UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
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.: MA0004707

PUBLIC COMMENT PERIOD: 4/26/04 -

PUBLIC NOTICE NO.:

NAME AND ADDRESS OF APPLICANT:

Consolidated Edison Energy Massachusetts, Inc. (CEEMI)
111 Broadway, 16th Floor
New York, NY 10006

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

West Springfield Station
15 Agawam Avenue
West Springfield, MA. 01089

SIC CODE: 4911 **NAICS Code(s):** 221112

RECEIVING WATER: Connecticut River (Basin code 34 CONN)

CLASSIFICATION: Class B

CURRENT PERMIT **ISSUED:** 9-26-1988
EXPIRED: 9-26-1993
RE-APPLICATION: 3-25-1993

Table of Contents

1.0 Proposed Action, Type of Facility, and Discharge Location 3

2.0 Description of Discharge 3

3.0 Limitations and Conditions 3

4.0 Permit Basis and Explanation of Effluent Limitations Derivation 3
4.1 General Requirements 3
4.2 Facility Information 6
4.3 Permitted Outfalls 9
4.4 Derivation of Effluent Limits: Requirements for Steam Electric Power Generating Facilities and the Commonwealth of Massachusetts' Water-Quality Standards 13
4.4.1 Chlorine 14
4.4.2 pH 16
4.4.3 Polychlorinated Biphenyl Compounds 16
4.4.4 TSS 16
4.4.5 Oil and Grease 16

5.0 Technical and Regulatory Explanations 17
5.1 Section 316 of the Clean Water Act 17
5.1.1 § 316(b), Cooling Water Intake Structures 17
5.1.2 Thermal Discharge Effluent Limitations: Technology-Based, Water Quality-Based, Section 316(a) Variance-Based Limitations 20
5.1.3 §316 Related Biological and Thermal Studies 22
5.2 Essential Fish Habitat (EFH) 23
5.3 Endangered Species Act (ESA) 24

6.0 Monitoring Frequency 24

7.0 State Certification Requirements 24

8.0 General Conditions and Definitions 25

9.0 Comment Period, Hearing Requests, and Procedures for Final Decisions 25

10.0 EPA Contact 25

1.0 Proposed Action, Type of Facility, and Discharge Location

On March 25, 1993, the former owners of the West Springfield Station ("Station"; "Facility"), Northeast Utilities, applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge into the Connecticut River in West Springfield, Massachusetts.

The facility is engaged in the generation and distribution of electric power. The Station is a "peaking" facility, meaning that it primarily operates during peak electrical demand. Electricity is generated by means of one oil/gas fired simple cycle steam generating unit and two newly installed natural gas fired combustion turbine generators (CTG's). With these units combined, the Station has a total nominal capacity of about 200 megawatts (MW). The current owners of the Station, Consolidated Edison Energy Massachusetts, Inc. (referred to herein as CEEMI, the permittee, the applicant, or the company) submitted supplemental information April 22, 2002 and May 24, 2002. The Station has undergone major changes to its operations as described herein which has called for significant changes from the existing permit and are contained in the Draft Permit. The Essential Fish Habitat (EFH) Assessment Report is Attachment C and the Endangered Species Biological Evaluation is Attachment D.

2.0 Description of Discharge

Steam turbine condenser waste heat and lube oil cooling waste heat are rejected to the Connecticut River by means of once-through cooling. The discharges to the Connecticut River from the Station include: once-through cooling water, sandfilter backwash, intake screen sluice water, and storm water runoff. A schematic drawing of the flow of water at the facility and the various discharges from the facility is presented on Attachment A. A site plan is presented on Attachment B.

3.0 Limitations and Conditions

The proposed effluent limitations of the Draft Permit, the monitoring requirements, and implementation schedules may be found in Part I (Effluent Limitations and Monitoring Requirements) of the draft NPDES permit.

4.0 Permit Basis and Explanation of Effluent Limitations Derivation

4.1 General Requirements

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

When developing permit limits, EPA must consider the most recent technology-based treatment and water quality-based requirements. Subpart A of 40 CFR §125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations

and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA. EPA is required to consider technology and water quality-based requirements as well as all limitations and requirements in the current/existing permit when developing permit limits.

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. Effluent limitations guidelines for the Steam Electric Power Generating Point Source Category are found at 40 CFR Part 423.

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

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

Water-quality based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards. See Section 301(b) (1)(C) of the CWA. Receiving water requirements are established according to numerical and narrative standards adopted under state law for each water quality classification. When using chemical-specific numeric criteria to develop permit limits both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR 122.44 (d)(1) and are implemented under 40 CFR §122.45(d). The Region has established, pursuant to 40 CFR 122.45 (d)(2), a maximum daily limit and average monthly discharge limits for specific chemical pollutants.

The facility's design flow is used when deriving constituent limits for daily and monthly time periods as well as weekly periods where appropriate. Also, the dilution provided by the receiving water is factored into this process. Narrative criteria from the state's water-quality standards are often used to limit toxicity in discharges where: (1) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (2) toxicity cannot be traced to a specific pollutant.

EPA regulations require NPDES permits to contain effluent limits more stringent than

technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water-quality standards.

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 "reasonable potential" to cause or contribute to an excursion above any water-quality criterion. See CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

In determining reasonable potential, EPA considers: (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 permit's application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the species to toxicity testing; (4) known water-quality impacts of processes on wastewater; and, where appropriate, (5) dilution of the effluent in the receiving water.

The CWA requires that EPA obtain state certification confirming that all water-quality standards will be satisfied. The permit must conform to the conditions established pursuant to a State Certification under Section 401 of the CWA (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).

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 conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain Water Quality Standards.

The effluent monitoring requirements have been established to yield data representative of the discharges under the authority of Section 308(a) of the Clean Water Act, according to regulations set forth at 40 C.F.R. 122.41(j), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide continuous general information on the levels of regulated materials in the waste water discharge streams. The approved analytical procedures are to be found in 40 CFR 136 unless other procedures are explicitly required in the permit.

A permit may not be renewed, reissued or modified with less stringent limitations or conditions

than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(l)(1 and 2)]. EPA's anti-backsliding provisions found at 40 CFR §122.44(l) generally prohibit the relaxation of permit limits, standards, and conditions. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the anti-backsliding provisions found at Section 402(o) and 303(d)(4) of the CWA.

