UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0032034

PUBLIC NOTICE START AND END DATES:

NAME AND MAILING ADDRESS OF APPLICANT:

Indeck - Pepperell Power Associates, Inc
29 Mill Street
Pepperell, MA 01463

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Indeck Power Station
29 Mill Street
Pepperell, MA 01463

RECEIVING WATER(S): Nashua River (Basin MA81-07)

RECEIVING WATER CLASSIFICATION(S): Class B

SIC CODE: 4911 – Electric Power Generation

CURRENT PERMIT ISSUED: 9-26-1995

EXPIRED: 9-26-2000

RE-APPLICATION: 8-01-2000

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

On August 1, 2000, EarthTech, Inc., on behalf of the current owner of the Indeck-Pepperell Power Associates Facility (the "Station"), Indeck Capital Inc. ("Indeck"), applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for reissuance of the facility's NPDES permit to discharge wastewater to the Nashua River in Pepperell, Massachusetts. The MassDEP determined that the application was complete in its letter to Indeck Capital Inc. (referred to herein as the permittee, the applicant, or the company) dated August 16, 2000. The US EPA Region 1 concurred in their letter to Indeck Capital Inc. dated August 30, 2000. The applicant also submitted supplemental information on January 25, 2002 and May 31, 2002.

The Station is located in Pepperell, Massachusetts (see Attachment A, locus plan). The facility is engaged in the generation and distribution of electric power and is typically run as a "peaking" facility, meaning that it operates primarily during peak electrical demand. The facility consists of a combined-cycle turbine with a nominal electrical generating capacity of 41 megawatts (MW). The facility uses natural gas as its primary fuel with light distillate oil as its backup fuel. The fuel oil is stored in above ground tank(s) within a diked area on the facility property.

The Station previously generated steam for the adjoining Pepperell Paper Company. Pepperell Paper Company ended operation in July of 2002. Currently all the steam generated by the facility is used to produce electricity.

The facility has undergone some wastewater process changes since issuance of its existing NPDES permit. These changes are described in Section 6.0 and are addressed in the draft permit as appropriate. The facility discharges its wastewater into the Pepperell Paper Company discharge pipe, which conveys the flow into a multi-port diffuser in the Nashua River.

2. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on data presented in the application and/or discharge monitoring reports is shown in Attachment B. Water flow charts for the facility are presented in Attachments C-1 (average) and C-2 (maximum).

3. Receiving Water Description

The Nashua River at the point of the Station discharge is classified as a Class B water body by the Massachusetts Surface Water Quality Standards 314 CMR 4.05(3)(b) which states that Class B waters have the following designated uses: *These waters are designated as habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated, they shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial*

cooling and process uses. These waters shall have consistently good aesthetic value. Class B waters shall be of such quality that they are suitable for the designated uses of protection and propagation of fish, other aquatic life and wildlife; and for primary and secondary contact recreation.

Federal regulations require each state to establish a program to monitor and assess the quality of its surface and groundwater and report on its findings. An "integrated list" report includes the reporting requirements of both Sections 305(b) ("Water Quality Inventory") and 303(d) ("List of Impaired Waters") of the Clean Water Act (CWA). Category 5 of the Integrated List constitutes the "Section 303(d) List" of waters that are impaired for one or more designated uses and require the development of total maximum daily loads (TMDL). The Massachusetts integrated list of waters is published by the State every two years and provides the status of all assessed waters and outlines which water bodies are not in compliance with particular State Water Quality Standards. In fulfillment of this requirement, and following the required public participation process, the final *Massachusetts Year 2004 Integrated List of Waters* was submitted to the EPA.

Certain reaches of the Nashua River suffer from documented impairments. The Nashua River segment designated MA81-07, where the Station's discharge is located, is currently on the State's 303(d) list of impaired waters due to the presence of excessive nutrients, pathogens and turbidity and is not meeting water quality standards for these parameters. The Massachusetts Department of Environmental Protection's (MassDEP) Nashua River Basin 1998 Water Quality Assessment Report, indicates that the water segment where the Station discharges is non-support (or moderate impairment) for both 'primary contact recreational use' and 'aquatic life use.' Non-support for *primary contact recreational use* is based on the presence of elevated fecal coliform bacteria levels during dry weather conditions. Non-support for *aquatic life use* is determined based on the results of benthic macroinvertebrate data. Generally, aquatic life use is supported when the water body sustains a native, naturally diverse, community of aquatic flora and fauna. The evaluations and determinations provided in the 1998 assessment report include field and laboratory evaluations of the biology, toxicity and river chemistry.

However, since this assessment, the Pepperell Paper Company has ceased operation. The paper company's water use was much greater than that of Indeck's (approximately 1.99 Million Gallons per Day (MGD) versus about 0.13 MGD). The Pepperell POTW is also permitted to discharge about 0.705 MGD of treated wastewater to the same reach of river. EPA has recently issued a draft permit for the POTW which includes limits on both phosphorous and ammonia (nutrients). Although no specific analysis has been undertaken to document the extent of the Station's impact on the river segment, EPA believes that Indeck's contribution to the river segment's impairment is likely minimal. This is due to the fact that Indeck is a relatively small contributor of wastewater to the river, and the water that is discharges is not expected to include nutrients, pathogens, or turbidity to any significant degree. In the event that a TMDL is developed for the Nashua River, EPA will re-evaluate its position with regard to the power plant's discharge.

