

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPA NEW ENGLAND
OFFICE OF ECOSYSTEM PROTECTION
ONE CONGRESS STREET
SUITE 1100 (MAIL CODE: CPE)
BOSTON, MASSACHUSETTS 02114-2023**

FACT SHEET

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

PUBLIC NOTICE START AND END DATES:

PUBLIC NOTICE NUMBER:

NPDES PERMIT NO.: NH0100986

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Pittsfield
Main Street
P.O. Box 98
Pittsfield, New Hampshire 03263-0098

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Facility Location

Pittsfield Wastewater Treatment Facility
127 South Main Street
Pittsfield, New Hampshire

Mailing Address

Pittsfield Wastewater Treatment Facility
c/o Mr. Ronald A. Vien, Superintendent
P.O. Box 98
Pittsfield, New Hampshire 03263-0098

RECEIVING WATER: Suncook River (Hydrologic Basin Code: 01070002)

CLASSIFICATION: Class B

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

The above named applicant has applied to the U.S. Environmental Protection Agency, New England Office (EPA-New England) for reissuance of its NPDES permit to discharge secondary treated wastewaters into the designated receiving water (Suncook River, a tributary to the Merrimack River). The facility collects and treats domestic (household/sanitary/septage) and commercial and industrial wastewaters from the Town of Pittsfield, New Hampshire and discharges that treated effluent into the receiving water.

The plant is designed as a 0.4 million gallon per day (MGD) three (3) celled aerated facultative lagoon wastewater treatment facility. The treatment system is composed of, in the order it processes wastewater, bar rack, grit chamber, comminutor, parshall flume, three (3) aerated lagoons with aerators in each lagoon, parshall flume, disinfection system that uses sodium hypochlorite solution followed immediately by dechlorination with sodium bisulfite just prior to discharge of the treated effluent to the Suncook River.

The Town of Pittsfield's existing ("current") permit was issued on July 23, 1997, and expires on August 22, 2002. The permit will be administratively extended until a new permit can be issued for the applicant has filed a complete application for permit reissuance within the prescribed time period as per 40 Code of Federal Regulations (CFR) Section 122.6.

The current permit authorizes a discharge from Outfall 001 (Treatment Plant) year round and that discharge period will be continued in the draft permit. The location of the treatment facility, Outfall 001 and the receiving water are shown in **Attachment A** and their locations are unchanged from the current permit.

II. Description of Discharge.

A quantitative description of significant effluent parameters based on discharge-monitoring data collected for Outfall 001 during the 24-month period January 2000 through December 2001 are shown in **Attachment B**. Of the effluent characteristics listed in **Attachment B** and shown in the current permit, the draft permit contains limitations for five-day Carbonaceous Biochemical Oxygen Demand (CBOD₅), Total Suspended Solids (TSS), Percent Removal of CBOD₅ and TSS, pH, *Escherichia coli* (*E. Coli*) bacteria, Total Residual Chlorine (TRC), Whole Effluent Toxicity (WET) and monitoring requirement for Flow. The weekly June 1st through October 31st effluent monitoring-only requirement for Total Ammonia as N in the current permit has not been carried forward into the draft permit.

III. Limitations and Conditions.

Effluent limitations, monitoring requirements, and any implementation schedule (if required) are found in PART I of the draft NPDES permit. The basis for each limit and condition is discussed in Section IV of this Fact Sheet.

IV. Permit Basis and Explanation of Effluent Limitations Derivation.

A. Background

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

EPA is required to consider technology and water-quality based criteria in addition to the current permit conditions when developing permit limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the ACT (See 40 CFR Part 125, Subpart A). Secondary Treatment Technology guidelines (effluent limitations) represent the minimum level of control required for Publicly-Owned Treatment Works (POTW) and those guidelines can be found in 40 CFR Part 133.

In general, all statutory deadlines for meeting various technology-based guidelines (effluent limitations) established pursuant to the ACT have expired. For instance, compliance with POTW technology-based effluent limitations is, effectively, from date of permit issuance (40 CFR §125.3(a)(1)). Compliance schedules and deadlines not in accordance with the statutory provisions of the ACT can not be authorized by a NPDES permit.