CWA §§316 (a) and (b) pertaining to thermal discharge and cooling water intake structure (CWIS) requirements, respectively, are discussed in Section 5.1 of this fact sheet.

4.2 Facility Information

The Station is located south of Memorial Bridge in West Springfield. Operation of this facility began in 1949 as a base load-electric generating station and was owned by Western Massachusetts Electric Company, a subsidiary of Northeast Utilities. In 1999 the Station was acquired by its current owner, CEEMI. The Station's generating capability includes a 107 MW oil or natural gas fired steam turbine (Unit 3) and an 18 MW oil fired combustion turbine (Unit 10). Unit 10 does not require cooling water and only operates as a peaking unit if extra capacity is required during the hotter days of the summer or the colder days of the winter. The Station also has a small auxiliary boiler for process and building heat and an emergency back-up generator. Unit 3 uses up to 69 million gallons per day (MGD) of non-contact, once-through river water for condenser cooling.

Steam Units 1 and 2 are permanently retired as of December 31, 2000 (last used in 1999) and are currently being decommissioned. Two new simple-cycle, gas-fired combustion turbine generators (CTG's) having a total nominal capacity of 98 MW were installed and began operating June 5, 2002. Each has an exhaust housing containing Selective Catalytic Reduction (SCR) and oxidation catalyst system for the control of nitrogen oxides (NO_x). The Company did not install a heat recovery steam generator with these units. Non-contact cooling water (NCCW) is still needed to cool the units lubricating oil system. A new cooling water intake pump for both units was installed in the same intake bay as Unit 3's intake pumps. The CTG intake pump runs at approximately 730 gpm continuously, although the CTG's have an operational constraint of 4800 hours/year based on the Massachusetts Department of Environmental Protection (MA DEP) Air Quality Plan Approval. The MA DEP has recently granted approval to CEEMI to operate the units an additional 720 hours per year using distillate oil. Station representatives also indicate that Unit 3 has been and continues to operate at approximate 10-20% capacity. Current operations at the Station are as follows:

Table 4.0: Power Generation Equipment Information for West Springfield Station

UNIT NUMBER	DESCRIPTION	CAPACITY	START DATE	FUEL

1	Combustion Engineering Boiler	48 MW	decommissioned	No. 6 fuel oil
2	Combustion Engineering Boiler	48 MW	decommissioned	No. 6 fuel oil
CT-1	Combustion Turbine	49 MW	2002	natural gas/ distillate oil
CT-2	Combustion Turbine	49 MW	2002	natural gas/ distillate oil
3	Combustion Engineering Boiler	107 MW	1957	No.6 fuel oil/ gas
10	Pratt & Whitney FT4A-8LF Combustion Turbine	18 MW	1969	kerosene
Auxiliary Boiler	Cleaver Brooks package boiler	(14MMbtu/hr) heat only	1994	No. 2 fuel oil
Emergency Generator	Reiner Generator Set	5 KW	1955	natural gas

There are two intake pumps that withdraw river water for Unit 3 condenser cooling (up to 69 MGD total). A portion of this water (up to 576,000 gallons per day (GPD) is diverted to both the hydrogen booster cooling system and to a sandfilter treatment system, prior to use for: 1- non-contact cooling needs within the plant (fans, pumps, etc.), 2- the bottom ash hopper seal water, and 3- maintenance cleaning. These internal Station wastestreams are either recycled, hauled off-site, or discharged to the local POTW. The company has requested permission to discharge the sandfilter backwash water to the river (see new internal outfall 020). There is another intake pump in the well house that runs continuously at 730 gpm and supplies water to the combustion turbine's lube oil cooling system. This pump is always running regardless of whether cooling water is needed because the Station is required to start-up within ten minutes of notification. The water used for cooling is first treated by sandfilters (as many as three) depending on the amount of cooling water required. See Outfall 001 of Section 4.3 - Permitted Sampling Locations for flow values during different operating scenarios. The company has also requested permission to discharge this sandfilter backwash water to the river (see new sampling location 010). The fourth pump in the intake well is used for spray washing the screens and runs at 600 gpm when operated. Finally, some storm water is also diverted to the river. The plant uses city water as indicated in the flow diagram (Attachment A). In summary, the discharges to the river include cooling water, sandfilter backwash, and storm water.

Prior to September, 2003 all internal waste streams were directed to a series of three ponds for settling/equalization. Although there was a permitted sampling location for the pond waters to discharge to the river, discharge had not occurred since May 2000 because the valve had been

closed, allowing the pond water to evaporate and infiltrate into the ground. One exception was in April, 2003 when the pond was allowed to discharge because of its high volume due to snow. The permittee, under an MA DEP Administrative Consent Order (ACO) dated February 16, 2001, has removed these ponds. The wastewater that used to be routed to the ponds is now being treated and discharged to the local POTW (this is the Bondi Island Treatment Plant) via the sanitary sewer system. (Note: the ponds were not drained to the river.)

Storm water from the office, turbine hall, and boiler roofs as well as some yard drains are considered areas of the facility that are associated with industrial activity (ie. could possibly cause contamination). The storm water from these areas discharge to a on-site swale that drains directly into the soil.

The permittee has requested permission to discharge both sandfilter backwash streams (Unit 3 and the CTG's) to the river. These streams are considered low volume wastes according to 40 CFR 423 for Steam Electric Generating facilities. The Draft Permit contains limits with monitoring and reporting requirements for both streams (new internal outfall locations 010 and 020).

A reverse osmosis system, located in the basement, uses city water to produce "clean water" for injection into the turbine to cool the emissions and reduce NOx and to make distilled water for the existing steam Unit 3. The RO system is run when needed and generates approximately 3:1 ratio of reject water to clean water. The maximum amount of reject water is estimated at 44,000 GPD. RO reject water is now and will continue to be diverted to the Unit 3 clean water sump for non-contact cooling water for plant equipment. This is a closed-loop system but runs on a deficit due to leaks. (Leaks go to POTW via the dirty water sump) For periods when maintenance is required on the sump the RO reject water will be routed to the POTW.

The Unit 3 fly ash sluicing system had used river water which was subsequently discharged to the ponds. However, since September 1, 2003, a dry system has been used.

