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**FACT SHEET**

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

**PUBLIC NOTICE START AND END DATES:** August 1, 2007 – August 30, 2007

**PUBLIC NOTICE NUMBER:** NH-017-07

**CONTENTS:** 20 pages including 4 Attachments A through D

**NPDES PERMIT NO.:** NH0100129

**NAME AND MAILING ADDRESS OF APPLICANT:**

Town of Hooksett  
Board of Sewer Commissioners  
1 Egawes Drive  
Hooksett, New Hampshire 03106-1814

**NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:**

Hooksett Wastewater Treatment Plant  
1 Egawes Drive  
Hooksett, New Hampshire 03106-1814

**RECEIVING WATER:** Merrimack River (Hydrologic Basin Code: 01070002)

**CLASSIFICATION:** B

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## **I. Proposed Action, Type of Facility and Discharge Location.**

The Hooksett Wastewater Treatment Plant (WWTP) is a publicly owned treatment works, or municipal POTW. The applicant applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge treated effluent into the Merrimack River. The facility collects and treats domestic and commercial wastewater from the Town of Hooksett. It also receives flow from three industries. The Hooksett WWTP provides secondary treatment with a design flow of 1.1 million gallons per day (mgd). Wastewater treatment processes include screening, grit removal, activated sludge biological treatment, secondary clarification, and chlorine disinfection.

Waste sludge produced during treatment of the wastewater is dewatered and transported to Turnkey Landfill in Rochester, New Hampshire.

A permit was issued for this facility on September 2, 1999, and expired on October 2, 2004. The expired permit (hereafter referred to as the "existing permit") has been administratively extended as the applicant filed a complete application for permit reissuance within the prescribed time period as per 40 Code of Federal Regulations (CFR) §122.6.

The location of the treatment facility, Outfall 001 and the receiving water are shown in Attachment A. Their locations have not changed since the existing permit was issued.

## **II. Description of Discharge.**

A quantitative description of significant effluent parameters based on discharge monitoring data from the three year period January 2004 to December 2006 are shown in Attachment B.

## **III. Limitations and Conditions.**

The draft permit contains limitations for five-day Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Suspended Solids (TSS), pH, *Escherichia coli* (*E. Coli*) bacteria, Total Residual Chlorine (TRC), and Whole Effluent Toxicity (WET). It also contains monitoring requirements for flow, nitrogen, hardness, and metals (aluminum, cadmium, chromium, copper, lead, nickel, and zinc). The effluent limitations and monitoring requirements are found in PART I of the draft NPDES permit. The Town of Hooksett is planning to upgrade their plant to treat an increased flow of 2.2 mgd. Because of this planned flow increase, the permit contains a special condition to collect chemical data and other information to support an antidegradation study required by Env-Ws 1708. The basis for each limit and condition is discussed below in Section IV of this Fact Sheet.

## **IV. Permit Basis and Explanation of Effluent Limitations Derivation.**

### **a. General Regulatory Background**

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into waters of the United

States from any point source, except as authorized by specified permitting sections of the CWA, one of which is Section 402. See CWA §§ 301(a) and 402(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System (NPDES). Under this section of the CWA, EPA may "issue a permit for the discharge of any pollutant or combination of pollutants" in accordance with certain conditions. See CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. See CWA § 402(a)(1)-(2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: "technology-based" limitations and "water quality-based" limitations. See CWA §§ 301, 303, 304(b); 40 C.F.R. Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. See CWA § 301(b). As a class, POTWs must meet performance based requirements dependent on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for POTWs is referred to as "secondary treatment". Secondary treatment is comprised of technology-based requirements expressed in terms of BOD<sub>5</sub>, TSS, and pH. 40 C.F.R. Part 133.

Water quality-based effluent limits are designed to ensure that state water quality standards are met regardless of the decision made with respect to technology and economics in establishing technology-based limitations. In particular, Section 301(b)(1)(C) requires achievement of, "any more stringent limitation, including those necessary to meet water quality standards...established pursuant to any State law or regulation..." See 40 C.F.R. §§ 122.4(d), 122.44(d)(1) (providing that a permit must contain effluent limits as necessary to protect State water quality standards, "including State narrative criteria for water quality")(emphasis added) and 122.45(d)(5) (providing in part that a permit incorporate any more stringent limits required by Section 301(b)(1)(C) of the CWA).