Water-quality based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards. See Section 301(b) (1)(C) of the ACT. A water-quality standard consists of three elements: (1) beneficial designated use or uses for a water body or a segment of a water body; (2) a numeric or narrative water-quality criteria sufficient to protect the assigned designated use(s); and (3) an antidegradation requirement to ensure that once a use is attained it will not be eroded. Receiving water requirements are established according to numerical and narrative standards in the state's water quality standards adopted under state law for each stream classification. When using chemical-specific numeric criteria to develop permit limits both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR 122.44 (d)(1) and are implemented under 40 CFR §122.45(d). In addition to the average weekly limit for POTWs under 40 CFR §122.45(d), the Region believes it's necessary to establish a maximum daily limit since the basis for the average weekly limit derives from the secondary treatment requirements for BOD₅

and TSS and is not directly related to achieving chemical specific water-quality standards for toxic pollutants which are based on an acute (short-term) and chronic (long-term) criteria. Given that, it would be impracticable to rely only on monthly or weekly average limits to ensure that Water Quality Standards for toxic pollutants are met. Therefore, the Region establishes maximum daily and average monthly limits for chemical specific toxic pollutants, such as Total Residual Chlorine. The POTW'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. Furthermore, narrative criteria from the state's water-quality standards are often used to limit toxicity in discharges where: (1) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (2) toxicity cannot be traced to a specific pollutant.

The NPDES permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water-quality criterion. See CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers: (1) existing and planned controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permit's reissuance application, Monthly Discharge Monitoring Reports (DMRs), 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 Control, 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 statutes and administrative rules (50 R.S.A. §485-A:8, Env-Ws 1705.02), available dilution for discharges to freshwater receiving waters is based on a known or estimated value of the annual seven (7) consecutive-day mean low flow at the 10-year recurrence interval (7Q10) for aquatic life or the long-term harmonic mean flow for human health (carcinogens only) in the receiving water at the point just upstream of the discharge. Furthermore, 10 % 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. The current set of these Regulations, newly revised, were adopted on December 3, 1999, and became effective on December 10, 1999. Hereinafter, these New Hampshire's Surface Water Quality Regulations are referred to as the NH Standards.

The permit may not be renewed, reissued or modified with less stringent limitations or conditions than those conditions in the previous permit unless in compliance with the antibacksliding requirement of the ACT [See Sections 402(o) and 303(d)(4) of the ACT and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions found in 40 CFR §122.44(l) prohibit the relaxation of permit limits, standards, and conditions unless certain conditions are met. Therefore, unless those conditions are met the limits in the reissued permit must be at least as stringent as those in the previous permit.

The ACT requires that EPA obtain state certification which states that all water-quality standards will be satisfied. The permit must conform to the conditions established pursuant to a State Certification under Section 401 of the ACT (40 CFR §124.53 and §124.55). EPA regulations pertaining to permit limits based upon water-quality standards and state requirements are contained in 40 CFR §122.44(d).

The conditions of the permit reflect the goal of the ACT and EPA to achieve and then to maintain water quality standards. To protect the existing quality of the State's receiving waters, the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) adopted Antidegradation requirements (Env-Ws 1708) in their NH Standards.

B. Conventional Pollutants

All the concentration- and mass-based effluent limits for CBOD₅ and TSS in the draft permit are based upon limits in the current permit in accordance with antibacksliding requirements found in 40 CFR §122.44(1) for the permittee has been able to achieve consistent compliance with those limits. In addition, average monthly and average weekly concentration-based limits for CBOD₅ and TSS are based on requirements under Section 301(b)(1)(B) of the ACT 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 CBOD₅ 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 CBOD₅ and TSS shown in the draft permit are based on the POTW's average daily design flow of 0.4 MGD and the appropriate constituent concentration for the respective time period being limited. See Attachment C for the equation used to calculate each of these mass-based limits. For example, the Average Monthly CBOD₅ load of 83 lbs/day is based on the average monthly CBOD₅ concentration of 25 mg/l, the facility's average daily design flow of 0.4 MGD, and a conversion factor of 8.345 to convert mg/l and MGD to lbs/day.

Percent removal of CBOD₅ and of TSS is based upon limits in the current permit in accordance with the antibacksliding requirements found in 40 CFR Section 122.44. In addition, percent removal of CBOD₅ and TSS is also a requirement of 40 CFR Section 133.102 (a) (3) and (b)(3), respectively

pH and Bacteria Limits Including Related Conditions:

The limits (range) in pH are based upon limits in the current permit in accordance with the antibacksliding requirements found in 40 CFR §122.44(1) since the permittee has been able to achieve consistent compliance with these limits. Historically, the NHDES-WD has required pH limits to be satisfied at end-of-pipe with no allowance for dilution. Therefore, in addition to the antibacksliding requirement, these limitations are based on State certification requirements for POTWs under section 401(d) of the ACT, 40 CFR §§124.53 and 124.55.

However, a change in the pH range in the draft permit due to in-stream dilution would be considered if the applicant can demonstrate, to the satisfaction of NHDES-WD, that the in-stream NH Standards for pH would be protected. Upon satisfactory completion of a demonstration study, the applicant or NHDES-WD may request in writing that the permit limits be modified by EPA-New England to incorporate the results of the demonstration.