4. Limitations and Conditions

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

5. Permit Basis: Statutory and Regulatory Authority

The Clean Water Act (CWA) prohibits the discharge of pollutants from point sources to waters of the United States without authorization from a National Pollutant Discharge Elimination System (NPDES) permit, unless the CWA specifically exempts a particular type of point source discharge from requiring a permit. The NPDES permit is the mechanism used to apply the CWA's pollution control standards and monitoring and reporting requirements directly to particular facilities. This draft NPDES permit was developed in accordance with the CWA, EPA regulations promulgated there under, and any other applicable federal and state legal requirements. 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 apply both technology-based and water quality-based requirements. To the extent that both may apply, whichever is more stringent governs the permit limits. 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, are set out in 40 CFR Part 125, Subpart A. Development of water quality-based permit limits is addressed in, among other provisions, CWA §§ 301(b)(1)(C) and 401, as well as 40 C.F.R. §§ 122.4, 122.44, 124.53 and 124.55.

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, technology-based effluent limitations must be complied with as expeditiously as practicable, but in no case later than either three years after the date such limitations were established or March 31, 1989, whichever comes first [see 40 CFR §125.3(a)(2)]. Since the statutory deadline for meeting any applicable technology-based effluent limits has already passed, NPDES permits must require immediate compliance with any such limits included in the 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 appropriate technology-based effluent limitations (*e.g.*, BAT limits) on a case-by-case basis using best professional judgment (BPJ). [See also 40 CFR § 125.3.]

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 CWA §§ 301(b)(1)(C) and 401. State Water Quality Standards provide a classification for all the water bodies in the state and specify the "designated uses" and numeric and narrative water quality criteria that water bodies in each classification should be able to achieve. For example, a water body might be given the "B" classification and the designated uses and numeric and narrative criteria for B waters might include things like providing fish habitat (a designated use), maintaining natural diurnal variations in water temperature (a narrative criterion), and not raising ambient water temperatures more than 5 degrees F above ambient for streams designated as cold water fisheries (a numeric criterion). State Water Quality Standards also contain antidegradation requirements to ensure that once a use is attained it will not be degraded. Permit limits must then be devised so that discharges and cooling water withdrawals do not cause violations of these 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 the "reasonable potential" to cause or contribute to, an excursion above any water-quality criterion. See CFR § 122.44(d)(1). An excursion would occur 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 concentrations and variability in the effluent and receiving water as determined from the permit application, the permittee's monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) the sensitivity of the species to toxicity testing; (4) the known water quality impacts of processes on wastewater; and, where appropriate, (5) the dilution of the effluent that would be provided by the receiving water.

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 concentrations, 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 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 often provide a basis for limiting 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. See 40 CFR § 122.44(d)(1).

Under CWA § 401, EPA may not issue an NPDES permit unless it first obtains a certification from the state confirming that all water-quality standards will be satisfied or the state waives its certification rights. If the state issues a certification with conditions, then the permit must conform to the conditions. See 40 CFR §§ 124.53 and 124.55.

As stated above Water Quality Standards include: (1) designated uses for a water-body or a segment of a water-body; (2) numeric and/or narrative water quality criteria to protect the 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 and associated cooling water withdrawals to assure that the applicable Water Quality Standards for the receiving waters are satisfied. These standards also include requirements for the control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless site-specific criteria are established. EPA has determined that the conditions of the proposed draft permit will satisfy Water Quality Standards.

The Draft Permit's effluent monitoring requirements have been established under the authority of CWA §§ 308(a) and 402(a)(2) and in accordance with 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, representative information on the levels of regulated materials in the wastewater discharge streams. The approved analytical procedures are to be found in 40 CFR Part 136 unless other procedures are explicitly required in the permit.

The CWA's anti-backsliding requirements prohibit an NPDES permit from being renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless an exception to the anti-backsliding requirements applies. See CWA §§ 402(o) and 303(d)(4) 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.

In addition to technology-based and water quality-based requirements, limits for thermal discharges may potentially be based on a variance from such requirements under CWA § 316(a). Furthermore, permit limits on cooling water withdrawals may be imposed in an NDPES permit under CWA § 316(b). The requirements of CWA § 316(a) and (b) are discussed in further detail below.

The permit must also satisfy the requirements of the Endangered Species Act (ESA) and the essential fish habitat (EFH) provisions of the 1996 Amendments (PL 104-297) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)). These

requirements are discussed in further detail below.

6. Explanation of the Permit's Effluent Limitation(s)

6.1 Facility Information

The Station's waste cooling water and process wastewater is discharged into a 6 inch diameter pipe which discharges into the adjoining paper mill property's 16 inch diameter pipe. The final discharge to the Nashua River is through a submerged eight port in-river diffuser. This discharge is designated as Outfall 001. Up until Pepperell Paper Company ended operation in July of 2002, the paper mill's treated effluent, was combined with the Station's discharge prior to final disposal through outfall 001. Since the Pepperell Paper Company mill is no longer discharging, the only wastewater discharged through Outfall 001 is from the Indeck facility.

The existing permit requires monitoring of the Station's effluent prior to the point of mixing with the paper mill discharge. This requirement is retained in the draft permit in case the paper mill restarts any operations.

In order to meet the requirements of federal regulations 40 CFR Part 423, *Steam Electric Power Generating Point Source Category*, the Indeck draft permit has been revised to include multiple effluent monitoring locations, for both individual process flows and end of pipe combined flow. These monitoring locations are specified in the permit and are discussed below.

6.2 Internal Waste Streams

The facility has four internal wastewater streams. These streams include wastewater from the following sources: 1) cooling tower blowdown; 2) the building sump (combined wastewater from the oil/water separator, floor drains, heat recovery boiler, pack boiler, water softening equipment, miscellaneous equipment, and storm water); 3) the demineralizer regeneration system stream, and; 4) metal cleaning waste.

See **Attachments C-1 and C-2** for facility process flow and discharge schematics. The internal wastewater streams are further described as follows:

6.2.1 Cooling Tower Blowdown

This wastewater stream discharges at a daily maximum rate of 60,000 gpd and an average monthly rate of 15,250 gpd. The 60,000 gpd maximum daily flow occurs during cooling tower maintenance, approximately once per year. The cooling tower water is treated with slimicides and corrosion/deposition control chemicals (see below for a list of chemicals used at the facility).

