

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

FACT SHEET

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

NPDES PERMIT NO.: NH0100650

PUBLIC NOTICE START/FINISH DATE:

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Peterborough
1 Grove Street
Peterborough, New Hampshire 03458

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Town of Peterborough Wastewater Treatment Facility
110 Pheasant Road
Peterborough, NH 03458

RECEIVING WATER: Contocook River (Hydrologic Unit Code: 01070003)

CLASSIFICATION: B

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

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge treated effluent into the designated receiving water. The facility is engaged in the collection and treatment of municipal wastewater from the Town of Peterborough. The discharge is from a 0.5 million gallons per day (mgd) secondary wastewater treatment plant which employs one aerated lagoon followed by two stabilization ponds followed by chlorination and dechlorination.

The Town's previous permit was issued on September 28, 2000. The expired permit (hereafter referred to as the "existing permit") has been administratively extended pursuant to 40 C.F.R. §122.6.

The location of the facility, Outfall 001, and receiving water are shown in Attachment A.

II. Description of Discharge.

A quantitative description of significant effluent parameters based on Discharge Monitoring Reports (DMRs) is shown in Attachment B. The data are from January 2003 through January 2005.

III. Limitations and Conditions.

Effluent limitations, monitoring requirements, and any implementation schedule (if required) are found in PART I of the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

A. General Regulatory Background

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

EPA is required to consider technology and water quality-based requirements as well as those requirements and limitations included in the existing permit when developing the effluent limits for the revised permit. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards. (See Section 301(b)(1)(C) of the CWA). 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) antidegradation requirements to ensure that once a use is attained it will not be eroded.

Receiving water requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical specific numeric criteria from the state's water-quality standards 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 C.F.R. §122.44(d)(1) and are implemented under 40 C.F.R. §122.45(d).

B. Introduction

The permit must limit any 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 40 C.F.R. §122.44(d)(1)(i). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

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 the permit’s reissuance application, DMRs, and State and Federal Water Quality Reports; 3) sensitivity of the species to toxicity testing; 4) the statistical approach outlined in *Technical Support Document for Water Quality-Based Toxics Control*, March 1991, EPA/502/2-90-001 in Section 3; and, where appropriate, 5) dilution of the effluent in the receiving water. In accordance with the New Hampshire statutes and administrative rules [RSA 485-A:8, VI, Env-Ws 1705], available dilution is based on a known or estimated value of the lowest average annual flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life or the mean annual flow for human health (carcinogens only) in the receiving water at the point just upstream of the outfall. Furthermore, 10 percent of the assimilative capacity of the receiving water is held in reserve for future needs in accordance with New Hampshire’s Surface Water Quality Regulations, Env-Ws 1705.01.

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 limitation in the previous permit. Unless certain exceptions are met, “backsliding” from effluent limitation contained in previously issued permits is prohibited. 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.

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 limitations 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 incorporates the requirements specified in the certification under 40 C.F.R. § 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 conditions 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 regulation provides 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 and 40 C.F.R. § 122.44(d).

C. Flow

The Peterborough Wastewater Treatment Facility has a design flow rate of 0.5 mgd. This flow rate is used to calculate mass limits for Biochemical Oxygen Demand (BOD₅), Total Suspended Solids, and Available Dilution as discussed below. If the effluent flow rate exceeds 80 percent of the 0.5 mgd design flow (0.4 mgd) for a period of three consecutive months then the permittee must notify EPA and the NHDES-WD and implement a program to maintain satisfactory treatment levels.

D. Conventional Pollutants

Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids

Average monthly and average weekly concentration limits (i.e. mg/l) in the draft permit for Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) are based on requirements under Section 301(b)(1)(B) of the CWA as defined in 40 C.F.R. §133.102. The average monthly, average weekly, and maximum daily concentration limits for BOD₅ and TSS are also based upon limits in the existing permit in accordance with the anti-backsliding

requirement found in 40 C.F.R. §122.44.