Anticipating the situation where NHDES-WD grants a formal approval changing the pH limit(s) to outside the 6.5 to 8.0 Standard Units (S.U.), EPA-New England has added a provision to this draft permit (See SPECIAL CONDITIONS section). That provision will allow EPA-New England to modify the pH limit(s) using a certified letter approach. See STATE PERMIT CONDITIONS in the draft permit. 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.

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) because it will be based on new information not available at the time of this permit's issuance. This new information includes results from the pH demonstration study that justifies the application of a less stringent effluent limitation. EPA-New England anticipates that the limit determined from the demonstration study as approved by the NHDES-WD will satisfy all effluent requirements for this discharge category and will comply with NH Standards with regard to instream conditions.

Effluent limitations in the draft permit for *E. Coli* bacteria are based upon limitations in the current permit in accordance with the antibacksliding requirements found in 40 CFR §122.44(1) for the permittee has been able to achieve consistent compliance with all these limitations. There are two sets of *E. Coli* bacterial limits in the State's Statutes (N.H. RSA 485-A:8); one for beach area, and one for non-designated beach area. For the current permit, since no designated beaches exist in the vicinity of the outfall, the non-designated beach area limit was implemented. Calculation for compliance with the Average Monthly limit for *E. Coli* shall be determined using the geometric mean. The original basis for these limitations is found in New Hampshire's State statutes (N.H. RSA 485-A:8). Historically, the NHDES-WD has required bacteria like pH limits to be satisfied at end-of-pipe with no allowance for dilution. Therefore, in addition to the antibacksliding requirement, these limitations are based on State certification requirements for POTW under section 401(d) of the ACT, 40 CFR §§124.53 and 124.55.

C. 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 recently revised 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 (See section on available dilution next) to determine a specific pollutant's draft permit limit, such as the fast acting toxicant chlorine, ammonia, metals, etc.

Available Dilution:

Available dilution, or the dilution afforded the POTW's effluent by the receiving water, was determined to be 6.7 in the current permit and that value has been carried forward unchanged into the draft permit for the Agency believes it's the best estimate currently available. That value (also referred to as dilution factor) was determined using the plant's design flow of 0.40 MGD, an estimate of the 7Q10 low flow of 4.00 cfs (2.58 MGD) in the Suncook River just above the treatment plant's outfall, and the 90 percent Assimilative Capacity Reserve (saving 10 percent for future needs) regulation (Env-Ws 1705.01) in the NH Standards.

Since a gaged value of the 7Q10 flow is not available at the outfall, one was estimated using a known 7Q10 value on the Suncook River at a U.S. Geological Survey (USGS) gaging station (Gage No. 01089500) at a site 4.1 river miles downstream of the POTW's outfall and subtracting from that value the low flow contributed by the intervening drainage area between that gage and the outfall. The intervening 7Q10 flow was determined by first unitizing the gaged 7Q10 flow on a drainage area basis (7Q10 per square mile) and then multiplying that number by the intervening drainage area. See Attachment A for location of gaging station and Attachment C for equations used to calculate the estimated 7Q10 flow and dilution factor at the POTW's outfall.

Ammonia Nitrogen:

The current permit's ammonia monitoring-only requirement of once per week annually from June 1st through October 31st **for toxicity purposes (not to be confused with an ammonia limit for dissolved-oxygen purposes)** has not been carried forward into the proposed draft permit because recent monitoring data from the facility summarized in Attachment B indicates there is no longer a reasonable potential to cause or contribute to an exceedance of NH Standards. For example, based on the ammonia chronic aquatic-life criteria for fish early life stages are present from EPA's updated ammonia criteria of December 1999 which the NH-Standards allow for its use [Env-Ws 1704.01(c)] and an available dilution of 6.7, the proposed average monthly ammonia limit would be 22.7 mg/l as Nitrogen for an instream pH of 6.5 Standard Units and water temperature of 25 degrees Celsius. Referring to Attachment B, this is significantly above the highest average monthly summertime value of 13 mg/l (June 2001) recorded for the monthly reporting periods (January 2000 - December 2002). See Attachment C for equation used to calculate water-quality based limits for ammonia.

Total Residual Chlorine:

The average monthly and maximum daily limitations for Total Residual Chlorine (TRC) limits in the draft permit are based upon limitations in the existing permit in accordance with the antibacksliding requirements found in 40 CFR Section 122.44(1) for the permittee has been able to achieve consistent compliance with these limitations. For the record, these average monthly and maximum daily limits are based on the acute and chronic aquatic-life criteria in the NH Standards (Env-Ws

1703.21, Table 1703.1) multiplied by the available dilution (6.7) in the receiving water. The TRC's chronic criterion is 0.011 mg/l, whereas, the acute criterion is 0.019 mg/l. See Attachment C for equation used to calculate water-quality based limits for TRC.