The CWA requires that States develop water quality standards for all water bodies within the State. CWA § 303. These standards have three parts: (1) one or more "designated uses" for each water body or water body segment in the state; (2) water quality "criteria" consisting of numerical concentration levels and/or narrative statements specifying the amounts of various pollutants that may be present in each water body without impairing the designated uses of that water body; and (3) an antidegradation provision, focused on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. CWA § 303(c)(2)(a); 40 C.F.R. § 131.12. The limits and conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards.

The applicable New Hampshire water quality standards can be found in Surface Water Quality Regulations, Chapter Env-Ws 1700 et seq. See generally, Title 50, Water Management and Protection, Chapter 485A, Water Pollution and Waste Disposal Section 485-A. Hereinafter, New Hampshire's Surface Water Quality Regulations are referred to as the NH standards.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from a State's water quality standards to develop permit limits, both the acute and

chronic aquatic life criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits. When a State has not established a numeric water quality criterion for a specific pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: based on a “calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use”; on a “case-by-case basis” using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or in certain circumstances, based on an “indicator parameter”. 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

All statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. See 40 C.F.R. § 125.3(a)(1). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by an NPDES permit. The regulations governing EPA’s NPDES permit program are generally found in 40 C.F.R. Parts 122, 124, and 136.

## **b. Introduction**

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 standard, including narrative water quality criteria. See 40 C.F.R. 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

### **A. Reasonable Potential**

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 applications, monthly discharge monitoring reports, and State and Federal water quality reports; (3) sensitivity of the species to toxicity testing; (4) statistical approach outlined in *Technical Support Document for Water Quality-based Toxics Controls*, March 1991, EPA/505/2-90-001 in Section 3; and where appropriate, (5) dilution of the effluent in the receiving water. In accordance with New Hampshire Standards (RSA 485-A:8VI, Env-Ws 1705.02), available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life and human health criteria for non-carcinogens, or the long-term harmonic mean flow for human health (carcinogens only) in the receiving water at the point just upstream of the outfall. Furthermore, 10 percent of the receiving water’s assimilative capacity is held in reserve for future needs in accordance with New Hampshire’s Surface Water Quality Regulations Env-Ws 1705.01.

## B. Anti-backsliding

Section 402(o) of the CWA generally provides that the effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the previous permit. EPA has also promulgated anti-backsliding regulations which are found at 40 C.F.R. § 122.44(l). Unless applicable anti-backsliding requirements are met, the limits and conditions in the reissued permit must be at least as stringent as those in the previous permit.

## C. State Certification

Section 401(a)(1) of the CWA requires all NPDES permit applicants to obtain a certification from the appropriate state agency stating that the permit will comply with all applicable federal effluent limitation and state water quality standards. See CWA § 401(a)(1). The regulatory provisions pertaining to state certification provide that EPA may not issue a permit until a certification is granted or waived by the state in which the discharge originates. 40 C.F.R. § 124.53(a). The regulations further provide that, “when certification is required...no final permit shall be issued...unless the final permit incorporated the requirements specified in the certification under § 124.53(e).” 40 C.F.R. § 124.55(a)(2). Section 124.53(e) in turn provides that the State certification shall include “any conditions more stringent than those in the draft permit which the State finds necessary” to assure compliance with, among other things, State water quality standards, see 40 C.F.R. 124.53(e)(2), and shall also include “[a] statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law, including water quality standards,” see 40 C.F.R. 124.53(e)(3).

However, when EPA reasonably believes that a State water quality standard requires a more stringent permit limitation than that reflected in a state certification, it has an independent duty under CWA §301(b)(1)(C) to include more stringent permit limitations. See 40 C.F.R. §§ 122.44(d)(1) and (5). It should be noted that under CWA § 401, EPA’s duty to defer to considerations of State law is intended to prevent EPA from relaxing any requirements, limitations, or conditions imposed by State law. Therefore, “[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition.” 40 C.F.R. § 124.55(c). In such an instance, the regulations provide that, “The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification.” Id. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4(d) and 40 C.F.R. § 122.44(d).

### **c. Flow**

The Hooksett Wastewater Treatment Plant has a design flow of 1.1 mgd. This flow rate is used to calculate available dilution as discussed below. If the effluent flow rate exceeds 80 percent of the 1.1 mgd design flow (0.88 mgd) for a period of three (3) consecutive months then the permittee must notify EPA and the NHDES-WD and implement a program to maintain satisfactory treatment levels.