The draft permit also contains average monthly, average weekly, and maximum daily mass (i.e. lbs/day) for BOD₅ and TSS. Mass limits are incorporated into the permit based on 40 C.F.R. §122.45(f). These mass limits were calculated using the appropriate concentration limits and the design flow of the facility. Refer to Attachment C for the calculation of these limits.

pH

The pH limit of 6.5 – 8.0 S.U. in the draft permit remain unchanged from the existing permit. Language under State Permit Conditions (PART I.D.1.a.) allows for a change in the pH limit under certain conditions. A change would be considered if the applicant can demonstrate to the satisfaction of NHDES-WD that the pH standard of the receiving water will be protected when the discharge is outside the permitted range, then the applicant or NHDES-WD may request (in writing) that the permit limits be modified by EPA to incorporate the results of the demonstration. Anticipating the situation where NHDES-WD grants a formal approval changing the pH limit to outside 6.5 to 8.0 Standard Units (S.U.), EPA has added a provision to the draft permit (see SPECIAL CONDITIONS section). That provision will allow EPA to modify the pH limit using a certified letter approach. This change will be allowed only if it is demonstrated that the revised pH limit range does not alter the naturally occurring receiving water pH. However, the pH limit range cannot be less restrictive than 6.0 to 9.0 S.U. found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 C.F.R. Part 133) for the facility.

Escherichia coli

The average monthly and maximum daily limitations for Escherichia coli bacteria are based upon limitations in the existing permit in accordance with the anti-backsliding requirements mentioned above and on Class B water quality standards established by the State of New Hampshire in RSA 485-A:8.II. The average monthly limit for Escherichia coli is determined by calculating the geometric mean.

E. Non-Conventional and Toxic Pollutants

Water quality based limits for specific toxic pollutants such as chlorine, ammonia, and copper are determined from numeric chemical specific criteria derived from extensive scientific studies. The EPA has summarized and published specific toxic pollutants and their associated toxicity criteria in *Quality Criteria for Water*, 1986, EPA440/5-86-001 as amended, commonly known as the federal “Gold Book”. Each pollutant generally includes an acute aquatic life criteria to protect against short term effects, such as death, and a chronic aquatic life criteria to protect against long term effects, such as poor reproduction or impaired growth. 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 10, 1999. EPA uses these pollutant specific criteria along with available dilution in the receiving water to determine a

pollutant specific draft permit limits.

7Q10 Flow and Available Dilution

The available dilution of the receiving water is determined using the design flow of the facility and the annual 7 day mean flow at the 10 year recurrence interval (7Q10) in the receiving water. The available dilution is reduced by 10 percent to account for the State's reserve capacity rule. For this facility a dilution factor of 13.8 was used. This dilution factor is based upon a 7Q10 flow just below the Peterborough treatment plant of 11.82 cfs. The 7Q10 at the Peterborough treatment plant was derived by adding the 7Q10 flows of the USGS gage on the Contoocook River in Peterborough (Gage No. 01082000) and the gage on Nubansit Brook (Gage No. 01083000). The 7Q10 flows at these gages are 8.11 and 3.22 cfs, respectively. The Dingman equation was then used to calculate a 7Q10 flow of 0.49 cfs for the ungaged area. This flow was then added to the 7Q10 from the gages to give a 7Q10 at the Peterborough treatment plant of 11.82 (8.11 + 3.22 + 0.49 = 11.82 cfs). The dilution factor calculation is shown in Attachment D.

Total Residual Chlorine

Effluent limits for average monthly and maximum daily total residual chlorine (TRC) are based on the acute (19 ug/l) and chronic criteria (11 ug/l) values, as adopted in the NH standards at Env-Ws 1703.21, multiplied by the available dilution (13.8) of the receiving water. The calculations for the monthly average and maximum daily limits for the draft permit are shown below.