D. 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.

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 all 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 Attachment D. This policy (Attachment D) is the basis for the WET limits in Pittsfield's previous permits and in this draft permit. In addition, the effluent limitations in the draft permit for LC50 and C-NOEC are based upon those in the current permit in accordance with the antibacksliding requirements found in 40 CFR Section 122.44(1) for the permittee has been able to achieve consistent compliance with these limitations. Specifically, the draft permit is conditioned to require the permittee to continue performing annually, four (4) chronic and modified acute toxicity tests using two (2) species per test during calendar quarters ending March 31st, June 30th, September 30th, and December 31st each year and for the test results to meet an acute LC50 limit of 100 percent effluent concentration and a chronic C-NOEC limit of equal to or greater than 14.9 % effluent concentration. The two (2) species used in these toxicity tests are Daphnid (Ceriodaphnia dubia) and Fathead Minnow (Pimephales promelas).

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. Therefore, a 100 % limit means that a sample of 100 % effluent shall have no greater than a 50 % mortality rate in that effluent sample. Whereas, C-NOEC (Chronic-No Observed Effect Concentration) is defined as the **highest** concentration to which aquatic test organisms are exposed in a life cycle or partial life cycle test, which causes no adverse effect on growth, survival or reproduction at a specific time of observation as determined from hypothesis testing where the tests results (growth, survival and/or reproduction) exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the draft permit requires the permittee to report the lowest concentration where there is no observable effect. See the draft permit's **ATTACHMENT A (VII. TOXICITY TEST DATA ANALYSIS)** on page A-9 for additional clarification in selecting appropriate C-NOEC value. The modified acute toxicity test required in the draft permit is measured 48 hours into the chronic test. Toxicity test results are to be submitted by the 15th day of the month following the end of the quarter sampled. For example, test results of the third calendar quarter (July-September) are to be submitted with the DMR for September due to EPA-New England and NHDES-WD by October 15th.

This draft permit, as in the current permit, requires the permittee to continue reporting selected parameters from the chemical analysis of the WET tests 100 percent effluent sample. Specifically, 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 Permit Compliance System'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.

The WET limits in the draft permit have been conditioned 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 on a maximum daily basis 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 at 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 current 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 approveable 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.

E. Sludge

Section 405(d) of the ACT 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 sludges which are land applied, disposed of in a surface disposal unit, or fired in a sewage sludge incinerator are subject to Part 503 technical and to State Env-Ws 800 standards. Part 503 regulations have a self-implementing provision, however, the ACT requires implementation through permits. Domestic sludges which are 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 ACT's 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" for use by the permittee in determining their appropriate sludge conditions for their chosen method of sewage sludge use or disposal practices.

The permittee is also required to submit an annual report to EPA-New England and NHDES-WD, by February 19th each year, containing the information specified in the Sludge Compliance Guidance document for their chosen method of sewage sludge use or disposal practices.

The permittee removed all accumulated sludge from all three (3) of its treatment lagoons during 2001 as the result of an Administrative Order (Consent No. WD 01-01) issued by the NHDES-WD. The removal process began on March 22nd and lasted through October 12th when flow resumed from the polishing lagoon (cell no. 3) to the disinfection system. Since March 22nd, the only lagoons available for biological treatment prior to disinfection were lagoons 1 and 2 as accumulated sludge in those lagoons was pumped to lagoon 3 for processing (dewatering and removal), thus lagoon 3 was taken off-line during this processing period. All 451 dry tons of sludge removed from this facility was sent to North Country Environmental Services (NCES) in Bethlehem, NH, a secure landfill (double liner with leachate collection), for ultimate disposal. As a result of this cleaning, no sludge removal is contemplated during the five (5) life of this permit for the 2001 cleaning was the first cleaning since the facility opened in 1978, or 23 years ago as of 2001.

F. Industrial Users

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 §307 of the ACT. However, the draft permit contains conditions that are necessary to allow EPA-New England and NHDES-WD to insure 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-New England 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-New England and NHDES-WD the name(s) of all industrial users subject to Categorical Pretreatment Standards under 40 CFR §403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended) and/or New Hampshire Pretreatment Standards (Env-Ws 904) who commence discharge to the POTW after the effective date of the permit, and (2) submit copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users to EPA-New England and NHDES-WD.