#### **d. Conventional Pollutants**

##### **A. Five-Day Biological Oxygen Demand (BOD<sub>5</sub>) and Total Suspended Solids (TSS)**

All the concentration and mass-based effluent limits for BOD<sub>5</sub> and TSS in the draft permit are the same as the limits in the existing permit and, therefore, are in accordance with antibacksliding requirements found in 40 CFR §122.44(1). The permittee has been able to achieve consistent compliance with those limits. Average monthly and average weekly concentration-based limits for BOD<sub>5</sub> and TSS are based on requirements under Section 301(b)(1)(B) of the CWA as defined for Secondary Treatment Standards in 40 CFR Section 133.102(a) and (b). Furthermore, the average monthly and average weekly mass-based limits for BOD<sub>5</sub> and TSS corresponding to the respective concentration-based limits in the draft permit are based on 40 CFR Section 122.45(f) which requires the Agency to apply these Secondary Treatment Standards (concentration-based) as mass-based limits.

Average monthly, average weekly and maximum daily allowable mass-based (load) limitations for BOD<sub>5</sub> and TSS shown in the draft permit are based on the POTW's average daily design flow of 1.1 MGD and the appropriate constituent concentration for the respective time period being limited. See Attachment C for calculations of the mass-based limits.

Percent removal limits for BOD<sub>5</sub> and of TSS, required under 40 CFR Section 133.102 (a) (3) and (b)(3), respectively, are the same as the limits in the existing permit and in accordance with the antibacksliding requirements found in 40 CFR Section 122.44.

##### **B. Escherichia Coli Bacteria**

The limit for *E. Coli* is based on requirements in the State's Statutes (N.H. RSA 485-A:8) for Class B waters and 1703.06(b), which requires that the bacteria criteria be applied at the end of the WWTF discharge pipe. Samples for *E. Coli* compliance monitoring must be taken concurrently with samples for total residual chlorine.

##### **C. pH**

The limit for pH is based upon State Certification Requirements and RSA 485-A:8, which states that "The pH range for said (Class B) waters shall be 6.5 to 8.0 except when due to natural causes."

A change in the pH range in the draft permit due to in-stream dilution would be considered at the request of the permittee provided the permittee can demonstrate that the in-stream standards for pH would be protected. If the State approves results from a pH demonstration study, this permit's pH limit range can be relaxed in accordance with 40 CFR 122.44(1)(2)(i)(B).

Accordingly, a special condition has been carried forward from the existing permit into the draft permit that allows for a modification to the pH limit(s) using a certified letter from EPA-New England. However, the pH limit range cannot be less restrictive than 6.0 - 9.0 S.U. found in the

applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 CFR Part 133) for the facility.

**e. Available Dilution and Nonconventional and Toxic Pollutants**

Water-quality based limits for specific toxic pollutants such as chlorine, ammonia, metals, etc. are determined from chemical specific numeric criteria derived from extensive scientific studies. The specific toxic pollutants and their associated toxicity criteria are popularly known as the “Gold Book Criteria” which EPA summarized and published in Quality Criteria for Water, 1986, EPA 440/5-86-001 (as amended). The State of New Hampshire adopted these “Gold Book Criteria”, with certain exceptions, and included them as part of the State’s Surface Water Quality Regulations adopted on December 3, 1999. EPA-New England uses these pollutant specific criteria, along with available dilution in the receiving water, to determine a specific pollutant's draft permit limit, such as for the fast acting toxicant chlorine and metals.

**A. Available Dilution**

The 7Q10 just downstream of the Hooksett WWTP was estimated using a ratio of the flow at the U.S. Geological Survey gaging station at Goff’s Falls below the outfall (0109200) to the flow at the Hooksett WWTP. The Hooksett WWTP is upstream of the Goffs Falls gage, but downstream of six (6) gages including: the Contoocook River at the Hopkinton dam, the Warner River at Davisville, the Blackwater River near Webster, the Merrimack River at Franklin Junction, the Soucook River on Pembroke Road near Concord, and the Suncook River at North Chichester. One additional gage is located on the Piscataquog River near Goffstown between Hooksett WWTF and the Goffs Falls gage.