This internal outfall is designated as outfall 001A.

6.2.2 Building Sump

This wastewater stream discharges at a daily maximum rate of 35,000 gpd and an average monthly rate of 9,750 gpd. The sump collects pack boiler blowdown, water softener equipment backwash, heat recovery blowdown, miscellaneous equipment wastewater, and storm water. The pack boiler blowdown, water softener equipment backwash, miscellaneous equipment wastewater, and storm water are treated by an oil/water separator before entering the building sump. The heat recovery boiler blowdown discharges directly to the building sump, without first passing through the oil/water separator or any other treatment technology.

Prior to 1996 all building sump flow was discharged directly through outfall 001. In early 1996, Indeck began recycling the building sump contents by routing this wastewater stream to the facility's cooling tower system. Since recycling this water reduces the amount of fresh makeup water needed for cooling tower operation, this practice has become the normal operational mode.

This internal outfall is designated as outfall 001B.

6.2.3 Demineralizer Regeneration/pH Neutralization System Wastewater

This wastewater stream discharges at a maximum daily rate of 70,000 gpd and an average monthly rate of 8,750 gpd. This effluent is batch fed directly to the 6 inch force main for disposal through Outfall 001, after mixing with the cooling tower blowdown stream. A variety of chemicals are used to adjust the pH of this wastewater stream (see below for a list of chemicals used at the facility).

This internal outfall is designated as outfall 001C.

6.2.4 Metal Cleaning Waste

Occasionally various pieces of heat transfer equipment are cleaned to maintain their proper operation. Such equipment may include the fire side and water side of the boiler, the air heater, the condenser, the feedwater heater, and other equipment such as compressors and precipitators. Cleaning of this equipment may be performed with or without chemicals (such as acids or bases).

This intermittent waste stream discharges into the building sump. This internal outfall is designated as outfall 001D.

6.3 Chemical Use

Various chemicals used at the facility may be discharged during normal operation and maintenance. The permittee has provided in the NPDES permit renewal application a listing of all chemicals used at the facility. For a complete list of these products/chemicals and their purposes see Attachment D.

6.4 Permitted Outfalls

This permit contains limits, monitoring, and reporting requirements for internal outfalls 001A – 001D and external outfall 001. Internal outfall sampling and monitoring shall occur before these waste streams mix or commingle with other waste streams. Sampling and monitoring at outfall 001 will include the combined internal wastewater flows.

6.5 Dilution Factor Derivation

Water quality-based limitations are established with the use of a calculated available dilution provided by the receiving waters. Title 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water 7Q10 flow to assess the impact of the discharge upon the water quality of the river. The 7Q10 is the lowest observed mean river flow for 7 consecutive days, recorded over a 10 year recurrence interval. Additionally, the Station's maximum discharge flow is used to calculate available effluent dilution as required by 40 CFR §122.45(b).

The 7Q10 flow of the receiving water, the Nashua River in Pepperell, MA, is based upon historical flow data compiled at the nearest U.S. Geological Survey gage station, located at East Pepperell, MA approximately 200 feet downstream of the Station (NPDES permit no. MA0032034). Outfall 001, which previously had included the flow from the Pepperell Paper Company, discharges adjacent to and just upstream of the USGS gage station. Therefore, up until July of 2002 when Pepperell Paper ceased operations, the USGS stream flow record included the Pepperell Paper mill's process water flow from Outfall 001. Prior to July 2002 the significant majority of the flow from Outfall 001 was from the paper mill. USGS historical records of the East Pepperell gage (USGS No. 01096500) began in 1935. The drainage area upstream of the gage is 316 square miles. The 90% percentile flow at the gage is 90 cfs; the 50% percentile is 164 cfs; the August median flow is 150 cfs and the 7Q10 flow is 46.0 cfs (based on a review completed August 1998 by the USGS).

The 7Q10 of the Nashua River at the above referenced gage station is 46.0 cfs. The adjusted 7Q10 at the discharge/Outfall 001 is then, 46 cfs at the downstream gage station minus the 3.13 cfs long term average flow of Outfall 001 (based on Pepperell Paper Company monitoring), which equals 42.87 cfs. Based on the Station's maximum discharge flow of 130,000 gpd provided in their permit renewal application and included as a maximum limit in the draft permit, the dilution factor (DF) can then be calculated.

The calculation for this dilution factor is as follows:

DF = (7Q10 at discharge + Indeck Power Station maximum effluent discharge flow) / (Indeck Power Station maximum effluent discharge flow)

$$= \frac{42.87 \text{ cfs} + 0.2011 \text{ cfs}}{0.2011 \text{ cfs}} = 214$$

6.6 Derivation of Effluent Limits under the Federal CWA and/or the Commonwealth of Massachusetts' Water Quality Standards

The current permit combined all waste streams. This draft permit includes specific effluent limitations for the various waste streams such as cooling tower blowdown, metal or chemical cleaning wastes, and low volume waste sources (including floor and equipment drains, water softening backwash wastes, demineralizer regenerate waste, boiler blowdown).

These waste sources are separated in the draft permit according to federal effluent guidelines (minimum treatment technology standards) for the *Steam Electric Power Generating Point Source Category* which are found at 40 CFR Part 423. The draft permit also addresses the storm water from the Station's outside diked area.

The effluent guidelines parameters applicable to this facility include daily maximum and average monthly concentrations for free available chlorine, pH, TSS, oil & grease, copper, iron, 126 priority pollutants, and chromium and zinc. Technology-based limitations must be achieved independently, without dilution since dilution is not an acceptable means of achieving technology-based limitations. In addition, if metal cleaning wastes are greatly diluted, removal of the metals becomes more difficult and less efficient because of the dilution. The effluent guidelines at 40 CFR Part 423 were developed to take advantage of the higher removal efficiencies achievable by treating a concentrated waste stream. Note that metal cleaning wastes consist of wastes resulting from the cleaning of any metal process equipment with or without chemical cleaning compounds, such as boiler tube cleaning, etc.