According to Pittsfield's current application, Suncook Leathers, Inc. (SLI) is the only Significant Industrial User (SIU) that discharges effluent to the POTW. In addition, SLI is subject to categorical pretreatment (Federal) standards found in 40 CFR Part 425, Subpart I, Section 425.96 [Pretreatment Standards for New Sources (PSNS)] and to local limits found in Pittsfield's local sewer use ordinance (SUO). In this case, Pittsfield's local SUO has a Total Chromium limit of 0.8082 pounds per day allowable headworks loading at the POTW that went into effect on November 27, 2001 (Phone conversation with George Carlson of NHDES-WD on May 7, 2002) which translates into a 2.9 mg/l Total Chromium limit on SLI's discharge to the POTW. Other local limits for industrial dischargers will be developed by the POTW as necessary with all local limits incorporated into Pittsfield's local SUO. The requirement to develop and add a chromium limit to the local SUO was initiated by NHDES-WD's Administrative Order (Consent No. WD 01-01) issued in 2001 to prevent future sludge accumulations from containing excessive chromium concentrations. Excessive chromium concentrations in the removed sludge was identified as a problem in that those concentrations prevented land application of Pittsfield's sludge. Enforcement of local limits is performed by the NHDES-WD through Pittsfield's local SUO which is administered by the POTW.

G. 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.

H. Additional Requirements and Conditions

The effluent monitoring requirements in the draft permit and shown in Table 1 below have been established to yield data representative of the discharge under the authority of Section 308(a) of the ACT in accordance with 40 CFR §§ 122.41(j), 122.44(i) and 122.48. In the draft permit, compliance monitoring frequency and sample type for Flow, CBOD₅, 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. See Table One on the next page for a comparison of sampling frequencies and sample types in the current versus draft permits.

It's the intent of EPA and NHDES-WD to establish minimum monitoring frequencies in all NPDES permits at permit modification and/or reissuances in accordance with this Effluent Monitoring Guidance that make sense from both an environmental and human health perspective.

Table One. Sampling Frequencies and Sample Types in the Current and Draft Permits.
(Changes to current permit are highlighted under draft Permit.)

PARAMETER	CURRENT PERMIT		DRAFT PERMIT	
	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Flow	Continuous	Recorder	Continuous	Recorder
CBOD ₅	1/Week	Grab	1/Week	Grab
TSS	1/Week	Grab	1/Week	Grab
Percent Removal of CBOD ₅ and of TSS	1/Month	24-Hr. Composite for influent; Grab for effluent	2/Month	24-Hr. Composite for influent; Grab for effluent
pH	1/Day	Grab	1/Day	Grab
TRC	1/Day	Grab	1/Day	Grab
Total Ammonia	1/Week (June-Oct.)	Grab	Eliminated	Eliminated
<u>Escherichia coli</u>	3/Week	Grab	2/Week	Grab

WET Test: Toxicity LC50 C-NOEC Ammonia NH ₃ -N Tr Aluminum Tr Cadmium Tr Chromium Tr Copper Tr Lead Tr Nickel Tr Zinc	All Parameters 1/Quarter	Grab	All Parameters 1/Quarter	Grab
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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 ACT 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.

V. Essential Fish Habitat.

Under the 1996 Amendments (PL 104-267) 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 action or proposed actions that it funds, permits, or undertakes, “may adversely impact any essential fish habitat.” 16 U.S.C. § 1855(b). The Amendments broadly define “essential fish habitat” (EFH) as: “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. 16 U.S.C. § 1802(10). Adversely impact means any impact which reduces the quality and/or quantity of EFH. 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

EFH is only designated for fish species for which federal Fisheries Management Plans exist. 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.

Description of Proposed Action

The above named applicant has applied to EPA-New England for reissuance of its NPDES permit to discharge secondary treated wastewaters into the designated receiving water (Suncook River, a tributary to the Merrimack River). The facility collects and treats domestic (household/sanitary/septage) and commercial and industrial wastewaters from the Town of Pittsfield, New Hampshire and discharges that treated effluent into the receiving water. The currently effective

permit was developed based on a design flow of 0.40 MGD for this treatment facility and that design flow has been carried forward unchanged into the draft permit. Pittsfield's current permit was issued on July 23, 1997, and expires on August 22, 2002, and that permit will be administratively extended until a new permit can be issued for the applicant has filed a complete application for permit reissuance within the prescribed time period as per 40 CFR Section 122.6.

