UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
OFFICE OF ECOSYSTEM PROTECTION
ONE CONGRESS STREET
SUITE 1100 (MAIL CODE: CAA)
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.: NH0100692

NAME AND ADDRESS OF APPLICANT:

Town of Epping
Town Hall
157 Main Street
Epping, New Hampshire 03042-2440

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Epping Wastewater Treatment Facility
Lagoon Road (off State Highway 125)
Epping, New Hampshire

RECEIVING WATER: Lamprey River (Hydrologic Basin Code 01060003)

CLASSIFICATION: B

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

The above named applicant has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge into the designated receiving water. This FACT SHEET forms the basis for that reissuance. In addition, the public notice process for this FACT SHEET and DRAFT PERMIT is also intended to fulfill the public review process of the **Lamprey River Total Maximum Daily Load Study** report conducted by the New Hampshire Department of Environmental Services, Water Division (NHDES-WD). It is this maximum daily load study that forms the technical basis for many of the effluent limits placed in this draft permit and discussed/summarized in this FACT SHEET. Copies of the State report can be obtained from NHDES-WD or inspected at their office in Concord, New Hampshire at the address shown in **Section VII. EPA/State Contacts** of this FACT SHEET.

The above named receiving water (Lamprey River) is designated Class B pursuant to RSA 485-A:8, and as such, is considered as being

acceptable for swimming and other recreation, maintenance of shellfish and other fish life, and for use as a water supply following adequate treatment.

Epping's discharge to the above named receiving water is from a secondary wastewater treatment plant with a design flow of 0.27 million gallons per day (MGD); however, the Town of Epping has requested an increase in design flow to 0.50 MGD by letters dated May 14, 1998, and July 21, 1999. This increase will require Epping to build an advanced wastewater treatment plant with significantly more stringent Five-Day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) and Total Suspended Solids (TSS) removals than required by Secondary Treatment Regulations in 40 Code of Federal Regulations (CFR) Part 133 and one with phosphorus removal. The **Lamprey River Total Maximum Daily Load Study** indicates a treatment plant upgrade to advanced is required at either design flow mentioned above to meet the State's Surface Water Quality Regulations for Epping's discharge into the Lamprey River.

The discharge is composed of treated domestic (municipal) wastewater with minor commercial contributions. No industrial contributions are present at this time. The existing Epping Wastewater Treatment Facility (Epping WWTF) is a two (2)-celled primary aerated lagoon system producing secondary quality effluent. During the period July 1997 through June 1999, Epping's WWTF discharged on an average monthly basis from 96,403 to 450,350 gallons per day (gpd) and on a daily maximum basis from 130,430 to 1,017,300 gpd of treated effluent. This wide range in flows, particularly in the maximum daily values, is primarily related to infiltration into the collection system. However, during this same time period, the treatment works did not discharge during July through August 1997, and August through September 1998. Likewise, in 1996, the treatment works did not discharge during July through September. Normally, the treatment works has a "no discharge period" that lasts somewhere between two and three months each summer. However, during the summer of 1999 they had a shorter than normal no discharge period lasting only from August 1st through September 16th. Normal facility practice is not to discharge during the summer months when river flows at the treatment works fall below 6 cubic feet per second (cfs), which is twice the annual seven (7) consecutive-day mean low flow at the 10-year recurrence interval (7Q10), or the critical low-flow condition of 3 cfs. This no discharge period resulted from a verbal agreement between the NHDES-WD and the Town sometime between 1986 and 1990, and is not a requirement in the existing NPDES permit. However, this no discharge practice will be discontinued in the upgraded facility as that plant will be designed to protect the State's Surface Water-Quality Regulations year round in the receiving water (Lamprey River) at that streams 7Q10 flow. Hereinafter, New Hampshire's

Surface Water Quality Regulations are referred to as the NH Standards. In addition, the upgraded plant will not have sufficient lagoon space to store treated effluent for the two to three month period each summer as has been the recent practice.

The Town and their consultant engineers, in recent discussions with EPA and NHDES-WD, have indicated they intend to use the ZenoGem(™) Wastewater Treatment Process in this upgraded facility. According to ZenoGem's literature, "The ZenoGem Process is a proprietary ZENON technology that consists of a suspended growth biological reactor integrated with a microfiltration membrane system, based on the ZeeWeed(™) hollow fibre membrane. Essentially, the mircofiltration system replaces the solids separation function of secondary clarifiers and sand filters in a conventional activated sludge system.".....The company literature goes on to say ...."The microfiltration membranes are typically submerged in an aeration tank, in direct contact with the mixed liquor. Through the use of a suction duty pump, a vacuum is applied to a header connecting the membranes. The vacuum draws the treated water through the hollow fibre microfiltration membranes and into the pump. Treated water is then discharged by the pump." The reader should note that "mixed liquor" is the term used when referring to the process of mixing activated sludge in an aeration tank with primary effluent (raw wastewater) and return sludge.