In addition to the specific wastewater sources described above, alternate or additional effluent limitations are included in the permit for the combined flow discharged at Outfall 001. Combined flow limitations are required because of (1) receiving water quality, (2) application of state water quality standards, and (3) application of section 40 CFR 122.44(l)(1) which requires, under most circumstances, that re-issued permits contain effluent limitations remain at least as stringent as those contained in the previous permit.

The applicable water-quality standards for this discharge include the specific

Massachusetts water quality standards found at 314 CMR 4.05. The MA standards applicable to this permit include total suspended solids, temperature, pH, oil & grease and toxics.

The derivations of the draft permit limits for each wastewater source are explained below. The more stringent of the effluent guideline limits (i.e., 40 CFR Part 423) vs. the water quality-based limits apply and are included in the draft permit. These limits reflect any changes due to information provided in the permit application, the applicable federal regulations for the permittee's industrial category and also take into account results of past effluent monitoring and any industrial process changes.

Note that the effluent guidelines allow, at the permitting authority's discretion, FAC limits to be expressed as either mass (pounds) or concentration (mg/l). Concentration limits are specified in the draft permit.

6.6.1 Cooling Tower Blowdown – Internal outfall 001A

Technology based limits for Free Available Chlorine (FAC), 126 priority pollutants, chromium and zinc have been added to the draft permit. Flow limits have been added to the draft permit.

6.6.1.a Chlorine: Free Available Chlorine and Total Residual Chlorine

Chlorine and chlorine compounds can be extremely toxic to aquatic life. The existing permit's Total Residual Chlorine (TRC) effluent limit is 0.1 mg/l (daily maximum). This limit was derived based on the Commonwealth of Massachusetts' policy regarding chlorine discharge from power plants (see "Thermal Pollution Control in Massachusetts Coastal Waters") and State Certification requirements. The facility has requested that this limit be increased to 1.0 mg/l.

The effluent guidelines found at 40 CFR Part 423 specify that FAC shall be limited for the discharge of cooling tower blowdown, not Total Residual Chlorine. The effluent guidelines also prohibit the discharge of chlorine for more than 2 hours in any one day from any unit. This prohibition is included in the draft permit. The development of the appropriate limit is discussed below.

Water-Quality Based Limits

A review of water-quality limits for chlorine based on the Massachusetts acute and chronic water-quality standards for chlorine in freshwater and

an updated determination of dilution of the effluent in the receiving water is provided below.

In-stream chlorine criteria for the Nashua River are defined in the EPA Quality Criteria for Water, as adopted by the MassDEP into the state water quality standards, and as revised in the Federal Register: December 27, 2002 (Volume 67, Number 249). The criterion states that the average total residual chlorine (TRC) in the receiving water (Nashua River) should not exceed 11 μg/l for chronic toxicity protection and 19 μg/l for acute toxicity protection. The calculated daily maximum and average monthly water-quality based limits for chlorine are shown below:

Water-Quality Based Permit Limit = DF x Water-Quality Standard

Acute TRC WQ Standard = 19 μg/l

Chronic TRC WQ Standard = 11 μg/l

Daily Maximum TRC Limit = (214)$*$(19 μg/l)$*$(1 mg/l)/(1000 μg/l)

= 4.1 mg/l

Average Monthly TRC Limit = (214)$*$(11 μg/l)$*$(1 mg/l)/(1000 μg/l)

= 2.35 mg/l

Technology-Based Effluent Guideline Limits

Technology-based effluent guideline limits for cooling tower blowdown specify that limits for Free Available Chlorine (FAC) are applicable (see 40 CFR 423.13(d)). BAT guidelines for cooling tower blowdown specify FAC concentration limits of 0.5 mg/l maximum daily and 0.2 mg/l average monthly. Both the maximum concentration and average concentrations are based on a time period of chlorine release not to exceed two hours per day unless the discharger demonstrates to the permitting authority that a longer duration is necessary, per Section 423.13(d)(2). The permittee has not made such a demonstration and, therefore, the draft permit limits the use of chlorine to a maximum of 2 hours per day.

When determining a permit limit, EPA compares a technology derived limit to a water-quality derived limit and uses the more stringent limit of the two. In this case, the water-quality derived TRC limits (both acute and chronic) are less stringent than the technology derived FAC limits.

However, as discussed above, the Commonwealth of Massachusetts' limits the chlorine discharge from power plants to a value of 0.1 mg/l. Additionally, the existing permit limit is 0.1 mg/l and antibacksliding regulations require that a re-issued permit contain limits at least as stringent as those contained in the previous permit.

Another point EPA has considered in developing this permit is the difference between "free available chlorine" and "total residual chlorine." As discussed above, the technology-based guideline is limited in terms of free available chlorine whereas the state requirements are expressed in terms of total residual chlorine. By limiting total residual chlorine below the technology guideline value for free available chlorine (0.1 mg/l versus 0.2 and 0.5 mg/l), EPA believes it is applying the most stringent limit since free available chlorine is a component of total residual chlorine.

For the above stated reasons, EPA is maintaining the existing permit TRC limit of 0.1 mg/l for both the daily maximum and the average monthly values. The chlorine monitoring frequency remains at 1 per week as required in the existing permit

No biocides other than those biocides listed in Appendix D shall be used without prior written approval from the Regional Administrator and the Commissioner.

6.6.1.b 126 Priority Pollutants

40 CFR Part 423 prohibit the discharge of any of the 126 priority pollutants listed in Appendix A of 40 CFR Part 423, except for chromium and/or zinc, in detectable amounts. Further, Section 423.13(d)(3) states: "At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136. The draft permit includes this alternative compliance method.