EFH Species

Suncook River is a tributary of the Merrimack River, and as such is designated EFH for Atlantic salmon (*Salmo salar*). According to the New Hampshire Fish and Game Department (NHF&GD), each year various sections of Suncook River are stocked with approximately 30,000 Atlantic salmon fry. Specifically, the major reaches of the Suncook River recently stocked with Atlantic salmon fry are: (1) a 1/4 mile reach from the outlet of Lower Suncook Lake to junction with State Route 28 which is upstream of Pittsfield's POTW; and (2) a reach from the dam in Pittsfield center all the way down through Webster Mills, the reach to which Pittsfield POTW discharges. In addition, there is a 1/4 mile reach in the vicinity of State Route 28 near Suncook village (downstream of Pittsfield's discharge) that has suitable habitat, but is not stocked.

Analysis of Effects

The dilution factor for this discharge has been calculated to be 6.7 : 1. At this level of available dilution, the facility has an average monthly numeric limit for TRC of 0.074 mg/l and as a result, the facility de-chlorinates their effluent prior to discharge, thus eliminating any potential adverse effects on aquatic organisms associated with chlorine toxicity. In addition, this draft permit is being reissued with allowable wasteloads and parameter coverages identical those in the current permit with no change in the treatment works's outfall location or design flow. The State of New Hampshire has indicated that if this draft permit is issued as drafted there will be no lowering of water quality, no loss of existing water uses and plans to certify that this discharge will not cause the receiving water (Suncook River) to violate the State's Surface Water Quality Regulations. State Water Quality Regulations/Standards are designed to protect various aquatic species including fish. Also, this past year (2001) accumulated sludge in all the three (3) treatment lagoons was removed thus improving the treatment process and a stringent Total Chromium limit was imposed on the POTW's only significant industrial user (discharger). Furthermore, the draft permit continues the quarterly chronic WET testing to assess if the effluent is causing adverse effects to sensitive aquatic test species along with monitoring of the effluent for the presence of toxic pollutants, including ammonia and selected metals such as copper. If the results of the WET testing demonstrate toxicity to test species, or if monitoring for other toxic pollutants in the effluent reveal the presence of such pollutants in toxic amounts, then the permit may be modified to include numeric limits on pollutants of concern.

EPA-New England's Opinion of Probable Impacts

The quality of juvenile Atlantic salmon habitat in the Suncook River will likely remain the same or improve slightly as a result of this permit reissuance, removal of accumulated sludge from all the

treatment lagoons last year, the stringent chlorine and toxicity test limits, and the comprehensive toxic pollutant monitoring associated with the re-issuance of this permit. If EPA-New England concludes that a permit modification is necessary, based on the results of effluent monitoring for toxicity, the presence of toxic pollutants, or exceedances of NH Standards, EPA-New England will reinitiate consultation with NMFS.

Mitigation

The EPA-New England considers the conditions in this draft permit to be adequately protective of EFH, and, therefore, does not consider further mitigation to be warranted.

VI. 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 and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate the State's Surface Water Quality Regulations or waives its right to certify as set forth in 40 CFR §124.53.

Upon public noticing of the draft permit, EPA-New England is formally requesting that the State's certifying authority make a written determination concerning certification. The State will be deemed to have waived its right to certify unless certification is received within 60 days of receipt of this request.

The NHDES-WD is the certifying authority. EPA-New England has discussed this draft permit with the staff of the Water Division and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 CFR §§124.53 and 124.55.

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the ACT, Sections 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law. In addition, the State should provide 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. Since certification is provided prior to permit issuance, failure to provide this statement for any condition waives the right to certify or object to any less stringent condition which may be established by EPA-New England during the permit issuance process following public noticing as a result of information received during that noticing. If the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the ACT or State law, the State should include such conditions and, in each case, cite the ACT or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. **The sludge conditions implementing section 405(d) of the ACT are not subject to the 401 certification requirements.**

Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 CFR Part 124.

VII. 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. Roger A. Janson, Associate Director Surface Water Programs, U.S. Environmental Protection Agency, One Congress Street, Suite 1100 (Mail Code: CWQ), 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 (30) 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.

VIII. EPA/State Contacts.

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 from:

**Frederick B. Gay, Environmental Engineer
U.S. Environmental Protection Agency
Office of Ecosystem Protection, NPDES Permits Unit
One Congress Street, Suite 1100, Mail Code: CPE
Boston, Massachusetts 02114-2023
Telephone No.: (617) 918-1297
FAX No.: (617) 918-0297**

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

ATTACHMENT A: USGS Topographic Map of area, not available electronically

ATTACHMENT B

CONCENTRATIONS OF SELECTED EFFLUENT CHARACTERISTICS AT OUTFALL 001

The following selected effluent characteristics were derived from analysis of discharge-monitoring data collected for Outfall 001 during the 24-month period January 2000 through December 2001. These values were extracted from monthly Discharge Monitoring Reports (calendar month reporting period) submitted by Pittsfield’s Wastewater Treatment Facility. They represent an effluent composed of treated domestic (household/sanitary/septage) and commercial and industrial wastewaters discharged from this facility and gives an indication of this treatment works ability to meet its current permit limits. To fully understand the statistics presented in the table below, the reader should be thoroughly familiar with the definitions of average monthly, average weekly and maximum daily in Part II, General Conditions and Definitions, on pages 13, 14 and 18, respectively. In the table, some range values were rounded for ease of presentation.