According to the consultant's report to the Town on their conceptual design for using the microfiltration process, "The microfiltration process will consist of a two train design. Two concrete process tanks or bioreactors will be sized for a HRT of 6 hours for the design flow. ...(editorial note: HRT means Hydraulic Retention Time).... Peak flows into the system will be equalized using the existing primary lagoon as an equalization basin. Each tank will also contain an aeration diffuser system. A new blower building with new blower and pumping equipment will be provided to meet the aeration and pumping requirements of the microfiltration process." This upgraded facility will be built on the site of the existing facility and will use the existing primary lagoon as a flow equalization basin prior to the microfiltration bioreactors. Therefore, there is no need to relocate the outfall.

The Town has requested that its engineering consultant prepare a tentative cost estimate for the upgraded facility for presentation at Epping's Annual Town Meeting in March/April 2000. If everything goes according to schedule, Epping's Town manager anticipates construction for the upgrade to begin later part of 2000 with completion by the end of 2001. The reader should consider these dates as preliminary estimates since the design contract has not yet been awarded by the Town.
Location of existing treatment works (same site for the upgrade)

and its Outfall 001, both located on the north side of the Lamprey River, and receiving water (Lamprey River) are shown in Attachment A.

II. Description of Existing Effluent Discharge, Receiving Water and Other Related Matters.

A. Description of Existing Effluent Discharge

A quantitative description of the existing discharge in terms of recent effluent-monitoring data (July 1997 through June 1999) is shown in Attachment B. These data were compiled from monthly Discharge Monitoring Reports (DMRs) submitted to EPA by the permittee.

B. Uses of the Lamprey River

Downstream of this facility, the Town of Durham withdraws water directly from the river for water-supply purposes while Newmarket, who has rights to withdraw water directly from the river and maintains a direct connection to the river, is presently not using it as a water-supply source. Durham's use of this river is as a standby (emergency) source, mainly in the summer months, to augment its regular sources of water supply. During 1997, the town withdrew a total of 8.89 Million Gallons from the river, while in 1998, it withdrew no water.

C. Recent Permit History

The permittee's currently effective permit was issued by EPA on December 24, 1985, and expired on December 24, 1990. The 1985 permit has remained in effect because of timely reapplication by the permittee (40 CFR Part 122.6). Hereinafter, the December 1985 permit is referred to as the existing permit. The existing permit contained effluent limits which were required by the secondary treatment regulations (40 CFR Part 133). The draft permit contains limits more stringent then the secondary treatment regulations. The basis for these water-quality limits in this draft permit is a study performed by the NHDES-WD on the Lamprey River as part of the **Lamprey River Total Maximum Daily Load Study**. The recommended limits were forwarded by letter dated May 18, 1999, after the dissolved oxygen model was rerun based on EPA comments in its tentative approval letter and final changes to the treatment works conceptual design. The NPDES permit, when issued, will, therefore, finalize tentative approval. NHDES-WD has determined the maximum amount of pollutants the Epping WWTF can release to the river without causing a violation of NH Standards for dissolved oxygen. The primary pollutants of concern in the Lamprey River study are those which deplete dissolved oxygen.

D. Lamprey River's Special Protection Status

The lower portion of the Lamprey River was designated for special protection under the State's Rivers Management and Protection Program on June 26, 1990, and was designated a "Wild and Scenic River" under the National Wild and Scenic Rivers Act on November 12, 1996. Specifically, State regulations protect the segment flowing through the towns of Lee and Durham, and Federal regulations protect the 11.5 river mile segment flowing through the towns of Lee, Durham and Newmarket from the Epping/Lee town line to its confluence with the Piscassic River in Newmarket. This means that the river segment flowing through the towns of Lee and Durham has dual status and coverage. Under the Wild and Scenic River Program, retaining and preserving the natural characteristics of the river system is essential to maintaining the river as envisioned when included in the National Wild and Scenic River inventory. To this end, it's the intent of this draft permit to insure that this discharge does not cause the State's assigned Class B designation for the Lamprey River to be violated.