4.3 Permitted Outfalls

Outfall 001

The current permit associates this site with the discharge of cooling water from the old steam-generating Units 1 and 2 from April through October. The current permit limits for flow at this location are 70 MGD average monthly and 90 MGD maximum daily. As previously indicated, these Units are permanently retired and have been replaced by the CTG's. The CTG's use non-contact cooling water (NCCW) from the river to cool the lube oil system for these units via a heat exchanger. The permittee has replaced the two circulating water pumps in the Screen Well

House, which were used to provide cooling water to the old Units 1 and 2, with one smaller pump to deliver and discharge a maximum of 1.1 MGD of NCCW. The cooling water will discharge to the river via the existing Outfall 001 at a flow rate significantly lower than the current permit limits. Compared to the existing permit, the flow limit for this outfall has been reduced by 98% in the Draft Permit. Moreover, along with other changes in operations at the Station, the total flow to the river from the Station has been reduced by 57%. The new intake pump is located in the same bay of the Screen Well House as the Unit 3 pumps. Therefore, the other bay that was used for the old Units 1 and 2 will remain stagnant. The new intake pump for the CTG's delivers river water to a series of sandfilters. Three 200 gpm pumps are used to deliver filtered water from the sandfilters to the CTG heat exchangers. Any unused/not needed water from the intake well, will be discharged directly through Outfall 001, unfiltered and unheated, depending on how much cooling is needed, at any given time. This amount is dependent on the operation frequency and duration of the CTG's but could potentially be as high as 1.1 MGD. The different scenarios are as follows:

1- With no cooling needed - 730 gpm bypassing to outfall (1.1 MGD)
2- With one cooling system in operation - 530 gpm bypassing to outfall
3- With two cooling systems in operation - 330 gpm bypassing to outfall
4- With two cooling systems and one sandfilter in backwash - 130 gpm bypassing to outfall

The effect of heated effluent on the river requires a variance of State Water Quality Standards in accordance with CWA §316(a). This will be discussed in more detail in Section 5.1.2 of this fact sheet.

The heat exchangers will be manually cleaned when necessary for biogrowth. Therefore, biocides will not be used.

The other waste stream that will discharge through Outfall 001 is the CTG units' three sand-filters' backwashes. Each filter is backwashed approximately 12 hours per day in the spring and fall (432,000 GPD) and 12 hours per week in the summer and winter. These waste streams are considered low volume wastes according to 40 CFR 423 and will therefore be sampled upstream, prior to mixing with the non-contact cooling water (See new internal outfall 010).

Outfall 001 is a 54"diameter pipe to the river downstream of the cooling water intake structure (CWIS). (see site map- Attachment B) The actual location that pH samples will be collected is a spigot located on the non-contact cooling water discharge pipe, after the heat exchangers in the basement of the boiler building (samples may include sandfilter backwash water when operating). Temperature will be measured continuously in the discharge pipe as it exits the building. A maximum flow of 1.1 MGD will be discharged at a maximum temperature of 91°F and a maximum delta T of 20°F based on Station records since start-up of these units in 2002 - with a one degree margin for error. Flow is measured as "intake" flow and is derived from pump capacity curves and operational hours.

<u>Outfall 002</u>

This permitted sampling location was for November-April monitoring of the old Units 1 & 2 and is no longer required for permit reissuance because seasonal temperature limits are not needed for the new CTG cooling system.

<u>Outfall 002A</u> (previously Outfall 003)

Outfall 002A is a 72"diameter pipe to the river downstream of Outfall 001 (see site map-Attachment B). The primary source of wastewater through this location is the cooling water from the Unit 3 condenser. Unit 3 is an existing 107 net MW oil or natural gas fired boiler. The current permit limits maximum flow at 72 MGD with both cooling water pumps operating at 25,000 gpm each for 24 hours. According to Station data the discharge maximum is 69 MGD. Therefore, the Draft Permit limits both the maximum daily and average monthly flow at 69 MGD. After the Station shifted from a base load to a peaking facility several years ago, combined with the two new CTG's, the use of Unit 3 has decreased significantly. The average flow during all operating days in 2001 was approximately 39 MGD (See Supplemental Information Report, April 2002, prepared for CEEMI by Earth Tech, Inc.). The average flow for 2002 was 46.5 MGD and for 2003, 42 MGD. The Draft Permit requires the permittee to maintain a log documenting operating hours and cooling water use.

There are two circulating water pumps in the Screen Well House that are used to provide cooling water to Unit 3. One pump is used until Unit 3 produces approximately one half load, at which time the second pump is brought into operation. Each pump's max capacity is approximately 25,000 gpm, without variable speed capability. Flow figures on the DMR's are estimates calculated by tracking the number and duration of pump activations. The permittee commonly uses one pump in winter and two in summer.

When Unit 3 is off-line for more than 3 days to a week (and during stand-by), the Station switches to "no-circulation mode" and uses the screen wash pump (600 gpm) for its auxiliary cooling water needs throughout the plant, drastically reducing the amount of water taken from the Connecticut River.

Sodium hypochlorite (NaOCl or "hypo") is added to prevent biological growth in the condenser. No treatment is required during winter months. The current permit requires and the Draft Permit will continue to require that chlorination does not occur more than 2 hours per day and at a maximum daily level of 0.20 mg/l in accordance with 40 CFR 423 for steam electric power generating point sources. The average monthly limit of 0.13 mg/l was calculated based on Water Quality Standards (See Section 4.4.1 of this fact sheet). The sodium hypochlorite injection system is located in the basement of the boiler house just after the emergency water supply system location. The hypo pump activates 8X/day, every three hours, for 15 minutes/cycle. After the hypo injection point, a small portion of the cooling water is directed to the hydrogen cooling booster system and the Unit 3 sandfilters. The water is pumped through three 15 foot diameter sandfilters, in series, prior to use for either auxiliary cooling needs including small miscellaneous pumps, four compressors, three feed water pumps, and fans, and the bottom ash

hopper seal. (As previously mentioned, the waste water from these operations are either recycled, discharged to the local POTW, or hauled off-site) The sandfilter backwash will discharge through outfall 002 via a new internal sampling location (See outfall 020). The hydrogen booster pumps require approximately 2 MGD of non-contact cooling water which also discharges through outfall 002.

The location where condenser cooling water samples are collected is a spigot on the NCCW discharge line, after the Unit 3 condenser, in the basement of the boiler house (samples may include sandfilter backwash water when operating). Temperature is measured continuously in the discharge pipe as it exits the building. The current permit limits temperature as follows: Maximum temperature = 113°F; Temperature differential (ΔT) = 49°F (max winter) and 44°F (max. summer). Temperature differential is the difference in temperature of the water between the intake and the discharge.