It should be noted that Pittsfield uses a three (3) celled lagoon wastewater treatment system. However, from March 22nd to October 12, 2001, cell three, the facility’s polishing lagoon, was taken off line due to sludge cleaning activities in all three lagoons; therefore, only cells one and two were available for treatment. As a result, some reported results appear slightly elevated, particularly some of the metals, as compared to what they should have been had all three cells been on line.

Effluent Characteristic	Average of Average Monthly ¹	Range of Average Monthly	Average of Average Weekly ¹	Range of Average Weekly	Average of Maximum Daily ¹	Range of Maximum Daily
Flow (MGD)	0.24	0.12-0.40	--	--	0.35	0.16-0.77
CBOD ₅ (lbs/day)	29.6	3-70	48.6	3-124	48.6	3-124
CBOD ₅ (mg/l)	14.4	3-24	20	3-40	20	3-40
CBOD ₅ (Percent Removal)	92.2	86-99	--	--	--	--
TSS (lbs/day)	38.9	2-107	64.7	3- 278	64.7	3-278
TSS (mg/l)	18.1	1-31	28.2	2-56	28.2	2-56
TSS (Percent Removal)	90.4	80-99	--	--	--	--
pH (Standard Units)	--	--	--	--	--	4.8-8.6
<i>E. coli</i> bacteria (Organisms/100 ml)	87.1	7-340	--	--	450	40-4593
Total Residual Chlorine (mg/l)	0.053	0.00-0.09	--	--	0.11	0.04-0.23
Total Ammonia ² as N (mg/l)	2.6	0.23-13	--	--	4.7	0.6-25
Total Ammonia ³ as N (mg/l)	--	--	--	--	19.4	1.1-31

Effluent Characteristic	Average of Average Monthly ¹	Range of Average Monthly ¹	Average of Average Weekly ¹	Range of Average Weekly	Average of Maximum Daily ¹	Range of Maximum Daily
Total Recoverable Cadmium (ug/l)	--	--	--	--	0.25	<0.5-<0.5
Total Recoverable Chromium (ug/l)	--	--	--	--	55.9	14-220
Total Recoverable Copper (ug/l)	--	--	--	--	25.7	3-140
Total Recoverable Lead (ug/l)	--	--	--	--	4.8	1-25
Total Recoverable Nickel (ug/l)	--	--	--	--	5.3	<2-24
Total Recoverable Zinc (ug/l)	--	--	--	--	72	30-190
Whole Effluent Toxicity (LC50 in % Effluent)						
<i>Ceriodaphnia dubia</i>	--	--	--	--	91.6	71-100
<i>Pimephales promelas</i>	--	--	--	--	89.9	69-100
Whole Effluent Toxicity (C-NOEC in % Effluent)						
<i>Ceriodaphnia dubia</i>	--	--	--	--	32.1	<6.25-100
<i>Pimephales promelas</i>	--	--	--	--	68.7	<6.25-100

1. Any value qualified with a less than sign was halved prior to computing average value.
2. Total Ammonia as Nitrogen (N) is for the period June 1st through October 31st and is based on data collected at frequency of once per week and from WET tests performed during this period.
3. Total Ammonia as Nitrogen (N) is for the period November 1st through May 31st and is based on data from WET tests.

ATTACHMENT C

Maximum Allowable Loads

Equation used to calculate mass limits for CBOD₅ and TSS where:

$$L = C * Q_{PDF} * 8.345$$

L = Maximum allowable load, in lbs/day.

C = Maximum allowable effluent concentration for reporting period, in mg/l. Reporting periods are average monthly, average weekly and maximum daily.

Q_{PDF} = Treatment plant's design flow, in MGD.

8.345 = Factor to convert effluent concentration, in mg/l, and plant's design flow, in MGD to lbs/day.

Available Dilution Factor

The 7Q10 low-flow at the treatment plant's outfall was computed using a known 7Q10 low-flow value for the nearby U.S. Geological Survey streamflow gaging station. Low-flow data are available for the Suncook River at North Chichester (about 4.1 miles downstream from the Outfall 001). In addition, the low-flow contributed by the intervening drainage area between the gaging station and the outfall was included (actually subtracted) in the 7Q10 calculation. An estimate of the 7Q10 low flow for this intervening area was determined by first unitizing the gaged 7Q10 flow on a drainage area basis at the gage (7Q10 per square mile) and then multiplying that number by the intervening drainage area. Pertinent 7Q10 low-flow data, drainage areas, and calculations are summarized below.