Average Monthly Limit:

$$(11 \text{ ug/l})(13.8)(\text{mg}/1000 \text{ ug}) = 0.15 \text{ mg/l}$$

Maximum Daily Limit

$$(19 \text{ ug/l})(13.8)(\text{mg}/1000 \text{ ug}) = 0.26 \text{ mg/l}$$

Nutrients

Phosphorus and other nutrients (i.e. nitrogen) promote the growth of nuisance algae and rooted aquatic plants. Typically, elevated levels of nutrients will cause excessive algal and/or plant growth resulting in reduced water clarity and poor aesthetic quality. Also, through respiration and the decomposition of dead plant matter excessive algae and plant growth can reduce in-stream dissolved oxygen concentrations to levels that could negatively impact aquatic life and/or produce strong, unpleasant odors.

EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The 1986 Quality Criteria of Water (the "Gold Book") recommends in-

stream phosphorus concentrations of 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 within the lake or reservoir.

In December 2000, EPA released “Ecoregional Nutrient Criteria” (USEPA 2000) as part of an effort to reduce problems associated with excess nutrients in water bodies located within specific areas of the country. The published criteria represent conditions in waters within each specific ecoregion which are minimally impacted by human activities and thus are representative of waters without cultural eutrophication. Peterborough is within Ecoregion XIII, *Nutrient-Poor, Largely Glaciated Upper Midwest and Northeast*. Recommended criteria for this ecoregion is a total phosphorus criteria of 10 ug/l (0.01 mg/l) and chlorophyll *a* criteria of 0.63 ug/l (0.00063 mg/l). These recommended criteria are found in the *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Nutrient Ecoregion XIII* (USEPA 2001).

More recently, Mitchell, Liebman, Ramseyer, and Card (in draft 2004), in conjunction with the New England states, developed potential nutrient criteria for rivers and streams in New England. Using several river examples representative of typical conditions for New England streams and rivers, they investigated several approaches for the development of river and stream nutrient criteria that would be dually protective of designated uses in both upstream reaches and downstream impoundments. Based on this investigation an instream total phosphorus concentration of 20 – 22 ug/l (0.020 – 0.022 mg/l) was identified as protective of designated uses for New England rivers and streams. The development of this New England-wide total phosphorus concentration was based on more recent data than the National Ecoregional nutrient criteria and have been subject to quality assurance measures. Additionally, the development of the New England-wide concentration included reference conditions for waters presumed to be protective of designated uses.

The New Hampshire Surface Water Quality Regulations contain a narrative criteria which states phosphorus contained in an effluent shall not impair a water body’s designated use. Specifically, New Hampshire Surface Water Quality Regulations, Chapter Env-Ws 1703.14(b) states that, “Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.” Env-Ws 1703.14(c) further states that, “Existing discharges containing either phosphorus or nitrogen which encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards.” Cultural eutrophication is defined in Env-Ws 1702.15 as, “...the human-induced addition of wastes containing nutrients which results in excessive plant growth and/or decrease in dissolved oxygen.” Although numeric nutrient criteria have not yet been developed in New Hampshire, a total phosphorus concentration of 0.05 mg/l is considered as a level of concern for the NHDES (NHVRAP & NHDES 2002, 2003, and 2005)

Section 303(d) of the CWA requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such, require the development of total maximum daily loads (TMDLs). New Hampshire’s *Final 2004 List of Threatened or Impaired Waters That Require a TMDL* (NHDES 2004) lists the

Contoocook River as not meeting water quality standards because of dissolved oxygen and pH issues. The New Hampshire Department of Environmental Services is currently working on a TMDL for the Contoocook River. The sampling for this TMDL was performed in the summer of 2002. A summary of pertinent monitoring data is summarized in the table below. A map showing the sampling locations is shown in Attachment E.