Prior to providing engineering calculations, each chemical additive shall be screened or tested at least once prior to use in the cooling tower for priority pollutants. Reliable information supplied by the manufacturer relative to priority pollutants in a product may be substituted for actual tests. Dilution for such engineering calculations shall be based on the lowest projected cooling tower volume. The chemical concentrations used

in such engineering calculations shall be based on anticipated (or manufacturer's suggested) feed rates.

6.6.1.c Chromium and Zinc

Water-quality based limits for chromium and zinc may be calculated based on EPA's *National Recommended Water Quality Criteria: 2002* and the dilution provided by the receiving water. These criteria are hardness dependant. Hardness values of the receiving water, based on information gathered from past toxicity tests, indicates a range from 24 to 50 mg/l (1997 - 2002). The conservative hardness value of 50 and a dilution factor of 214 were used to determine potential water-quality based limits for chromium and zinc. The calculation follows:

Chromium Limits

Acute criteria = 1,022 μg/l total recoverable

Maximum Daily limit = (1,022 μg/l) x (1 mg/1000μg) x 214 DF

= 218 mg/l total recoverable

Chronic criteria = 48 μg/l total recoverable

Average Monthly limit = (48 μg/l) x (1 mg/1000μg) x 214 DF

= 10 mg/l total recoverable

Zinc Limits

Acute and Chronic criteria = 66 μg/l total recoverable

Maximum Daily and Average Monthly limits = (66 μg/l) x (1 mg/1000μg) x 214 DF

= 14 mg/l total recoverable

See Attachment E for a spreadsheet containing the input parameters (hardness, dilution, criteria) used in the calculation of the above limits.

The technology-based limits for chromium are 0.2 mg/l maximum daily and 0.2 mg/l average monthly. The zinc technology-based limits are 0.1 mg/l maximum daily and 0.1 mg/l average monthly.

The technology-based limits are more stringent and therefore have been applied to the draft permit. The draft permit requires 2/year monitoring and sampling for chromium and zinc. This requirement can be discontinued with the submittal and approval of satisfactory engineering calculation.

Since chromium and zinc are priority pollutants, the draft permit allows the permittee to demonstrate that they are not detectable in the final discharge through engineering calculations. Reliable information supplied by the manufacturer relative to priority pollutants in a process additive product may be substituted for actual tests. Dilution for such engineering calculations shall be based on lowest projected cooling tower volume. The chemical concentrations used in such engineering calculations shall be based on anticipated (or manufacturer's suggested) feed rates. If such a determination is made, the permit allows the permittee to no longer monitor for chromium and zinc.

However, the permittee is required to monitor chromium and zinc as part of the required annual Whole Effluent Toxicity (WET) test, see section 7.45 Whole Effluent Toxicity.

6.6.1.d Flow

This maximum daily flow from this waste stream is approximately 60,000 gallons per day (GPD). The average flow is 25,000 GPD. This maximum flow occurs during cooling tower maintenance, approximately once per year. Both maximum daily flow and average monthly flow limits have been added to the draft permit.

6.6.2 Low Volume Waste Sources – Internal outfalls 001B and 001C

Flow from floor drains, miscellaneous equipment, water softening backwash wastes, pack boiler blowdown, and storm water discharge to the building sump after treatment through an oil/water separator. Flow from the heat recovery blowdown stream discharges directly to the building sump without treatment. The combined contents of the building sump are designed as internal outfall 001B.

Flow from the pH neutralization system (outfall 001C) mixes with cooling tower blowdown before discharge through outfall 001.

The above named waste streams are not monitored in the current permit.

However, these waste streams are considered "low volume waste streams" pursuant to the effluent guidelines (except storm water, which is discussed below). Therefore, this draft permit includes technology-based limits for TSS and Oil & Grease in accordance with the effluent guidelines.

Storm water enters the building sump after treatment through the oil/water separator. In this case, EPA is treating storm water as a low volume waste since it receives the same treatment as several of the other low volume waste streams.

6.6.2.a. Total Suspended Solids (TSS)

Total Suspended Solids (TSS) limits of 30 mg/l (average monthly) and 100 mg/l (maximum daily) are included in the draft permit at both outfalls 001B and 001C. These limits are based on the steam electric effluent guidelines found at 40 CFR Part 423 (low volume wastes).

6.6.2.b Oil & Grease

Oil & Grease limits of 15 mg/l (average monthly) and 20 mg/l (maximum daily) are included in the draft permit at outfalls 001B and 001C. These basis for this permit limits are same as the basis for TSS, namely, the stream electric effluent guidelines.

6.6.2.c Flow, pH

These waste flows generate a maximum daily flow of 35,000 GPD at outfall 001B and 70,000 GPD at outfall 001C. Flow must be measured continuously by recorder when discharging and reported.

The typical treatment technology employed for storm water runoff potentially contaminated with oil is an Oil/Water (O/W) separator. This device uses gravity to separate the lower-density oils from water, resulting in an oil phase above the oil/water interface and a heavier particulate phase (sludge) on the bottom of the separator. Accordingly, the sizing of O/W separators is based on the following design parameters: water-flow rate; density of oil to be separated; desired percentage removal of oil; and the operating temperature range.

The oil/water separator is located before the building sump. The oil/water separator treats flow from the floor drains and the outside diked areas. It does not treat the heat recovery boiler blowdown waste stream. Therefore, the oil/water separator is designed to treat a maximum of 22,000 GPD, not 35,000 GPD (the heat recovery boiler blowdown maximum flow is 13,000

GPD).

