous*	Grab
Total Residual Chlorine	-	-	0.1 mg/l	0.1 mg/l	Daily when in use	Grab

The temperature of the discharge shall at no time exceed a 20°F rise over the intake water temperature and at no time exceed a maximum of 105°F. Temperature shall be monitored continuously to report daily average and range.

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units and shall be monitored daily when in operation.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at a representative point prior to discharge to the Broad Canal.

* The flow rate shall be estimated from the pump capacity curves and operational hours.

DRAFT PERMIT FOR REVIEW

4. Biological Monitoring

No biological monitoring is required. Future monitoring may be required, however, upon permit reissuance. Any incidence of fish mortality associated with the thermal plume or of unusual numbers of fish impinged on the intake traveling screens shall be reported to the Regional Administrator and the Director within 24 hours by telephone report as required in Part II (1)(5) of this permit. A written confirmation report is to be provided within five (5) days. These reports should include the following:

- a. the kinds, sizes, and approximate number of fish involved in the incident.
- b. the time and date of the occurrence.
- c. the operating mode of the plant at the time of the occurrence.
- d. the opinion of the company as to the reason the incident occurred.
- e. the remedial action the company will take to prevent a reoccurrence of the incident.

DRAFT PERMIT FOR REVIEW

8. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Forms postmarked no later than the 15th day of the month following the completed reporting period. The first report is due on the 15th day of the month following the effective date of the permit.

Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Director and the State at the following address:

Permit Compliance Section
Compliance Branch
Water Management Division
Environmental Protection Agency
JFK Federal Building
Boston, MA 02203

The State Agency is:

Massachusetts Department of Environmental Quality Engineering
Massachusetts Division of Water Pollution Control
Northeastern Regional Office
5 Commonwealth Avenue
Woburn, Massachusetts 01801

Signed copies of all other notifications and reports required by this permit shall be submitted to the State at:

Massachusetts Department of Environmental Quality Engineering
Massachusetts Division of Water Pollution Control
Regulatory Branch
1 Winter Street
Boston, Massachusetts 02108

DRAFT PERMIT FOR REVIEW

C. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency and the Division of Water Pollution Control under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Director of the Massachusetts Division of Water Pollution Control 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.

DRAFT PERMIT FOR REVIEW