Sample Location	Sampling Date 8/14/02		Sampling Date 8/22/02	
	Chlorophyll A" ¹	Total P ²	Chlorophyll A"	Total P
25Y-Ctc	2.13	0.035	3.55	---
Peterborough WWTF	15.35	5.536	15.27	5.91
25X-Ctc	3.2	0.35	3.14	0.353
25T-Ctc	4.29	0.275	2.67	0.281
25J-Ctc	2.3	0.052	1.78	0.168
25-Ctc	10.14	0.075	28.8	0.082
24T-Ctc	11.26	0.04	28.74	0.081
24P-Ctc	4.655	0.029	6.815	0.0405
24D-Ctc	2.73	0.019	8.59	0.034
23-Ctc	1.28	0.024	2.13	0.031
Monadnock Paper	24.76	0.201	28.02	0.157
22P-Ctc	2.7	0.038	3.56	0.042
22A-Ctc	2.595	0.0305	3.32	0.034
1-GB	0.975	0.019	2.725	0.0285
22-Ctc	2.415	0.0295	3.5	0.0585
Antrim WWTF	7.58	5.08	3.44	5.308
21T-Ctc	4.075	0.0585	2.845	0.0735
21-Ctc	4.445	0.053	3.71	0.0565
20Ctc	3.33	0.0315	3.025	0.036

¹Units for Chlorophyll "A" are milligrams per cubic meter (mg/m³).

²Units for Total P are milligrams per liter (mg/l).

A review of the data above shows that the Gold Book recommended instream phosphorus concentration of 0.1 mg/l as well as the ecoregional instream phosphorus concentration of 0.01 mg/l and the chlorophyll *a* concentration of 0.63 ug/l are exceeded in areas below the discharge from the Peterborough wastewater facility. Therefore, a total phosphorus limit of 0.88 mg/l has been included in the draft permit. The permit limit is based upon the Gold Book recommended instream concentration of 0.1 mg/l and is an average monthly limit applicable from April 1 through October 31 of each year. The phosphorus limit calculations are shown in Attachment F.

The Gold Book criteria is used rather than the more stringent eco-regional criteria because the Gold Book criteria were developed from an effects-based approach, versus the eco-regional criteria that were developed on the basis of reference conditions. The effects-based approach is taken because it is often more directly associated with an impairment of a designated use (i.e. fishing, swimming). The effects-based approach provides a threshold value above which adverse effects (i.e. water

quality impairments) are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. chlorophyll *a*) associated with designated use impairments. Reference-based values are statistically derived from a comparison within a population of rivers in the same eco-region class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

In addition to the seasonal total phosphorus limit of 0.88 mg/l, the permit contains a winter period total phosphorus limit of 1.0 mg/l from November 1 through March 31 of each year. The winter period limitation on total phosphorus is necessary to ensure that the higher levels of phosphorus discharged in the winter do not result in the accumulation of phosphorus in downstream sediments. The limitation assumes that the vast majority of the phosphorus discharged will be in the dissolved fraction and that dissolved phosphorus will pass through the system during the winter period.

F. 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 waters of the U.S.. EPA-New England adopted this "integrated strategy" on July 1, 1991, for used 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 "additive" 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.

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts and New Hampshire law states that, "all 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; ..." (NH RSA 485-A:8, VI and the NH Code of Administrative Rules, PART Env-Ws 1703.21). 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 criteria for toxicity. Inclusion of the whole effluent toxicity limit in the draft permit will demonstrate the compliance with narrative water quality criteria of "no toxics in toxic amounts" found in both the CWA and State of New Hampshire regulations.

The current policy of EPA New England is to require toxicity testing in all municipal permits. The type of whole effluent toxicity test (acute and/or chronic) and effluent limitation (LC50 and/or C-NOEC) are based on available dilution.