First, the 7Q10 flows at the USGS gaging station sites were calculated using Log-Pearson Type III statistics, using the gaging station records for years during which flow regulation was the same as is occurring today. The selected periods of record for each of the USGS gages were as follows:

- Merrimack River at Goffs Falls (1943-2006)
- Piscataquog River near Goffstown (1966-1978)
- Contoocook at Hopkinton Dam (1965-1989 and 2003-2006)
- Warner River at Davisville (1941-1978 and 2003-2006)
- Blackwater River near Webster (1943-1989)
- Merrimack River at Franklin Junction (1943-1978 and 2003-2006)
- Soucook River at Pembroke Road near Concord (1989-2006)
- Suncook River at North Chichester (1950-1970)

The resulting upstream 7Q10s were subtracted from the Goffs Falls gage to find the actual 7Q10 for the watershed “intervening area” between the Goffs Falls gage and the upstream gages. The result was 83.95 cfs (638.65-9.84-38.05-5.28-12.81-477.83-6.93-3.97 = 83.95).

Next, the Dingman<sup>1</sup> equation was used to estimate the proportion of the intervening area 7Q10 that is tributary to the Merrimack River upstream from Hooksett. This proportion is assumed to be equal to the ratio of the Dingman equation 7Q10 flow from the watershed area lying between the upstream gages and Hooksett (24.81 cfs) to the Dingman equation 7Q10 flow for the watershed area lying between the upstream gages and Goffs Falls gage (30.20 cfs). The resulting ratio was 24.81/30.20 equaling 0.821.

Finally, the 7Q10 flow at the Hooksett WWTP was calculated by multiplying the 7Q10 for the intervening watershed area between the upstream gages and the Goff Falls gage (83.95 cfs) by the ratio 0.821, and then adding in all upstream gaged flows (includes all listed above except the Piscataquog River near Goffstown). The resulting upstream 7Q10 is 613.81 cfs.

For this draft permit, the dilution factor was calculated using the recalculated 7Q10 flow of 613.81 cfs and a plant design flow of 1.1 MGD (See Appendix C). The revised dilution factor is 324.43.

#### B. Total Residual Chlorine

Effluent limitations for Total Residual Chlorine (TRC) in the draft permit are the same as the limits in the existing permit and, therefore, are in accordance with antibacksliding requirements found in 40 CFR §122.44(1). The New Hampshire water quality standards specify the chronic and acute aquatic-life criterion for chlorine at 0.011 mg/l and 0.019 mg/l, respectively, for freshwater; and 0.0075 mg/l and 0.013 mg/l, respectively, for marine water. Chlorine and chlorine compounds, such as “organo-chlorines”, produced by the chlorination of wastewater can be extremely toxic to aquatic life. Section 101(a)(3) of the Act, and New Hampshire standards at Env-Ws 1703.21(a) prohibit the discharge of toxic pollutants in toxic amounts. Therefore, to reduce the potential for the formation of chlorinated compounds during the wastewater disinfection process and to be protective of the States’ narrative standards, EPA-New England has, historically, established a maximum Total Residual Chlorine (TRC) limitation of 1.0 mg/l for both the average monthly and the maximum daily limitations. In this situation, the 1.0 mg/L maximum limit for both average monthly and maximum daily effluent limits are more stringent than the 3.57 and 6.16 mg/L limits that would be allowed based on available dilution and the NH Standards for chronic and acute aquatic-life criteria of 0.011 and 0.019 mg/L. As indicated in Attachment B, the applicant has been able to achieve consistent compliance with these limitations.

#### C. Other Pollutants

The permittee provided expanded effluent testing results (based on 3 samples) for toxics in the discharge from outfall 001 as part of its permit application. The concentrations of these pollutants were compared to the Water Quality Criteria for Toxic Substances listed in New Hampshire’s Surface Water Quality Regulations (and accounting for dilution). This comparison indicated that there were no additional pollutants that showed reasonable potential for concern and which permit limits should be established.

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<sup>1</sup> Dingman, S.L., and S.C. Lawlor, 1995. Estimating Low-Flow Quantiles from Drainage-Basin Characteristics in New Hampshire and Vermont, American Water Resources Association, Water Resources Bulletin, pp. 243-256.

#### **f. Whole Effluent Toxicity (WET)**

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.