The temperatures of the incoming water, outfall water, and differential are monitored by staff in the control room. An audible alarm alerts at three set points prior to reaching the permit limit. The new Draft Permit temperature limits were reduced from the existing permit because operational data showed that the facility could routinely discharge at these lower temperatures. The Draft Permit temperature limits are:

Summer period - maximum temperature = 112°F and ΔT = 37°F
Winter period - maximum temperature = 100°F and ΔT = 48°F

<u>Outfall 002B</u> (previously Outfall 004)

This permitted sampling location is for November-April (winter period) monitoring of Unit 3 and the permittee has verbally requested that seasonal temperature limits remain for the Draft Permit. The temperature limits are discussed above (Outfall 002A).

<u>Outfall 021</u>

This permitted sampling location was for discharges from the ash settling pond. These ponds have been removed (as directed by MA DEP's 2-16-01 Administrative Consent Order). The process waste streams are now directed to the local sewer/POTW. (September 2003) Therefore, this outfall is no longer required.

<u>Outfall 005</u>

This outfall carries intake screen sluice water to the river via a trough located under several floor grates, after the rotating screens in the Screen Well House. The pump is located in the same bay as the two Unit 3 intake pumps and the CTG's intake pump. The maximum flow rate of this pump is 600 gpm. The screen wash process is run intermittently depending on the season. During the spring and fall when river grass and leaves respectively clog the screens, the spray wash is used 6-8 hours/day (2 hrs every 3-4 hrs). During the summer and winter, the sreenwash may be used only for an hour or two per day (½ hour intervals). Therefore, total volume used

ranges from 36,000 GPD to 288,000 GPD. The pressure of the wash water is 100psi. This is high pressure and may cause damage to fish. Draft Permit requirements addressing this situation are described in Section 5.1.2 of this fact sheet regarding adherence to CWA §316(b).

Currently, only pH is monitored at this location. As the permittee requested, the pH monitoring requirement will be removed at this location because the sluice water is pumped directly from the intake well, prior to chlorination and does not come into contact with any other sources. Monitoring for temperature and pH is not included in the Draft Permit because they can not be changed from ambient conditions. The one exception to this is when the plant needs to use its "warming pipe," which is located just prior to the bar racks. This set-up was designed to keep ice from forming on the screens and trash (bar) rack, which could also cause damage to the pumps. The warming pipe is used during extremely cold winter conditions when the actual river temperature is in the low 30's. Consequently, the intake temperature is raised approximately 10 degrees but should have no adverse affect on any fish sprayed off the screens. Intake temperature, for use in determining temperature differential and compliance with permit limits, is measured continuously using a probe located 30-40 feet from the intake in the river and is not affected by the operation of the warming pipe. Data provided by the company shows a possible one degree difference between the old probe location and the new location.

During the site visit on 11-16-01, the river bed was at least three feet from the end of the "debris return trough" and the screen wash water fell from a height of approximately 2-5 feet onto a cement platform. Impinged fish are not afforded a safe return to the river under low river flow conditions, although Station representatives indicate that minimum numbers of fish are seen on the screens. Draft Permit requirements addressing this situation are described in Section 5.1.1 of this fact sheet regarding adherence to CWA §316 (b).

Outfall 006

This current permitted sampling site, located in the river adjacent to the Screen Well House, includes storm water discharges from the parking lot, yard areas, office area, and boiler house/turbine hall roofs via four catch basins. As previously mentioned, all potentially contaminated roof run-off and other storm water related to industrial activity are now directed to an on-site storm water swale, except for several catch basins located near the fuel unloading area. These catch basins drain to outfall 006 along with the electrical control room roof drains. The nearest drain to the unloading area is covered during fuel transfer to prevent accidental or incidental discharge of spilled fuel to the catch basin. The sampling site description is changed in the Draft Permit so that samples are taken from this catch basin, which happens to be the last available sampling point before discharging to the river. In addition, sampling is to be performed within the first hour of a rain event to account for accidental/incidental spillage.

New Sampling Site: Internal Outfall 010

As previously discussed, the new intake pump for the CTG's delivers river water to a series of sandfilters. Three 200 gpm pumps are used to deliver water from the sandfilters to the CTG heat exchangers. Each filter is backwashed approximately 12 hours per day in the spring and fall (432,000 GPD) and 12 hours per week in the summer and winter. This waste stream is considered a low volume waste according to 40 CFR 423 and will therefore be sampled separately, prior to mixing with the non-contact cooling water of Outfall 001 for the following parameters: Total Suspended Solids (TSS) and Oil and Grease. In addition, data collected during the permit renewal process indicates that zinc and ammonia-N are constituents of the wastestream, but at levels that have no reasonable potential to violate Water Quality Standards.

New Sampling Site: Internal Outfall 020

A portion of the Unit 3 intake water (up to 576,000 GPD) is diverted (using a 400 gpm pump) to three, 15 foot diameter sandfilters, in series, prior to use for non-contact cooling needs within the plant (fans, pumps, etc.), the bottom ash hopper seal water, and maintenance cleaning. Each filter is backwashed at a rate of 150 gpm for approximately 12 hours per day in the spring and fall (324,000 GPD) and 12 hours per week in the summer and winter. This waste stream is considered a low volume waste according to 40 CFR 423 and will therefore be sampled separately, prior to mixing with the non-contact cooling water of Outfall 002A/B for the following parameters: TSS and Oil and Grease. Since chlorine is injected (for biofouling control) prior to the sandfilter, the backwash water also contains chlorine, at the same levels as the cooling water, if backwash occurs during chlorination. Therefore, this wastestream does not dilute the chlorine concentration of the NCCW.

4.4 Derivation of Effluent Limits: Requirements for Steam Electric Power Generating Facilities and the Commonwealth of Massachusetts' Water-Quality Standards

Regulations for "Steam Electric Power Generating Point Source Category" are found at 40 CFR Part 423. The Massachusetts State Water-Quality Standards are found at 314 CMR 4.00.