The existing permit contains an LC50 limit of 100 percent and a reporting requirement for C-

NOEC. The frequency for WET testing is once per year. The draft permit carries forward the LC50 limit of 100 percent and the reporting requirement for the C-NOEC. Toxicity testing shall be performed in the third quarter of each year (i.e. July, August, September) and the results shall be submitted to EPA and the NHDES-WD by the 15th day of the month following the end of the quarter sampled.

If toxicity recurs, monitoring frequency and testing requirements may be increased. The permit may also be modified, or alternatively revoked and reissued, to incorporate additional toxicity testing requirements or chemical specific limits. These actions will occur if the Regional Administrator determines the NH standards are not adequately enforced and users of the receiving water are not adequately protected during the remaining life of the permit. Results of these toxicity tests are considered “new information not available at the permit development”, therefore, the permitting authority is allowed to use said information to modify and issued permit under authority in 40 C.F.R. §122.62(a)(2).

G. Industrial Users

The permittee is presently not required to administer a pretreatment program based on the authority granted under 40 C.F.R. §122.44(j), 40 C.F.R. §403 and Section 307 of the CWA. However, the draft permit contains conditions which 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 C.F.R. §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 C.F.R. §403 Appendix C as amended) pursuant to 40 C.F.R. §403.6 and 40 C.F.R. 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 finally issued permit; and 2) submit to EPA and NHDES-WD copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users.

H. Sludge

Section 405(d) of the 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 are subject to Part 503 technical standards. Part 503 regulations have a self

implementing provision, however, the CWA requires implementation through permits. Domestic sludge which is disposed of in a municipal solid waste landfill is in compliance with Part 503 regulations provided that the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 C.F.R. Part 258.

The draft permit requires that sewage sludge use and disposal practices meet Section 405(d) Technical Standards of the CWA. In addition, the EPA Region I – NPDES Permit Sludge Compliance Guidance document dated November 4, 1999 is included with the draft permit for use by the permittee in determining their appropriate sludge conditions for their chosen method of sludge disposal. The permittee is required to submit to EPA and to NHDES-WD annually, by February 19th, the various sludge reporting requirements as specified in the guidance document for the chosen method of sludge disposal.

Sludge from the treatment lagoons at this facility was not removed during the last permit and it is not anticipated that sludge will be removed during the life of the current draft permit.

I. Essential Fish Habitat and Endangered Species

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 Contoocook River is EFH for Atlantic salmon (*Salmo salar*). According to the New Hampshire Department of Fish and Game, Atlantic salmon fry have been annually stocked into the Contoocook River in the towns of Hillsborough and Henniker for the last 15 years. These annual stockings have ranged from 15,000 to 100,000 fry. No adult Atlantic salmon have been returning to the Coontoocook River because any

returning adults are captured at downstream dams on the Merrimack River.

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

- The permit prohibits the discharge to cause a violation of State water quality standards.
- The permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts.
- The permit requires once per year toxicity testing to ensure that the discharge does not present toxicity problems.
- The permit contains water quality based chlorine limits that are protective of aquatic organisms.

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

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.

USFWS was both contacted to determine whether or not threatened or endangered species are present in the Contoocook River. USFWS determined that there are no listed species present in the proximity of this facility.

V. Antidegradation.

This draft permit is being reissued with limitations that are more stringent than those in the existing permit and there is no change in the outfall location. Since the State of New Hampshire has indication there will be now lowering of water quality and not loss of existing uses, no additional antidegradation review is needed.

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 violation NH standards or waives its right to certify as set forth in 40 C.F.R. §124.53.

Upon public noticing of the draft permit, EPA 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, Wastewater Engineering Bureau is the certifying authority. EPA has discussed this draft permit with the staff of the Wastewater Engineering Bureau and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 C.F.R. §§ 124.53 and 124.55.

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the CWA, 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 the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition. These less stringent conditions may be established by EPA during the permit issuance process based on information received following the public notice of the draft permit. 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 CWA or State law, the State should include such conditions and, in each case, cite the CWA 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.