To ensure proper operation of installed O/W separators such that the oil and/or particulate phases are not entrained to the waterway, it is important that the flow through the separator be maintained at or below the maximum design flow rate of the separator. Therefore, EPA has included a requirement that the facility provide EPA with proof that the maximum discharge flow rate through the oil/water separator will not exceed its design value of 22,000 GPD. Specifically, Part I.A.30 of the draft permit requires the permittee to control the flow rate to the oil/water separator to ensure compliance with "proper operation" of the treatment system as described at 40 CFR §122.41(e). The permittee may install continuous monitoring and manually control the flow, install a flow constricting device, demonstrate that the permittee has sufficient operational procedures that will ensure that the design flow rate of the oil/water separator is not exceeded, or demonstrate another means of ensuring that the flow will not be exceeded.

A pH range of 6.5 to $\leq$ 8.3 standard units is required on the final discharge, pursuant to water-quality standards. Therefore, an internal monitoring for pH is not required.

6.6.2.d Polynuclear Aromatic Hydrocarbons (PAHs)

Polynuclear Aromatic Hydrocarbons (PAHs) are a group of organic compounds which are found throughout the environment. PAHs are primarily introduced into the environment through the incomplete combustion of organic compounds. PAHs are also present in crude oil and some of the heavier petroleum derivatives and residuals (e.g., fuel oil and asphalt). Spillage or discharge of these products can serve to introduce PAHs into the environment. PAHs will strongly adsorb to suspended particulates and biota and can also bio-accumulate in fish and shellfish.

There are sixteen (16) PAH compounds identified as priority pollutants under the CWA (See 40 CFR §423 - Appendix A). Several of these PAHs are well known animal carcinogens, while others are not considered carcinogenic alone but can enhance or inhibit the response of the carcinogenic PAHs. Typically, exposure would be to a mixture of PAHs rather than to an individual PAH.

The facility stores number 2 fuel oil on site. If there is a spill or leak of fuel oil on the site, there is the potential for PAHs to be introduced into the environment. Any residual fuel oil would be discharged through internal

outfall 001B, after treatment by the oil water separator. EPA has not required the permittee to sample for PAHs from the combined storm water/low volume waste outfall (outfall 001B) to date. Although no data exists on the quantity of PAHs that may be present in the discharge, EPA believes that it is not appropriate to include monitoring for PAHs in the permit at this time. This is based on analysis of the maximum PAHs that could be discharged and the available dilution. A brief overview of this analysis is found below.

The oil/water separator is required to treat the contents of the building sump to a level of 15 mg/l. Therefore, for this analysis we can assume that the entire 15 mg/l is made up of number 2 fuel oil. We can then convert this number to a total mass using the flow from the oil/water separator. Once we know the total mass of number 2 fuel oil discharged, we can determine the amount, by weight, of any of the PAHs discharged from the oil/water separator by using the % (by weight) of PAHs contained in number 2 fuel oil[1].

After having derived the total mass of any of the PAHs present in the discharge, we next determine the mass discharged at outfall 001 by applying internal dilution. After internal dilution, we apply a dilution factor based on the receiving stream flow. In this case, the 7Q10 flow value was used which is more conservative than the annual average flow that would ordinarily be used to determine the reasonable potential for human health effects. This analysis was completed for the PAHs which are present in number 2 fuel oil and for which there is water quality criteria. The analysis showed that there is no reasonable potential for any of the PAHs to exceed human health criteria. A sample calculation is shown below:

$$\text{Conc. Acenapthene} = (\text{wt. fraction}) \times (15{,}000\ \mu g/l) \times \frac{22{,}000\ \text{gal/day}}{130{,}000\ \text{gal/day}}$$

$$= (0.018) \times (2538.5\ \mu g/l)$$

$$= 40.7\ \mu g/l$$

Apply 7Q10 dilution factor of 214

$$= 40.7\ \mu g/l/214$$

1 See “Composition of Petroleum Mixtures”, Table 11 (Potter, et al, 1998)

= 0.19 µg/l

Compared to human health criteria for acenapthene of 990 µg/l EPA has concluded that no reasonable potential exists to violate water quality standard.

The analysis for all of the PAHs present in number 2 fuel oil for which there is a water quality human health criterion is contained in the administrative record for the permit.

6.6.3 Metal Cleaning Wastes – Internal outfall 001D

Occasionally various pieces of heat transfer equipment are cleaned to maintain their proper operation. Such equipment may include the fire side and water side of the boiler, the air heater, the condenser, the feedwater heater, and other equipment such as compressors and precipitators. Cleaning of this equipment may be performed with or without chemicals (such as acids or bases). Metal cleaning wastes often contain a high concentration of suspended solids and dissolved and suspended metals. The waste stream "metal cleaning wastes" must meet specific technology-based requirements, such as limits on the amount of copper and iron that may be discharged, pursuant to the steam electric effluent guidelines at 40 CFR Part 423. The Indeck facility metal cleaning waste sources include heat recovery boiler and pack boiler cleaning. These specific flows are not required to be monitored in the current permit. Technology-based limits for Copper and Iron have been added in the draft permit. Flow is added, report only.

6.6.3.a Copper and Iron

Results of final effluent sampling submitted by the permittee with the NPDES renewal application indicate a copper concentration of 0.013 mg/l and iron concentration of 2.2 mg/l. The existing permit does not contain any copper or iron limits or monitoring conditions.

The water-quality based limits for copper and iron are calculated based on EPA's *National Recommended Water Quality Criteria: 2002*. These criteria are dependant upon receiving stream hardness. Hardness values from past toxicity tests show values ranging from 24 to 50 mg/l (1997 - 2002). The conservative hardness value of 50 and a dilution factor of 214 were used to determine the critical effluent concentrations for copper and iron. The limits for copper are as follows:

Acute criteria = 7.29 μg/l total recoverable

Maximum Daily limit = 7.29 μg/l x 214 DF = 1.5 mg/l

Chronic criteria = 5.16 μg/l total recoverable

Average Monthly limit = 5.16 μg/l x 214 DF = 1.1 mg/l

See Attachment E for a spreadsheet containing the input parameters used in the calculation of the above limits.