4.4.1 Chlorine

Acute Water-Quality Based Limit (Maximum Daily), Outfall 002A/B

The existing permit limits the Total Residual Chlorine (TRC) concentration to 0.2 mg/l (daily maximum) at Outfall 002. This limit was based on the technology based standards for Steam Electric Power Generating Point Sources (40 CFR 423). The following was derived based on the State of Massachusetts' acute water-quality standard for chlorine in freshwater and the dilution provided by the receiving water. See below:

Massachusetts Acute Chlorine Standard = 0.019 mg/l

Dilution = 12:1 (7Q10)

The dilution was calculated using 1276 cfs as the 7Q10 number for the river expanse adjacent to the West Springfield Station. This number was determined using the EPA's DFLOW Model (uses local USGS gage data) for both the Chicopee River and the Connecticut River below the Holyoke Dam. The Chicopee River joins the Connecticut River down stream of the Holyoke Dam and upstream of the Station. Data from 1947 through 2002 was used in determining that the 7Q10 for the Chicopee River is 126 cfs. Data from 1984 through 2002 was used in determining that the 7Q10 for the Connecticut River below the Holyoke Dam is 1150 cfs. (1150 + 126 = 1276)

Max Outfall 002A/B flow is 69 MGD x 1.55 cfs/1 MGD = 107 cfs
Dilution calculation is 1276/107 = 11.9

Permit Limit = Standard x Dilution

Permit Limit = (0.019 mg/l) x 12 = 0.23 mg/l

This water quality based calculated limit is higher than the current permit limit of 0.2 mg/l. Comparison of water quality based versus technology derived limits indicates that the technology based limit is more stringent than the water quality derived limit. Therefore, the technology limit will be applied to the Draft Permit, consistent with the current permit.

Chronic Water-Quality Based Limit (Average Monthly), Outfall 002A/B

Massachusetts regulations contain a freshwater chronic criteria of 0.011 mg/l for chlorine. Using the 12:1 dilution factor previously derived for the receiving water, the calculated water-quality based limit is:

Average Monthly Chlorine Concentration = (0.011 mg/l) x 12 = 0.13 mg/l

Since there is no published average monthly technology based limit and the facility has a reasonable potential to cause or contribute to an excursion above the chronic water-quality standard for chlorine, the water-quality limit will be applied to the Draft Permit because it is a lower value (more stringent) that the current permit limit of 0.15 mg/l.

Note: The effluent guidelines allow, at the permitting authority's discretion, TRC limits to be expressed as either mass (pounds) or concentration (mg/l).

Effluent Guideline Limit (Instantaneous Maximum)

In the effluent guideline for "Steam Electric Power Generating Point Source Category", EPA has established a technology-based maximum discharge concentration of 0.20 mg/l for Total Residual Chlorine ("instantaneous maximum"), as defined in 40 CFR 423.11, based on the best available technology economically achievable (BAT). This technology based effluent limit applies to plants with a total generating capacity of more than 25 megawatts and once-through cooling water systems. Each individual generating unit is not allowed to discharge chlorine for more than two hours per day, unless the discharger demonstrates to the permitting authority that a longer duration is necessary in order to control macro-invertebrate growth.

Currently, West Springfield Station is cooled via an open cycle system (Once-Through Cooling Water). Biofouling of the Unit 3 condenser tubing is controlled by the addition of chlorine, as sodium hypochlorite (NaOCl), to the cooling water. The NaOCl pump activates 8X/day, every three hours, for 15 minutes/cycle.

The existing permit specifies sampling and analysis of Outfall 002 for TRC once per week during a chlorination cycle. The Draft Permit specifies that this 0.2 mg/l TRC limit shall be an "instantaneous maximum", meaning that it is the value that shall not be exceeded, at any time. This definition is derived from the Steam Electric Power Generating Point Source Category, 40 CFR Part 423.

The above derived, technology- based TRC limit shall be measured at Outfall 002, prior to discharge into the Connecticut River. As noted above, the effluent guidelines specify that TRC shall be an "instantaneous maximum." EPA is aware of continuous chlorine monitoring equipment that currently satisfies the analytical requirements of 40 CFR Part 136, Table 1B. Therefore, in order to ensure that the grab samples (as required for compliance with the current permit) are not taken during times of low chlorine concentrations and are representative of an "instantaneous maximum", EPA requires that the facility measure and report TRC using continuous monitoring equipment.

For the Draft Permit, chlorine may be used as a biocide for the Unit 3 condenser. Except for chlorine, no other biocide shall be used without written approval from the Regional Administrator and the Commissioner.

Section 12.b.iii of the Draft Permit requires that if the permittee observes and determines that there has been a discharge related fish mortality event, the permittee is required to "Suspend all unit chlorination operations immediately after collection of water samples for TRC. If the discharge temperature is greater than 83ºF, the permittee will reduce the discharge temperature to 83ºF within two hours." This requirement is based on Massachusetts Surface Water Quality Standards, found at 314 CMR 4.00.

4.4.2 pH

The pH range for Class B waters is from 6.5 to 8.3 standard units (s.u.) as defined in the Massachusetts Surface Water Quality Standards, found at 314 CMR 4.00. Unless otherwise specified, pH shall be measured in the discharge pipes, Outfalls 001 and 002.

The pH limit for Outfall 006 remains "$\geq$6.5 and $\leq$8.0 Or not more than 0.2 s.u. outside the naturally occurring range" as in the existing permit.

4.4.3 Polychlorinated Biphenyl Compounds

Pursuant to 40 CFR Part 423, discharge of polychlorinated biphenyl compounds (PCBs) is prohibited and any PCB's at the facility must be disposed of in accordance with 40 CFR 761.

4.4.4 TSS

40 CFR Part 423.12 limits the quantity of Total Suspended Solids (TSS) that can be discharged from low volume waste streams "by multiplying the flow of low volume waste sources times the concentration listed in the following table," which is 100 mg/l daily maximum and 30 mg/l monthly average. 40 CFR 423.12 (b)(11) states that the permitting authority has the discretion to express the limits as concentration based as opposed to mass-based. The Draft Permit includes the concentration based limits. The two low volume waste streams discharged are from the CTG sandfilter backwash (432,000 GPD max) and the Unit 3 sandfilter backwash (324,000 GPD-max). The Draft Permit requires that these limits are met at internal Outfall 010 (CTG) and internal Outfall 020 (Unit 3).