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 set forth in 40 C.F.R. 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:

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 and the State Agency. Such Requests shall state the nature of the issue proposed to be raised at the hearing. A public hearing may be held after at least thirty (30) days public notice

NPDES Permit No. NH0100650

whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing (if applicable), 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.

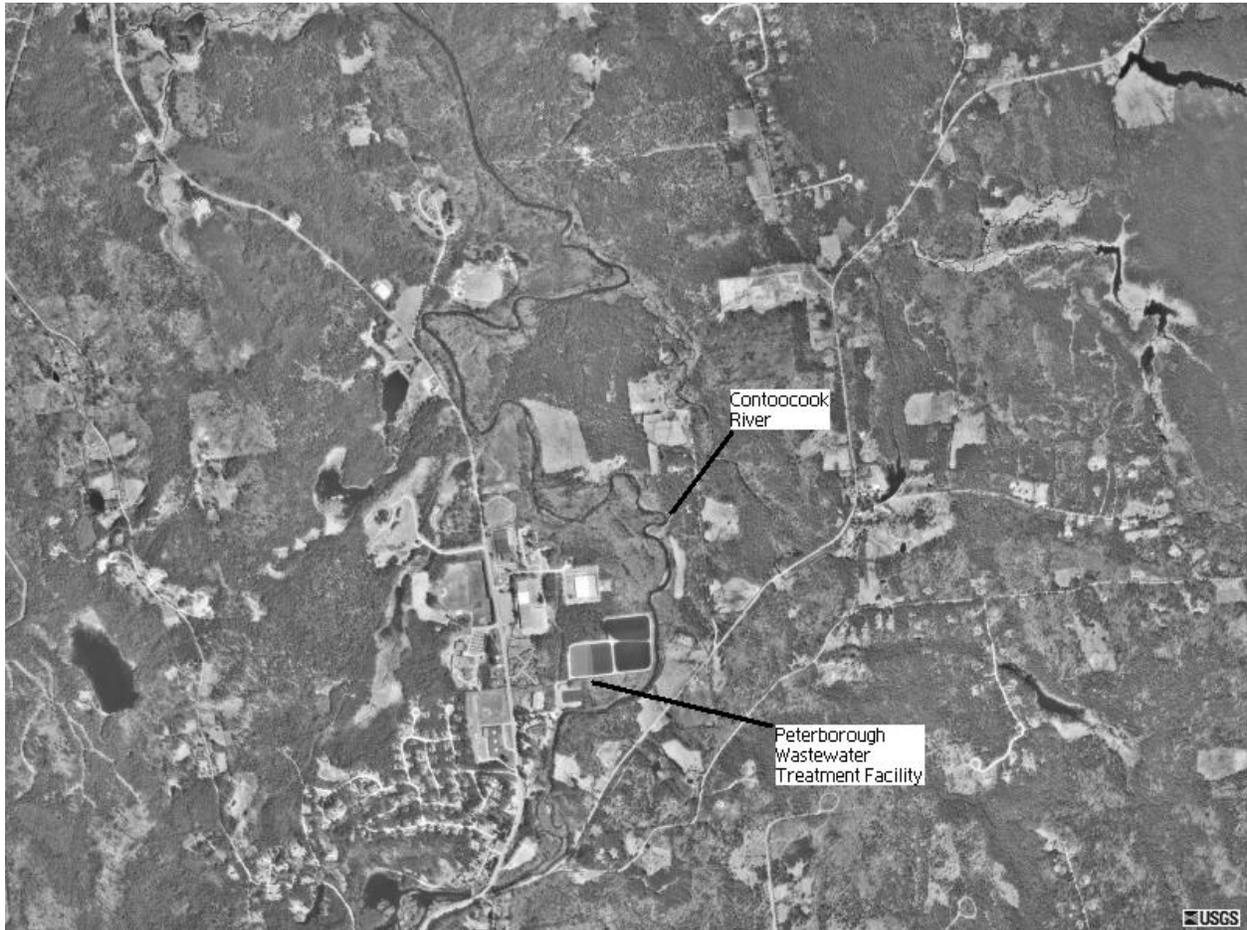
Information concerning the draft permit may be obtained between the hours of 9:00 am and 5:00 pm, Monday through Friday, excluding holidays.