New Hampshire law states that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;...." (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Ws 1730.21(a)(1)). 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. Furthermore, results of these toxicity tests will demonstrate compliance of the POTW's discharge with the "no toxic provision of the NH Standards."

Accordingly, to fully implement the "integrated strategy" and to protect the "no toxic provision of the NH Standards," EPA-New England requires toxicity testing in municipal permits with the type of toxicity test(s) (acute and/or chronic) and effluent limitation(s) (LC50 and/or C-NOEC) based on the available dilution as shown in the Toxicity Strategy for Municipal Permits (Attachment D).

The existing permit WET testing frequency and limits were carried forward from the existing permit. With a dilution factor greater than 100 (based on a plant design flow of 1.1 MGD), the Toxicity Strategy for Municipal Permits (Attachment D) requires the testing frequency of two times per year.

This draft permit establishes the LC50 limit at >50%, meaning a sample of at least 50 % effluent shall have no greater than a 50 % mortality rate in that effluent sample. The permittee is required to collect and test effluent samples twice per year during calendar quarters ending June 30<sup>th</sup> and September 30<sup>th</sup> using two species, Ceriodaphnia dubia (Daphnia) and Pimephales promelas (Fathead Minnow).

The WET limits in the draft permit include conditions to allow EPA-New England to modify, or alternatively, revoke and reissue to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of the toxicity tests indicate the discharge causes an

exceedance of any State water quality criterion. Results from these toxicity tests are considered “New Information” and the permit may be modified as provided in 40 CFR §122.62(a)(2).

Alternately, if a permittee has consistently demonstrated that its discharge, based on data for the most recent one-year period, or four sampling events, whichever yields the greater time period, causes no acute and chronic toxicity, the permitted limits will be considered eligible for a reduced frequency of toxicity testing. This reduction in testing frequency is evaluated on a case-by-case basis. Accordingly, a special condition has been carried forward from the existing permit into the draft permit that allows for a reduced frequency of WET testing using a certified letter from EPA-New England. This permit provision anticipates the time when the permittee requests a reduction in WET testing that is approvable by both EPA-New England and the NHDES-WD. As previously stated, EPA-New England’s current policy is that after completion of a minimum of four consecutive WET tests all of which must be valid tests and must demonstrate compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to EPA-New England seeking a review of the toxicity test results. EPA-New England’s policy is to reduce the frequency of toxicity testing to no less than one (one-species) test per year. The permittee is required to continue testing at the frequency specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA-New England indicating a change in the permit condition. This special condition does not negate the permittee’s right to request a permit modification at any time prior to the permit expiration.

This draft permit, as in the existing permit, requires the permittee to continue reporting selected parameters from the chemical analysis of the WET tests’ 100 percent effluent sample. Specifically, hardness, total ammonia nitrogen as nitrogen, and total recoverable aluminum, cadmium, copper, chromium, lead, nickel and zinc are to be reported on the appropriate DMR for entry into EPA’s data base. EPA-New England does not consider these reporting requirements an unnecessary burden as reporting these constituents is already required with the submission of each toxicity testing report.

#### **g. Operation and Maintenance**

Regulations regarding proper operation and maintenance are found at 40 C.F.R. § 122.41(e). These regulations require, “that the permittee shall at all times operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit.” The treatment plant and the collection system are included in the definition “facilities and systems of treatment and control” and are therefore subject to proper operation and maintenance requirements.

Similarly, a permittee has a “duty to mitigate” pursuant to 40 C.F.R. § 122.41(d), which requires the permittee to “take all reasonable steps to minimize or prevent any discharge in violations of the permit which has a reasonable likelihood of adversely affecting human health or the environment.”

General requirements for proper operation and maintenance, and mitigation have been included in Part II of the permit. Specific permit conditions have also been included in Part I.B., I.C., and

I.D. of the draft permit. These requirements include mapping of the wastewater collection system, reporting of unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling inflow and infiltration to the extent necessary to prevent SSOs and I/I related effluent violations at the wastewater treatment plant, and maintaining alternate power where necessary.

#### **h. Sludge**

Section 405(d) of the Clean Water Act (CWA) requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludge which is land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator is subject to Part 503 technical and to State Env-Ws 800 standards. Part 503 regulations have a self-implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in municipal solid waste landfills are in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 CFR Part 258.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA-New England has included with the draft permit a 72-page document entitled “EPA Region I NPDES Permit Sludge Compliance Guidance, November 1999” for use by the permittee in determining the appropriate sludge conditions for the chosen method of sewage sludge use or disposal practices.