Since there are no water-quality standards for iron, the limit defaults to the technology-based number of 1.0 mg/l. The technology-based limit for copper is also 1.0 mg/l.

Based on a comparison of technology-based and water-quality based limits, the technology-based limits are more stringent and therefore have been included in the draft permit.

The draft permit now includes new technology based limits for copper and iron of 1.0 and 1.0 mg/l (or 1000 µg/l) respectively for metal cleaning wastewater. The internal outfall, designated as outfall 001D is included in the draft permit. The permit specifies that samples for this waste stream shall be taken prior to mixing with any other waste stream. The draft permit requires one grab sample per month for copper and iron, to be taken when metal cleaning waste enters the building sump.

6.6.3.b Flow, pH

These waste flows generate a maximum daily flow of 13,000 GPD from heat recovery boiler blowdown and 4,300 GPD from the pack boiler blowdown. Flow is added to the permit as report only.

A pH range of 6.5 to $\leq$ 8.3 standard units is required on the final discharge, pursuant to water-quality standards. Therefore, an internal monitoring for pH is not required.

6.6.4 Required Effluent Limitations for the Combined Discharge

The 1995 Indeck permit includes monitoring requirements and limits for flow, temperature, pH, oil & grease and whole effluent toxicity for this combined discharge.

These requirements have been revised, as described below and in the draft permit, to be in accordance with current state water quality standards for Class B waters,

and state certification requirements.

6.6.4.a Flow

The combined waste flow generated by the facility is 130,000 GPD maximum daily. The facility's current NPDES permit has a discharge limit of 130,000 GPD maximum daily and this limit is continued in the draft permit.

6.6.4.b 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. The draft permit maintains both the pH limit of $\geq$ 6.5 and $\leq$ 8.3 and the requirement that the discharge shall not result in an in stream pH change of more than 0.5 units outside of the background range, as in the existing permit. pH shall be measured in the discharge pipe prior to final discharge to the river.

6.6.4.c Temperature

The Indeck facility discharges a maximum of 60,000 GPD of heated water from the cooling tower. The applicant, in a letter to the EPA and the MASSDEP dated June 13, 2002, states that the cooling tower wastewater could reach a maximum temperature of 130^{0} F in summer. The facility's cooling tower blowdown can mix with waste from the pH neutralization system prior to discharge to the Nashua River. This mixing serves to reduce the temperature of the blowdown.

A thermal mixing zone is defined for this permit as the area included within a 20 foot radius of the effluent discharge pipe diffusers.

Since January 1998 the facility operators have recorded temperatures of the receiving water upstream and downstream of the in-stream discharge diffusers (20 feet above and below the discharge) on a weekly basis. The permittee reports the higher measurement of the two as the effluent temperature in the DMR monthly report. No direct in-pipe temperature measurement of the effluent is recorded or reported on the DMR. A review of receiving water temperature records maintained by the permittee and reported in the DMR (see Attachment C) for the period up to February 2004 indicated no violation of the receiving stream's 83^{o} F water quality limit and no violation of the delta T water quality limit of 5^{o} F at the edge of the defined mixing zone.

Based on the available worst case dilution at the Station's final outfall of approximately 214:1, and past monitoring, a site-specific analysis of the actual time exposure history of organisms passing through the mixing zone is not required at this time. EPA believes that the receiving water assimilative capacity available to the Station's discharge at Outfall 001 is sufficiently large to minimize any potential adverse effects to organisms in the receiving water.

The draft permit includes continuous monitoring and reporting of the facility's effluent temperature when discharging prior to mixing with the receiving waters. The in-stream temperature requirement of 83 degrees F and the in-stream delta T requirement of 5 degrees F for the receiving stream are maintained in the draft permit. The compliance point will remain the same as in the existing permit (20 feet from the discharge). The facility is required to measure temperature a point approximately 20 feet upstream of the discharge in addition to the downstream monitoring location. The difference between the upstream and downstream temperature will be reported as the delta T in the monthly DMR.

6.6.4.d Polychlorinated Biphenyl Compounds

Pursuant to 40 CFR Part 423, the 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.

6.6.4.e Whole Effluent Toxicity

EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. EPA-New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. These approaches are designed to protect aquatic life and human health. Pollutant specific approaches such as those in the Gold Book and State regulations address individual chemicals, whereas, whole effluent toxicity (WET) approaches evaluate interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "Additivity" and/or "Antagonistic" effects of individual chemical pollutants which pollutant specific approaches do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

The Commonwealth of Massachusetts prohibits the discharge of *toxic pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife,* see Massachusetts 314 CMR 4.05(5)(e). The federal NPDES regulations at 40 CFR §122.44(d)(1)(v) require whole effluent toxicity limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an excursion above the State's narrative criterion for toxicity. EPA-New England's current policy requires toxicity testing to be included in all permits with the type of toxicity test (acute and/or chronic) and effluent limitation based on the available dilution.

The facility uses a variety of water treatment chemicals in the cooling water system(s) as identified in Attachment D. It is not practical for EPA to identify and limit every chemical the permittee may use throughout the life of the permit. In addition, limiting individual chemicals does not take into account the interaction of these chemicals. Therefore, the draft permit requires regular toxicity testing of the effluent. The WET testing shall be conducted when the facility is using water treatment chemicals in the cooling tower and boiler make-up water. This will ensure that the tests are performed during worst case discharge scenarios.

The permittee is required to identify the chemicals and concentrations prior to conducting each toxicity test. This information will be submitted to EPA with the results of each toxicity test. This will allow EPA to determine whether the use of WTC have caused or contributed to a toxic

response or not. Also, the permit requires the permittee to successfully pass an acute toxicity test within 7 days if any changes in the water treatment chemicals and/or their concentrations occur (See Section I.A.19 of permit). If toxicity violations are shown, monitoring frequency and testing requirements may be increased in addition to enforcement actions. The permit may also be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements or chemical specific limits.