4.4.5 Oil and Grease

The derivation of the draft permit's limits for Oil and Grease is analogous the that of TSS. The limits in the Draft Permit for Oil and Grease are 20 mg/l maximum daily and 15 mg/l average monthly. These limits apply at the both new internal Outfalls 010 an 020.

The Oil and Grease limit for Outfall 006 remains a maximum daily limit of 15 mg/l as in the existing permit. This value is the median concentration of Storm Water Effluent Limitation Guideline (40 CFR Part 419) and is used as a benchmark value for appropriate facilities that are covered under the EPA's Storm Water Multi-Sector General Permit for Industrial Activities. (See Federal Register/ Vol. 65, No. 210, pg. 64767)

5.0 Technical and Regulatory Explanations

5.1 Section 316 of the Clean Water Act

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(a) regarding thermal discharges and CWA §316(b) regarding cooling water intake structures. CWA §316(a) applies if the permit applicant seeks a variance from technology-based and water quality-based effluent limitations for the discharge of heat. To obtain the variance, the applicant must demonstrate to the satisfaction of the EPA (or, if appropriate, the State) that the alternative effluent limitations proposed will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the receiving water body. 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.

Both CWA §§ 316(a) and 316(b) apply to this permit; §316(a) due to the proposed thermal discharge in excess of that allowed by State Water Quality Standards, and §316(b) due to the presence and operation of a cooling water intake structure.

5.1.1 § 316(b), Cooling Water Intake Structures

CWA §§316(b) governs requirements related to cooling water intake structures (CWIS) and requires "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." On December 18, 2001, EPA promulgated final §316(b) regulations providing specific technology standard requirements for *new* power plants and other types of *new* facilities with CWISs. 66 Fed. Reg. 65255 (Dec. 18, 2001) (effective date of the regulations is January 17, 2002). These regulations do <u>not</u>, however, apply to *existing* facilities such as West Springfield Station. On

February 16, 2004, EPA also issued final §316(b) regulations for existing power plants with flows of 50 million gallons per day or more (so-called "Phase II" facilities), such as West Springfield Station. Until the new Phase II Regulations are effective, EPA continues the longstanding practice of applying §316(b) on a case-by-case basis to existing facilities.

If the Phase II Regulations become effective before the issuance of the final permit, then prior to issuing the final permit, EPA will assess the BTA requirement proposed in the Draft Permit in the context of the new regulations. During the public comment period for this permit, EPA invites comment on whether the BTA requirements proposed in the draft permits are consistent with the new 316(b) regulations.

"Location"

The West Springfield Station's CWIS is located away from the main channel of the river, in shallow water on the inside curve of the natural meandering of the river. River currents are sluggish adjacent to the intake structure in an area less likely to be where routine fish passage takes place. (See Essential Fish Habitat Assessment - Attachment B) The draft permit fact sheet prepared in 1996 indicates that, "In 1977, EPA and the State required that the permittee make a count of all fish impinged upon the rotating intake screens. The rate of impingement was sufficiently low for the survey to be terminated." Notwithstanding this remark, the impact of impingement has not been fully demonstrated. Therefore, the Draft Permit requires the permittee to again perform impingement studies. The location of the CWIS reduces the adverse environmental effects (impingement and entrainment) and is considered a component of BTA for this case specific situation.

"Design and Construction"

The West Springfield Station's CWIS is located in the Screen Well House and consists of two intake bays. Each bay is approximately 9.5 feet wide and 45 feet deep. The bay used for the old Units 1 &2 will remain unused and stagnant. A floating skimmer is used in the river, around the opening of the CWIS, to block debris from entering the screens. Water flows through 6" bar racks that are manually cleaned periodically. The water then flows through a vertically rotating (10 fps), 8 ft wide, screen having approximately 3/8" mesh and no fish collection buckets. A "high-pressure" (100psi) spray wash is used to dislodge leaves and debris from the screens at a rate of 600 gpm. The Draft Permit requires that the permittee install a low pressure (<30 psi) (Supplement to Background Paper 3: Cooling Water Intake Technologies, September 1996, Fact Sheet No. 15) screen spray wash prior to or in replacement of the currently existing high pressure spray wash. This requirement is to increase the chances of survival of impinged fish and thus minimize the adverse environmental affect of the CWIS "design." The screen wash process is run intermittently depending on the season. During the spring and fall when river grass and leaves respectively clog the screens, the spray wash is used 6-8 hours/day (2 hrs every 3-4 hrs). During the summer and winter, the sreenwash may be used only for an hour or two per day (½ hour intervals). The resulting sluice water enters a trough and discharges back to the river on the south side of the House, approximately 80 feet downstream (see Outfall 005 and Attachment B).

There is a 3-8 foot drop from the return trough to the water at the river bank and during low flows the discharge is to the bank directly, assuring no survival for any fish present. Therefore, the Draft Permit will include requirements to modify the current fish return structure in a manner that always returns fish to water of sufficient depth for fish locomotion. The construction of these modifications shall be done in accordance with appropriate federal, state, and local regulation governing construction of waterways and banks. With approved mitigation measures, this construction is not expected to pose significant adverse environmental impacts. The design and construction of this modified fish return structure is considered a component of BTA for this case specific situation.

"Capacity"

The two new Unit 1 and 2 CTG's require non-contact cooling water (NCCW) from the river to cool the lube oil system for these units via a heat exchanger. One new pump for the CTG's has been installed in the same bay as and located behind the Unit 3 pumps. The CTG intake pump runs at approximately 730 gpm continuously (1.1 MGD maximum). The current permit limits for flow at this location (Outfall 001) are 70 MGD average monthly and 90 MGD maximum daily. The CTG cooling water discharges to the river via the existing Outfall 001 at a flow rate significantly lower than the current permit limits. Compared to the existing permit, the flow limit for this outfall has been reduced by 98% in the Draft Permit.

There are two pumps used for Unit 3 condenser cooling; each pumps at a rate of approximately 25,000 gpm. When Unit 3 is off-line for more than 3 days to a week (and during stand-by), the Station switches to "no-circulation mode" and uses the Units 3 screen wash pump (600 gpm) for its cooling water needs throughout the plant, drastically reducing the amount of water taken from the Connecticut River.

These changes to operations at the Station represent a significant reduction in flow compared to the current permit limits. The total flow to the river has been reduced by 57%. This reduces the adverse environmental effects of the CWIS "capacity" and is considered a component of BTA for this case specific situation.