The reader is referred to the June 1995 **Lamprey Wild and Scenic River Study Draft Report** published by the National Park Service's North Atlantic Regional Office in Boston, Massachusetts for an overview of the regulatory protections, prohibitions and management tools that each State and Federal program affords these river segments. Specific questions regarding these various programs can be directed to Mr. James MacCartney at (603) 271-3503 for the State's Rivers Management and Protection Program and to Mr. Jamie Fosburgh at (617) 223-5203 for the Federal National Wild and Scenic Rivers Act.

The Epping WWTF discharges to the river about 5 river miles upstream of the Epping/Lee town line which is the beginning of the stream reach protected by both programs.

As an update, Epping's electorate voted at their last town meeting (March 16, 1999), to request that the portion of the Lamprey River flowing through the town itself be included in the "Wild and Scenic River" program. Once this request is enacted, the "Wild and Scenic River" designation would cover an unbroken stretch of river flowing through the towns of Epping, Lee, Durham and Newmarket. The town has filed the appropriate paperwork for its inclusion under the National Wild and Scenic Rivers Act with Congressman Sununu's Office.

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 in the draft permit is discussed in the following sections of this Fact Sheet.

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

A. General Regulatory 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 Code of Federal Regulations (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 requirements as well as all requirements/limitations in the existing permit. 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 §125 Subpart A). Secondary treatment technology guidelines (effluent limitations) represent the minimum level of control for Publicly Owned Treatment Works (POTWs) and those guidelines can be found in 40 CFR §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 cannot be authorized by a NPDES permit. See 40 CFR §122.47.

Technology guidelines, commonly called "Effluent Limitation Guidelines" (40 CFR §§133 and 400-471), apply to POTWs and industries, respectively. Limitations in these regulations are usually expressed in terms of allowable pollutant concentration or allowable pollutant discharge rate per unit of production rate.

These guidelines are used in conjunction with either a long-term average production rate and/or a treatment facility's design flow. For POTWs, only the facility's design flow, not its actual flow or some projection thereof during the life of the permit, is used. See 40 CFR §122.45(b)(1).

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. Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria to develop permit limits, both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable instream 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 (Carbonaceous Biochemical Oxygen Demand [$CBOD_5$], Biochemical Oxygen Demand [BOD_5] and Total Suspended Solids [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.

A POTW's design flow is used when deriving constituent limits for both daily, weekly and monthly time periods. Also, the dilution provided by the receiving water is factored into this process, particularly for the daily and monthly time periods. Narrative criteria 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.

A water-quality standard consists of three elements: (1) beneficial designated use(s) for a waterbody or a segment of a waterbody; (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.
A NPDES permit shall 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 40 CFR §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 permittee's reissuance application, 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 (RSA 485-A:8,VI, Env-Ws 430.25 and 430.26), 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 mean annual flow for human health (carcinogens only) in the receiving water at the point just upstream of the discharge. Furthermore, 10 percent (%) of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire’s Surface Water Quality Regulations Env-Ws 430.25.

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 anti-backsliding 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 (See Section C below). Therefore, unless those conditions are met the limits in the reissued permit must be at least as stringent as those of the previous permit.

The ACT requires that EPA obtain state certification which states that all state 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 to achieve and then to maintain water-quality standards. To protect the existing quality of the State's receiving waters, the NHDES-WD adopted Antidegradation requirements in their September 30, 1996 Surface Water Quality Regulations (Env-Ws 430.31 through 430.45) Hereinafter, New Hampshire's Surface Water Quality Regulations are referred to as the NH Standards.

E. Lamprey River Total Maximum Daily Load Study

Section 303(d)(1)(A) of the ACT requires each State to identify waters for which secondary or technology based effluent limitations are not stringent enough to meet water quality standards. Section 303(d)(1)(C) requires that the State establish a Total Maximum Daily Load (TMDL) for the waters identified above.

The NHDES-WD has included the Lamprey River on its 303(d) list as water quality limited for Dissolved Oxygen (DO). In addition to low DO, algal blooms have been reported below the Epping WWTF. These factors indicated that the Epping WWTF likely would need further reductions in oxygen demanding pollutants and nutrients (primarily phosphorus) removal. Sporadic heavy metals exceedances during wet-weather events were observed for copper and zinc and they will be the subject of further study by the NHDES-WD.

The goal of the TMDL study was to ensure that water quality limited reaches meet their designated classification and use. This was accomplished by determining the maximum load of oxygen demanding pollutants and nutrients that the Lamprey can assimilate. The NHDES-WD then determined the load allocation among point sources, nonpoint sources, and a Margin of Safety (MOS). NHDES-WD also took this opportunity to resolve isolated exceedances of water quality standards which were observed in the Lamprey River.