Date

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

ATTACHMENT A

PETERBOROUGH WASTEWATER FACILITY LOCATION



* Aerial photo taken April 12, 1998. Photo obtained through www.terraserver.microsoft.com.

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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 from January 2003 through November 2005. All data taken from the monthly Discharge Monitoring Reports as retrieved from EPA's Permit Compliance System (PCS) data base. These effluent values characterize the treated wastewater discharged from this facility.

Effluent Parameter	Average of Monthly Averages	Range of Monthly Averages	Maximum of Daily Maximums ¹
Flow (mgd)	0.414	0.298 – 0.703	1.38, 1.19, 1.15
BOD (mg/l)	20.1	3 – 70.75	126, 56, 52
BOD (% removal)	89.6	73 - 99	73, 75, 78 ²
TSS (mg/l)	14.1	1.6 – 43.08	63, 55, 48
TSS (% removal)	92.4	55 - 99	55, 74, 83 ²
<u>E. Coli</u> (colonies/100 ml)	8.8	0 - 90	10750, 3530, 2530
Chlorine Residual (mg/l)	0.02	<0.05 – 0.16	1.48, 0.25, 0.22
pH (Standard Units)	6.37 – 9.19 ³		
Toxicity			
LC50 <u>Ceriodaphnia dubia</u> (%)	---	---	>100
LC50 <u>Pimephales promelas</u> (%)	---	---	>100
C-NOEC <u>Ceriodaphnia dubia</u> (%)	---	---	12.5, 100, >100
C-NOEC <u>Pimephales promelas</u> (%)	---	---	6.25, 50

1. More than one value represents the second and third highest values.
2. Minimums of Average Monthly values.
3. Numbers listed are the minimum and maximum daily readings.