Suncook River at North Chichester, NH (01089500);

Drainage Area: 157 square miles (mi²);

7Q10 low-flow value: 4.53 cubic feet per second (CFS).

Intervening drainage area between Outfall 001 and gage;

Drainage Area: 18.3 mi².

Intervening low flow between Outfall 001 and gage:

$$7Q10 = 18.3 \text{ mi}^2 (4.53 \text{ CFS}/157 \text{ mi}^2) = 0.53 \text{ CFS}$$

Suncook River 7Q10 at Outfall 001 = 4.53 CFS - 0.53 CFS = 4.00 CFS.

ATTACHMENT C (Continued)

Dilution Factor Equation at Outfall 001.

$$DF = \frac{(Q_{001}) + (Q_{PDF} \times 1.547)}{Q_{PDF} \times 1.547} \times 0.90$$

where:

- DF = Dilution Factor. (*Computes out to be 6.7*)
- Q₀₀₁ = 7Q10 flow at Outfall 001, in CFS. (*Estimated to be 4.00 CFS*).
- 0.90 = Factor to reserve 10 percent assimilative capacity.
- Q_{PDF} = Treatment plant's design flow, in MGD. (*Stipulated to be 0.4 MGD*).
- 1.547 = Factor to convert MGD to CFS.

Water-Quality Criteria Based Limits Calculation for Total Residual Chlorine and Ammonia

Equation used to calculate Average Monthly and Maximum Daily limits for Total Residual Chlorine (TRC) and Average Monthly limit for Ammonia. Use acute aquatic-life criterion for computing "Maximum Daily" limit and chronic aquatic-life criterion for computing "Average Monthly" limit.

$$Limit = Dilution Factor * Aquatic-Life Water-Quality Criteria$$

where:

- Limit = mg/l.
- DF = Dilution Factor from equation above which equals 6.7.
- 0.011 = TRC's Chronic Aquatic-Life Water-Quality Criterion, in mg/l.
- 0.019 = TRC's Acute Aquatic-Life Water-Quality Criterion, in mg/l.
- 3.39 = Ammonia's Chronic Aquatic-Life Water-Quality Criterion, in mg/l.

C-NOEC Toxicity Limit

Equation used to calculate WET's C-NOEC limit which is set equal to or greater than the Receiving Water Concentration. See Attachment D.

$$RCW = \frac{1}{DF} \times 100$$

where:

- RCW = Receiving Water Concentration, in percent.
- DF = Dilution Factor from equation above which equals 6.7.
- 100 = Factor to convert reciprocal to a percent.

ATTACHMENT D - Toxicity Strategy for Municipal Permits

	HIGH RISK	MED-HIGH RISK	MED-LOW RISK	LOW RISK
DILUTION FACTOR	<10:1		10.1-20:1	20.1-100:1
SAMPLING EVENTS PER YEAR	4(1/3 MONTHS)		4(1/3 MONTHS)	4(1/3 MONTHS)
TOXICITY TESTS: FRESH WATER MARINE WATER	CHRONIC ¹ CHRONIC & ACUTE		CHRONIC ¹ CHRONIC & ACUTE	ACUTE ACUTE
NUMBER OF SPECIES: FRESH WATER MARINE WATER	2 3		2 3	2 2
PERMIT LIMITS	LC50=100% C-NOEC ² >=RWC ³		LC50=100%	LC50=100%
TEST SPECIES: FRESH WATER MARINE WATER	DAPHNID ¹ (<i>Ceriodaphnia dubia</i> or <i>Daphnia pulex</i>) FATHEAD MINNOW ¹ (<i>Pimephales promelas</i>) INLAND SILVERSIDE ¹ (<i>Menidia beryllina</i>) MYSID SHRIMP (<i>Mysidopsis bahia</i>) SEA URCHIN (<i>Arbacia punctulata</i>)		DAPHNID (<i>Ceriodaphnia Daphnia pulex</i>) FATHEAD MINNOW (<i>Pimephales promelas</i>) INLAND SILVERSIDE (<i>Menidia beryllina</i>) MYSID SHRIMP (<i>Mysidopsis bahia</i>)	

¹ 7-DAY CHRONIC/MODIFIED ACUTE.

² C-NOEC IS CHRONIC NO OBSERVED EFFECT CONCENTRATION.

³ RWC IS RECEIVING WATER CONCENTRATION, IN PERCENT, AS DETERMINED FROM DIVIDING ONE BY THE DILUTION FACTOR ALL TIMES 100.