The permittee is required to submit an annual report to EPA-New England and NHDES- WD, by February 19<sup>th</sup> each year, containing the information specified in the Sludge Compliance Guidance document for their chosen method of sewage sludge use or disposal practices. The Hooksett Wastewater Treatment Plant generates approximately 165 dry metric tons of sludge per year. At present, sludge generated at the facility is dewatered and disposed of at Turnkey Landfill in Rochester, New Hampshire.

#### **i. Industrial Users (Pretreatment Program)**

The permittee is not required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR §403 and Section 307 of the Act. However, the draft permit contains conditions that are necessary to allow EPA and NHDES-WD to ensure that pollutants from industrial users will not pass through the facility and cause water quality standards violations and/or sludge use and disposal difficulties or cause interference with the operation of the treatment facility. The permittee is required to notify EPA and NHDES-WD whenever a process wastewater discharge to the facility from a primary industrial category (see 40 CFR §122 Appendix A for list) is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of issuance of the permit. The permit also contains the requirements to: 1) report to EPA and NHDES-WD the name(s) of all Industrial Users subject to Categorical Pretreatment Standards (see 40 CFR §403 Appendix C for list) who commence discharge to the POTW after

the effective date of the finally issued permit, and 2) submit copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users to EPA and NHDES-WD.

#### **j. Antidegradation**

This draft permit is being reissued with allowable wasteloads and parameter coverages identical to those in the current permit with no change in outfall location. The State of New Hampshire has indicated that there is no lowering of water quality and no loss of existing water uses and that no additional antidegradation review is warranted at this time for the current permitted 1.1 mgd plant.

However, the Town of Hooksett is planning a plant upgrade to increase flow from 1.1 mgd to 2.2 mgd. The NH Surface Water Quality Regulations Env-Ws 1708, require the Town of Hooksett to conduct an antidegradation study before an increase in flow will be permitted. The NHDES will work with the Town in developing an appropriate scope of work for the study. If the study is completed within this permit term (5 years), EPA New England and NHDES will use the resulting information in determining permit limits if the Town requests a permit modification authorizing an increase in flow to 2.2 mgd..

#### **k. Additional Requirements and Conditions**

In the draft permit, compliance monitoring frequency and sample type for Flow, BOD<sub>5</sub>, TSS, pH, TRC, and Escherichia coli bacteria have been established in accordance with the latest version of EPA/NHDES-WD's Effluent Monitoring Guidance (EMG) mutually agreed upon and first implemented in March 1993 and last revised on July 19, 1999. In addition, the WET test monitoring requirements have been set according to EPA-New England's Municipal Toxicity Policy. It is the intent of EPA-New England and NHDES-WD to establish minimum monitoring frequencies in all NPDES permits that (1) make sense from environmental and human health perspective; and, (2) are in accordance with the EMG. The effluent monitoring requirements in the draft permit have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48. The remaining 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.

#### **l. Essential Fish Habitat and Endangered Species.**

##### **A. Essential Fish Habitat**

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104267), established a new requirement to describe and identify (designate) "essential fish habitat" (EFH) in each federal fishery management plan. Only species managed under a federal fishery management plan are covered. Fishery Management Councils determine which area will be designated as EFH. The Councils have prepared written descriptions and maps of EFH, and include them in fishery management

plans or their amendments. EFH designations for New England were approved by the Secretary of Commerce on March 3, 1999.

The 1996 Sustainable Fisheries Act broadly defined EFH as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Waters include aquatic areas and their associated physical, chemical, and biological properties. Substrate includes sediment, hard bottom, and structures underlying the waters. Necessary means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem. Spawning, breeding, feeding, or growth to maturity covers all habitat types utilized by a species throughout its life cycle. Adversely affect means any impact which reduces the quality and/or quantity of EFH. Adverse impacts may include direct (i.e. contamination, physical disruption), indirect (i.e. loss of prey), site specific or habitat wide impacts including individual, cumulative, or synergistic consequences of actions.