ATTACHMENT D

DILUTION FACTOR

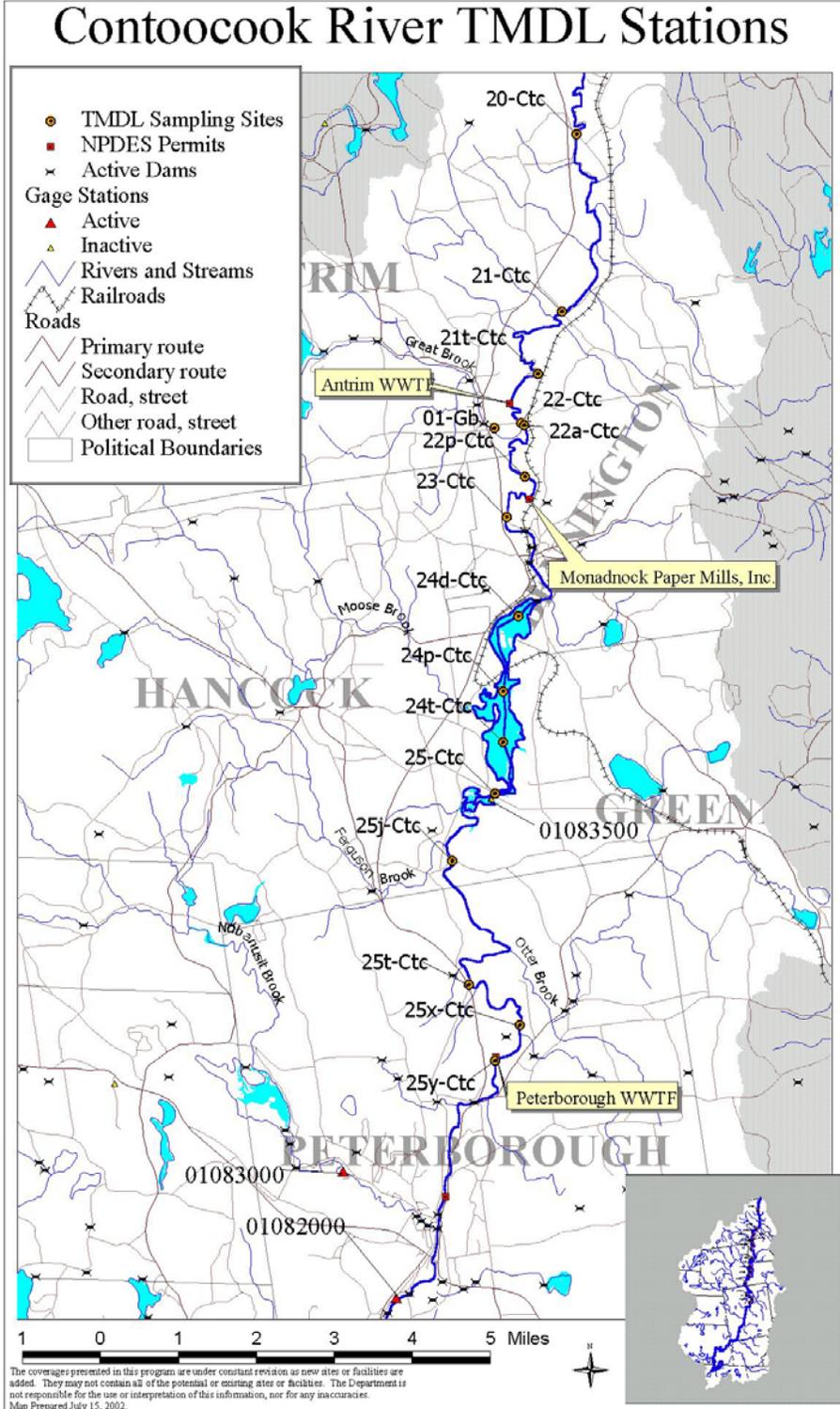
7Q10 Flow just downstream of the Peterborough treatment plant = 11.82 cfs

Treatment plant design flow = 0.5 mgd = 0.77 cfs

0.9 = Factor to reserve 10% of assimilative capacity.

$$\text{Dilution Factor} = (0.9) * \frac{11.82 \text{ cfs}}{0.77 \text{ cfs}} = \mathbf{13.8}$$

ATTACHMENT E
CONTOOCOOK RIVER TMDL SAMPLING LOCATIONS



ATTACHMENT F

PHOSPHORUS LIMIT CALCULATION

$$(Q_{UP})(P_{UP}) + (Q_{EFF})(P_{EFF}) = (Q_{Down})(P_{Down})$$

Where:

- Q_{UP} = 7Q10 flow just upstream of the discharge = 11.05 cfs
- P_{UP} = Upstream phosphorus concentration = 0.035 mg/l
- Q_{EFF} = Flow from treatment plant = (0.5 mgd)(1.547) = 0.77 cfs
- P_{EFF} = Phosphorus concentration of the treatment plant effluent necessary to meet the instream target of 0.1 mg/l.
- Q_{Down} = Downstream flow of the Contoocook River after mixing with the treatment plant effluent. Need to reserve 10% of flow for reserve capacity. Therefore, Q_{Down} equals (0.9)(11.82) = 10.64 cfs
- P_{Down} = Instream phosphorus concentration target = 0.1 mg/l

$$(11.05 \text{ cfs})(0.035 \text{ mg/l}) + (0.77 \text{ cfs})(P_{EFF}) = (10.64 \text{ cfs})(0.1 \text{ mg/l})$$

$$P_{EFF} = 0.88 \text{ mg/l}$$