The Lamprey River watershed is about 214 square miles containing 81 % forests and wetlands, and 19 % developed areas. Aside from Newmarket's wastewater treatment plant discharge to the Lamprey River near its mouth, the only other major point source discharge to the river is the Epping WWTF. The major nonpoint source discharges to the river are storm and ground waters with the volume of storm water likely being greater.

The Lamprey River TMDL Study dated October 1995 by NHDES-WD concluded that additional treatment at the Epping WWTF was necessary for the Lamprey River to achieve water quality standards. Although wetland areas experience low DO naturally, the river recovers to normal riverine DO values upstream of the Epping WWTF's discharge. Because of the limited development in this rural watershed, dry-weather low-flow conditions are more restrictive than wet-weather conditions. Finally, NHDES-WD will undertake

further study to resolve wet-weather exceedances of copper and zinc which they believe may be naturally occurring.
The effluent limits in the draft permit for summer and winter flows, $CBOD_5$, Ammonia Nitrogen as Nitrogen (N), DO and Total Phosphorus as Phosphorus (P) were developed from this report as amended in May 18, 1999 (Attachment E) and described below.

F. Conventional Pollutants

As stated earlier, the Lamprey River study conducted by NHDES-WD during the period 1993-1995 determined that this river was not meeting Class B NH Standards for DO. The only major point source is the permittee's wastewater discharge. Consequently, additional treatment (i.e., advanced wastewater treatment) beyond the standard secondary requirements as defined in 40 CFR Part 133 is necessary to further lower the concentration of the oxygen-consuming pollutants, $CBOD_5$ and Ammonia Nitrogen as N, in the permittee's effluent.

Water Quality Considerations Related to Growth

The Town of Epping should take steps to ensure that water quality in the Lamprey River is not further degraded by point and nonpoint sources of pollution generated within the town. In applying for an increase in permitted treatment works flow from 0.27 to 0.50 MGD, the town is anticipating and planning for future growth. The town needs to ensure that this future growth eliminates or minimizes, to the maximum extent practicable, contaminated non-point source runoff and stormwater flow into the Lamprey River and/or its tributaries as well as flows into the town's sewer system from new and/or redeveloped areas.

It is expected that the increased 0.23 MGD in design flow will come primarily from residential and commercial properties as there is presently no industrial discharge to Epping’s POTW. While domestic and industrial wastewater from these properties will be treated at the treatment works, other land uses, such as new parking lots, roads, lawns, and roofs likely will generate contaminated stormwater containing petroleum hydrocarbons, bacteria, nutrients, heavy metals, suspended solids and other contaminants. Epping should ensure that any new development in the town is sited and designed in such a manner that post-development runoff rates reaching the Lamprey River and/or its tributaries do not exceed pre-development rates, and that water quality is not further degraded.

There are numerous actions that Epping can take through its town planning board and building department to ensure anticipated growth does not result in degraded water quality, consume available treatment plant capacity, and/or lead to exceedances of permitted limits. Through a combination of policy and regulatory changes to land use regulations and site plan review, construction techniques, and permitting practices, Epping should consider (but not be limited to) use of the following:

1. Consider revising, as needed, subdivision regulations to require a stormwater management plan in all development applications. In developing standards for these stormwater management plans, the town should consider the following common stormwater principles (after Gibbons, 1998, University of Connecticut, NEMO Technical Paper #1, available from UConn at http://www.canr.uconn.edu/ces/nemo).

   Promote on-site infiltration of surface water rather than diversion by impervious roads, parking areas and drainage structures. Diverted stormwater alters the natural hydrologic cycle, producing increased runoff (both rate and volume), flooding, and degraded water quality.

   Development should retain the natural landscape by minimizing grading and disturbance of existing vegetation so stormwater management systems mimic natural drainage patterns thus keeping runoff rates and volumes close to predevelopment values.

   Compensate for development impacts by protecting and enhancing riparian buffers paying particularly attention to sensitive ecosystems.

   Require a minimum width natural buffer between the edge of stream channels and parking lots or other impervious surfaces.

   Minimize impervious surfaces and encourage permeable paving.

   Permit flexible road designs to create narrow, gently curving, porous roads draining to grassed swales rather than wide, straight impervious roads draining to curbs and storm drains. Allow shared and porous paved driveways and sidewalks. Encourage compact development that minimizes road length.

   - Stormwater should be carried as sheet drainage, diffused over a large surface area such as the face of gentle slopes, as opposed to concentrated drainage directed to curbs, storm sewers, or ditches.