According to the National Marine Fisheries Service (NMFS), the Merrimack River is EFH for Atlantic salmon (*Salmo salar*). According to the New Hampshire Department of Fish and Game, Atlantic salmon are stocked further upstream in the Merrimack River watershed but not in this area. This stretch of the river is using primarily for downstream passage. Adult Atlantic salmon returning to the river from the ocean do not make it up this far because they are trapped at a dam in Lawrence, Massachusetts.

EPA has concluded that the limits and conditions contained in the draft permit minimize adverse effects to EFH for the following reasons:

- The permit requires twice per year toxicity testing to ensure that the discharge does not present toxicity problems.
- The dilution factor is 324.
- Total residual chlorine is limited to 1 mg/l to prevent toxicity issues.
- The permit prohibits the discharge to cause a violation of state water quality standards.

EPA believes the draft permit adequately protects EFH and therefore additional mitigation is not warranted. NMFS will be notified and an EFH consultation will be reinitiated if adverse impacts to EFH are detected as a result of this permit action or if new information is received that changes the basis for these conclusions.

#### B. Endangered Species

The Endangered Species Act (16 U.S.C. 1451 et seq), Section 7, requires the EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (USFWS) and/or NMFS, as appropriate, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species, or adversely affect its critical habitat.

EPA believes that the authorized discharge from this facility is not likely to adversely affect the federally listed species or their habitats. EPA is informally consulting with USFWS to confirm this determination.

## **V. 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. The only exception to this is that sludge conditions/requirements are not part of the Section 401 State Certification. The staff of the NHDES-WD has 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 State and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 CFR §§124.53 and §124.55.

## **VI. Comment Period, Hearing Requests, and Procedures for Final Decisions.**

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to:

Dan Arsenault  
U.S. Environmental Protection Agency  
One Congress Street  
Suite 1100 (Mail Code CMP)  
Boston, Massachusetts 02114-2023  
Telephone: (617) 918-1562  
Fax: (617) 918-1505

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.

Additional information concerning the draft permit may be obtained between the hours of 9:00 A.M. and 5:00 P.M. (8:00 A.M. and 4:00 P.M. for the state), Monday through Friday, excluding holidays.

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Date

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

**ATTACHMENT A**

**LOCATION OF HOOKSETT WASTEWATER TREATMENT PLANT**



\* Aerial photo obtained from [www.terraserver.microsoft.com](http://www.terraserver.microsoft.com). Photo taken April 11, 1998.

**ATTACHMENT B****SUMMARY OF EFFLUENT CHARACTERISTICS AT OUTFALL 001**

The following effluent characteristics were derived from analysis of discharge-monitoring data collected from Outfall 001 during the three year period January 2004 through December 2006. Data were extracted from the monthly Discharge Monitoring Reports submitted by the Hooksett Wastewater Treatment Plant. The effluent values characterize treated sanitary, commercial, and industrial wastewaters discharged from this facility.

<b>Parameter</b>	<b>Average of Monthly Averages</b>	<b>Range of Monthly Averages</b>	<b>Maximum Daily</b>
Effluent Flow (mgd)	0.79	0.575-1.182	3.0
Effluent BOD <sub>5</sub> (mg/l)	14.10	7.0 – 32.0	46.0
Effluent BOD <sub>5</sub> (lb/day)	92.97	43.55 – 214.84	----
Effluent TSS (mg/l)	12.96	7.0 – 21.0	38.0
Effluent TSS (lb/day)	83.46	48.86 – 120.32	----
Effluent pH (s.u.)	---	6.92 – 7.98	7.98
Total Residual Chlorine (mg/L)	0.63	0.347 – 0.783	1.0
<b><i>Range of WET Test Results</i></b>			
	Ceriodaphnia dubia	Pimephales promelas	
LC50 (% Effluent)	100% - 100%	100%-100%	



**ATTACHMENT D****DILUTION FACTOR CALCULATION**

Equation used to calculate available dilution factor at Outfall 001:

$$DilutionFactor = \frac{(Q_{001})}{Q_{PDF} \times 1.547} \times 0.9$$

$$DilutionFactor = \frac{(613.81cfs)}{1.1mgd \times 1.547cfs / mgd} \times 0.9 = 324.43$$

where:

- Q<sub>001</sub> = Estimated 7Q10 flow at Outfall 001, in cfs;
- Q<sub>PDF</sub> = Treatment plant's design flow, in mgd;
- 1.547 = Factor to convert mgd to cfs
- 0.9 = Factor to reserve 10% of river's assimilative capacity.