Toxicity testing conducted during the current permit (June 1998 – June 2005) do not indicate any toxicity.

WET sampling frequency remains the same in the draft permit as in the existing permit (once per year). However, for this draft permit, the number of species used in the test has been reduced from two to one. The species required for testing is the daphnid, Ceriodaphnia dubia. Testing using the fathead minnow, Pimephales promelas is no longer required. This reduction in the number of species is based on the MassDEP standard practice of allowing less species testing for discharges that demonstrate compliance with past toxicity limits. Indeck has completed at least eight WET tests during under the existing permit. The results of these test demonstrate compliance with the existing permit's LC_{50} limit of $\geq$100. Therefore, a reduction in the number of test species used is justified.

The LC50 is defined as the percentage of effluent that would be lethal to 50 % of the test organisms during an exposure of 48 hours. A LC50 limit of $\geq$ 100% means that a sample of 100 % effluent shall cause no greater than a 50 % mortality rate in that effluent sample. Results of these toxicity tests will be used to determine compliance with the MA WQ Standards.

WET sampling and testing as required in the draft permit shall be conducted in June each year. If the Station does not discharge during the month of June, then WET testing shall be completed whenever the next discharge occurs.

The draft permit also requires reporting of selected parameters determined from the chemical analysis of the WET tests 100 percent effluent sample. EPA-New England does not consider these reporting requirements an unnecessary burden as reporting these constituents is required with the submission of each toxicity test report.

After submitting a **minimum** of two consecutive sets of WET test results,

both of which demonstrate compliance with the WET permit limit, the permittee may request a reduction in the WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

7.0 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 the 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. CWA §316(b) applies to this permit due to the presence and operation of a cooling water intake structure.

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

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.

Indeck has a somewhat unique cooling water configuration in that the cooling tower blowdown is discharged from the "hot side" of the cooling tower. That is, the blowdown water is not first cooled by the cooling tower prior to discharge. Therefore, while the cooling tower does allow the facility to use less water than would otherwise be used via open cycle cooling, the cooling tower does nothing to treat the thermal component of the effluent prior to discharge. This necessitates the need for a 316(a) variance from a technology-based standard.

EPA understands that the cooling tower could be reconfigured and/or replaced such that the blowdown effluent is treated before discharge. However, in this case, EPA assumes that the water-quality based effluent limits are less stringent than a technology-based permit without a comprehensive derivation of such technology based limits. As a result, EPA approves a 316(a) variance from technology-based standards while adopting water quality based limits. These limits do not allow for any increase in thermal loading over the existing permit limits.

7.2 Section 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 CWIS s. 66 Fed. Reg. 65255 (Dec. 18, 2001) (effective date of the regulations is January 17, 2002). These regulations do not, however, apply to *existing* facilities such as Indeck's facility. 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). These regulations are also non-applicable to the Indeck facility, since the plant's flow rate is well below the 50 MGD threshold. EPA is currently developing Phase III regulations which may apply to the facility. However, until these new Phase III regulations become effective, EPA will continue determining BTA for cooling water intake structures on a case-by-case basis using best professional judgment.

In the past, Indeck withdrew up to 520,000 gpd of water from the paper mill intake within the Nashua River's Pepperell Pond impoundment. A maximum of approximately half of this (250,000 gpd) was used as make-up water in the cooling tower. A maximum of about 130,000 gpd was used produce steam for use at the paper mill. However, since the mill ceased operation in 2002, no steam has been provided to the mill and all of the steam currently generated at the facility is used to produce electricity.

The facility uses a closed-cycle cooling system (i.e., cooling towers) to reduce the temperature of cooling water prior to reuse in the cooling cycle. This technology greatly reduces the amount of water (capacity) used by the facility for cooling as compared to the amount of water that would be need to cool the facility via "open-cycle" cooling. In this case EPA considers cooling tower technology as the best technology available (BTA) for minimizing environmental impacts under section 316(b) of the Clean Water Act (CWA).

8. Essential Fish Habitat

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.

Also, Essential Fish Habitat is only designated for fish species (Atlantic Salmon) for which federal Fisheries Management Plans exist per 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

Based on the permit requirements and limitations identified in the draft permit and fact sheet that are designed to be protective of aquatic species, EPA has concluded that formal consultation with NMFS is not required because this authorized discharge is meeting Massachusetts Water Quality Standards and is not likely to adversely affect federally managed species, their forage, or their habitat. If adverse effects do occur as a result of this permit action, or if new information becomes available that changes the basis for this conclusion, then NMFS will be notified and consultation promptly initiated.

9. Endangered Species Act

The proposed limits are sufficiently stringent to assure Water Quality will be met, both for aquatic life protection and human health protection. The effluent limitations established in this permit ensures the protection of aquatic life and maintenance of the receiving water as an aquatic habitat. EPA finds that adoption of the proposed permit is unlikely to adversely affect any threatened or endangered species or its critical habitat.

10. Monitoring

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 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.

11. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) 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 Water Quality Standards or waives its right to certify as set forth in 40 CFR §124.53. State Water Quality Standards contain three major elements: Beneficial uses; Water Quality Criteria; and an Antidegradation Policy, all of which are part of the State's Water-Quality Certification under Section 401 of the Act.

Staff of the MassDEP have reviewed the draft permit and advised EPA-New England that the limitations are adequate to protect water quality. EPA-New England has requested permit certification by the Commonwealth and expects that the draft permit will be certified.

Regulations governing state certification are set forth in 40 CFR §§124.53 and §124.55.

12. 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: Mr. David Webster, Director NPDES Permit Program for Industrial Permits, U.S. Environmental Protection Agency, One Congress Street, Suite 1100 (Mail Code: CIP) 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-New England 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-New England'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.

13. EPA Contact

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

Damien Houlihan
Industrial NPDES Permits Branch
U.S. Environmental Protection Agency
1 Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1586

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