Summary

The adverse environmental impacts associated with the operation of the CWIS at West Springfield Station include the entrainment of larvae and small fish and the impingement of fish and possibly crustaceans. Entrainment and impingement seriously injure or kill a large percentage of the organisms involved. As currently operated, the plant can take in up to 71 million gallons per day of water from the Connecticut River, entraining and impinging organisms present in that water. While West Springfield Station's CWIS may have adverse environmental effects, the age and/or limited nature of the available biological monitoring leaves EPA unable to fully quantify or characterize the full magnitude of any impact. Therefore, the Draft Permit institutes biological monitoring designed to allow EPA to determine if any adverse impacts exists and the magnitude of those impacts if they do indeed exist.

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 considerable changes to the CWIS, beyond those required in the Draft Permit, and its operations would be environmentally warranted in light of the high costs that would be involved. For example, to lower the CWIS capacity, cooling towers could be retrofitted to the Station that would enable a dramatic reduction in the volume of cooling water needed from the Connecticut River. However, the cost of such a retrofit would be substantial. Therefore, until there is more definitive evidence of the magnitude of entrainment and impingement impacts (or new 316(b) regulatory requirements are effective), EPA is not prepared to propose modifications to the permit that would require such an extensive technological retrofit. EPA is proposing significant biological monitoring requirements for this permit to better determine the magnitude of environmental impacts associated with the CWIS and whether additional changes to the facility's CWA §316(b)-related permit requirements would be warranted in the future, either in a reissued or modified permit.

EPA has determined that some aspects of the present cooling water structure do not reflect BTA for minimizing adverse environmental impacts and EPA is requiring some operational and equipment changes that West Springfield Station can make to reduce the impact to impinged organisms. Namely, these required improvements to the fish return system are a low pressure spray wash and an extension to the return trough for delivery of fish back to the river during low river flow conditions. These are components of BTA for this facility.

Additionally, the permittee has significantly reduced cooling water flows compared to the current permit limits. The Station has reduced its use of cooling water (capacity) by more than 50% which is considered a component of BTA. In addition, Part I.A.14(q) of the Draft Permit requires that, "the circulating water pumps of Units 3 shall be operated only when the associated unit is either producing electricity, during unit warm up or cool down, or during brief periods of no longer than a few hours between unit operation, cool down and warm up." This provision for reducing the capacity of the CWIS will result in reduced environmental effects while meeting the Station's operational needs, and this provision is also a component of BTA for this facility.

Information on impingement, entrainment and entrainment mortality is notably lacking in the data currently available. Future impingement and entrainment studies required by Part I.A.11 of the Draft Permit will attempt to quantify present and future entrainment and impingement mortalities at the plant caused by the operation of the West Springfield Station's once-though cooling system.

5.1.2 Thermal Discharge Effluent Limitations: Technology-Based, Water Quality-Based, Section 316(a) Variance-Based Limitations

In developing effluent limitations, EPA compares technology-based and water quality-based requirements, and whichever is more stringent governs the permit requirements. For thermal

discharges, however, EPA may also consider granting a variance under Section 316(a) from either or both the technology-based and water quality-based effluent limitations if less stringent variance-based limitations will nevertheless be sufficient to "assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife" (BIP) in and on the water body receiving the discharge. As a practical matter, EPA has with some permits proceeded directly to developing permit limitations under a Section 316(a) variance if a set of limitations were determined to be sufficient to assure protection and propagation of the BIP. In such cases, determining the technology-based and water quality-based limitations would serve no practical purpose.

The state classification for the receiving waters of the CEEMI facility is Class B (warm water). Thus, the Water Quality Standards require that the in-stream water temperature shall not exceed 83 °F (28.3°C) and the rise in temperature due to discharge shall not exceed Δ5°F (2.8°C). Furthermore, any mixing zone applied to this discharge to achieve Water Quality Standards, must conform to the mixing zone requirements for the Water Quality Standards. The thermal discharge from the facility may exceed these Water Quality Standards due to temperature rise.

According to CWA §316(a), as codified at 40 CFR 125 subpart H, thermal discharge effluent limitations in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates that such 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 body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species effected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made.

EPA has reviewed the past temperature study performed at West Springfield Station. Based on the available data and the more recent reduction in flow, EPA does not see evidence of appreciable harm, and as a result, EPA can not justify requiring major changes in design, capacity, or operations in an effort to reduce thermal effects. However, EPA finds that this past study is not definitive with respect to the current state of the Connecticut River, and the current and future operation and equipment options at West Springfield Station. The temperature changes identified by the study in 1973 indicate potential for harm, but these effects have not been thoroughly identified. The future thermal studies required by Part I.A.11 of the Draft Permit are designed to try to determine the present effect of the thermal discharge on aquatic organisms, including benthic organisms.

The Draft Permit grants a §316(a) variance to allow the discharge of heat to the Connecticut River in excess of the numeric criteria for temperature in the Water Quality Standards. EPA is granting the §316(a) variance based on (1) data collected in1973 (Thermal Plume Study of the West Springfield Plant of the Western Massachusetts Electric Company) reflecting the operation of West Springfield Station and its potential for adverse effects on fish populations in the

Connecticut River at that time, (2) the absence of more recent data, and (3) the decrease in heat loading to the River due to flow reductions associated with plant changes. However, the Draft Permit requires the gathering and analysis of substantial additional and current information, to determine whether or not West Springfield Station continues to meet the protection standards for the §316(a) variance in light of current operations at the Station and effects of the thermal discharge on the Connecticut River in its current state. The results of this new increased monitoring will be used during the future reissuance(s) of the permit or permit modifications.

5.1.3 §316 Related Biological and Thermal Studies

EPA and MA DEP find that there is a lack of data on impingement mortalities, entrainment mortalities, thermal impacts, and the aquatic life populations impacted by cooling water intake and thermal discharge. Since the permit is in need for reissuance now, there are three potential ways EPA considered proceeding in the absence of up-to-date thermal and biological monitoring information:

1) Do not reissue the permit, leave the existing permit and all its conditions in effect, and require commencement of the needed bio-monitoring program pursuant to CWA § 308 authority and consistent with 40 C.F.R. § 122.21(g)(13) and 40 C.F.R. Part 125 Subpart H;

2) Reissue the permit in draft with proposed thermal discharge limitations based on applicable technology-based and water quality-based standards, rather than based on a CWA §316(a) variance. The rationale for this approach would be that because the old biological and thermal monitoring data and predictions are out-dated, there is insufficient recent information, and the permittee has not carried its burden of establishing that limits based on a variance will satisfy the standards of CWA §316(a). Similarly, CWIS requirements could be imposed under CWA §316(b) based largely on the capability of existing technologies to reduce adverse environmental impacts from the CWIS and the dearth of up-to-date biological information to enable a determination that the existing technology at the plant is minimizing adverse environmental effects. However, this approach would entail essentially disregarding the existing information, including the significant changes in operations at the Station, and could (if the permit were to become final and effective) entail very large costs for the permittee; or

3) Reissue the permit, including imposing the CWIS changes of Parts I.A.14(j) of the Draft Permit and the biomonitoring requirements of Part I.A.10-11, reducing temperature limits based on Station records (§316(a)-based conditions), and improving other provisions of the permit unrelated to the plant's cooling system. Under this approach, any additional changes to the permit warranted as a result of new monitoring information could be made either through permit modifications or at the time of the next permit reissuance. This approach takes into account past information, which did not produce evidence of appreciable harm from the plant's thermal discharge or CWIS. This approach also considers available, current information such as fish passage data at Holyoke Dam which provides evidence that the Connecticut River provides a habitat for the migration and propagation of anadromous fish. On the other hand, this approach recognizes that EPA does not have site-specific information to fully evaluate whether the

existing thermal discharges and CWIS are adequate under CWA §§ 316(a) and (b), respectively. The plant's once-through cooling system clearly has the capacity to entrain and impinge organisms. It is projected that the Connecticut River aquatic habitat will improve as a result of a variety of on-going pollution control efforts. The potential impact of the facility could likely affect more organisms as the health of the river improves. This increase in impact runs counter to the designated uses and narrative criteria in the State Water Quality Standards and the goals of the CWA, and there are clearly available, practicable technological approaches to reducing the adverse impacts of the plant's thermal discharge and CWIS. This third approach achieves significant environmental improvements over the status quo but does so by imposing requirements that are essentially consistent with the plant's existing technologies and operational plans. As a result, this approach should not entail large costs for the permittee.

EPA believes that the third approach outlined above is appropriate and consistent with CWA requirements. This approach accommodates:

1- a balanced consideration of the old information;
2- the important gaps in the contemporary information and the need for more thermal and biological monitoring;
3- the potential expense of requiring major retrofitting of technologies which may be disproportional to the benefit without a better understanding of the environmental benefits to be gained from such improvement;
4- the substantial, recent reduction in flow and thermal load that was achieved with the replacement of the old Units 1 and 2 with CTG units; and
5- improvements to the CWIS's fish return system that are required in the Draft Permit.

Thus, given the case specific circumstances with this permit, EPA is imposing tighter permit limits and increased monitoring requirements in this permit, and plans to consider whether or not further tightening of permit limits is warranted on the basis of the new information collected in the months ahead. Any changes that are warranted can be imposed either through a permit modification or at the time of the next permit reissuance.

EPA plans to use the data and information created through the newly required studies to assist the agencies in developing future NPDES permits for the West Springfield Station, including determinations regarding BTA for the cooling water intake structures and the evaluation of any future requests for discharge limits based on a CWA §316(a) variance.

In a letter dated October 31, 2001, EPA requested that CEEMI quantitatively define, to the extent possible with available information, the thermal, entrainment, and impingement conditional mortality rates caused by the operation of the Station. CEEMI responded by submitting a proposal for a demonstration document study plan dated May 24, 2002 (West Springfield 316
(a) and (b) Demonstration Document Study Plan). Many aspects of this proposal have been incorporated in the permit's required Sampling/Monitoring Plan.

5.2 Essential Fish Habitat (EFH)

Under the 1996 Amendments (PL 104-297) 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 actions, or proposed actions that EPA funds, permits, or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. § 1855(b). The Amendments broadly define essential fish habitat as, "... those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. § 1802(10). Adverse effect 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.

EFH is only designated for species for which federal Fishery Management Plans exist (16 U.S.C. § 1855(b)(1)(A)). EFH designations were approved for New England by the U.S. Department of Commerce on March 3, 1999.

As the federal agency charged with authorizing the discharge from this facility, EPA is in the process of consulting with the NMFS under section 305 (b)(2) of the Magnuson-Stevens Act for EFH (See Attachment C- "Essential Fish Habitat Assessment for Reissuance of the Discharge Permit for West Springfield Power Station"). This consultation will be complete before the permit is finalized.

5.3 Endangered Species Act (ESA)

The proposed limits are sufficiently stringent to assure Water Quality Standards or 316(a) variance provisions will be met, both for aquatic life protection and human health protection. The effluent limitation established in this permit ensures the protection of aquatic life and maintenance of the receiving water as an aquatic habitat. The Region finds that adoption of the proposed permits is unlikely to adversely affect any threatened or endangered species or its critical habitat. EPA is seeking written concurrence from the United States Fish and Wildlife Service on this determination (See Attachment D - "Endangered Species Biological Evaluation for Reissuance of the Discharge Permit for West Springfield Station")

6.0 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), 122.44 and 122.48.

7.0 State Certification Requirements

EPA may not issue a permit in the Commonwealth of Massachusetts unless the Massachusetts Department of Environmental Protection (MA DEP) either 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's Water Quality Standards or waives this certification. 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.

8.0 General Conditions and Definitions

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.

9.0 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, Office of Ecosystem Protection, Massachusetts State Program Unit, 1 Congress Street, Suite 1100, Mail Code CMA, 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. 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 the public hearings, 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 evidentiary hearing to reconsider or contest the final decision. Requests for formal evidentiary hearings must satisfy the Requirements of 40 CFR §124.74. In general, the reader should reference 40 CFR 124--PROCEDURES FOR DECISION MAKING, Subparts A, D, E and F for specifics relative to this section.

10.0 EPA Contact

Additional information concerning the Draft Permit may be obtained between the hours of 9:00 A.M. and 5:00 P.M. (8:45 A.M. and 5:00 P.M. for the state), Monday through Friday, excluding holidays from:

Ms. Sharon Zaya, Environmental Engineer
U.S. Environmental Protection Agency
Office of Ecosystem Protection
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023
Telephone: (617) 918-1995 / FAX No.: (617) 918-1505

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

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