- Where pipes are used, encourage perforated over closed pipes to allow leaching or infiltration.

- Drainage from roads, parking and roofs should be carried on the surface in shallow, gently sloping swales. Swales regulate velocity, minimize erosion, and maximize percolation.

- Curbs, catch basins, storm drains and imperviously lined ditches should be avoided in favor of open swales. In areas where curbs are necessary, their length should be shortened to minimize storm water volume and velocity.

- The town should institute street sweeping activities beginning in mid April to remove accumulated sands spread on roads within the town boundaries during snow and ice events before those materials are washed into adjacent surface waters by storm events. Following the completion of street sweeping activities, the town should clean all storm drains and catch basins along the same road network. Both sets of activities should be performed at a minimum of once per year.

- Look at total watershed drainage patterns, not just those at the project site. Closing or restricting natural drainage patterns/channels should not be allowed as uphill drainage problems could result.

- The applicant should assess watershed and site characteristics before suggesting detention and retention ponds. Before approving any structural drainage system the local board must be assured it is appropriate for the entire drainage basin (both upstream and downstream of the structural control) as well as the proposed site. For example, in many watersheds, regional rather than site specific detention ponds may have less adverse impact on receiving waters.

- Construction activities should be coordinated and conducted in a limited time frame, taking advantage of low flow seasons. The contractor may be required to do any major clearing during winter months when the ground is frozen to minimize erosion and sedimentation and to avoid wildlife nesting and breeding seasons.

- Local regulations should state the board’s specific concerns, such as increases in polluted runoff and flooding that the proposed development might generate off-site (downstream).

These regulations can be most effective when developed and administered in conjunction with a local plan of conservation and development that directs development to areas best suited to support it and away from sensitive resources, and in conjunction with comprehensive watershed management plans. The town might consider establishing a Town Advisory Committee to plan, develop and implement the local plan of conservation and development.

2. Consider limits on the use and application of commercial fertilizers. The Town should develop standards for application rates to reduce non-point source runoff.

3. The permittee should eliminate all excessive infiltration and inflow (I/I) into the existing sewer system and, minimize to the maximum extent possible, I/I in any new construction and/or replacements to the sewer system. This includes elimination of leader drains and sump pump connections from existing residential, commercial and industrial facilities and prevent those installations in new construction.

   EPA believes that removing excessive I/I in its collection system reserves the plant's capacity to treat wastewater and not wastewater diluted with either stormwater or groundwater. Removing ground water through I/I reduces base flow to streams in the vicinity of the collection system which ultimately lowers base flow including possibly the 7Q10 flow in the Lamprey River.

4. Institute measures to limit water use in bathrooms, kitchens, laundry rooms in all new construction and any remodeling to limit flows to the treatment plant. In addition, establish odd/even lawn water days during the summer months to reduce the demand on existing water supply sources and to limit the amount of nonpoint source runoff from these type activities. Furthermore, the town should evaluate impacts on the treatment works ability to meet its permitted limits prior to adding new connections or increasing flows from existing connections.

It is EPA’s position that the cumulative effect of implementing these practices will give the Town of Epping maximum flexibility in maintaining permit limits, thereby avoiding future violations resulting from exceeding its treatment plant's permitted limits.

EPA and the NHDES-WD believe the above measures and controls should be implemented as soon as possible to insure that headworks loading to the treatment plant is not exceeded during the treatment work's normal design life (20 years), and nonpoint loading to the river is properly managed to maintain State Water-Quality standards. This

double barrel effort will maximize the design life of the upgraded treatment works thus minimizing the town's need to request additional increases in design flow due to an increased sewered population or to seek alternative forms of waste treatment such as spray irrigation to a golf course or rapid infiltration to the ground. Over the past two years, the existing effluent flows from the treatment plant have averaged 0.20 MGD, or a little less than one-half the capacity of the expanded facility (design flow of 0.50 MGD). If future increases in sewage flows are not properly managed, it is likely the design capacity of upgraded plant will soon be exceeded necessitating a further redesign and rebuild of the upgraded facility to maintain water-quality standards in the Lamprey River. Since the river is at 90 percent of its assimilative capacity (State Water Quality Standard ceiling), any future expansion of the facility, assuming effluent discharge to the river continues, will necessitate an even more advanced treatment works than developed for this upgrade. However, before EPA and the State can entertain any request for increases in design flow in the future, NHDES-WD and EPA will have to be satisfied that these controls and measures have been actively implemented over the entire life of the upgraded treatment works not just sporadically nor during the last one or two years prior to the request.

Flow in this draft permit has been set at “Report” (a monitoring-only requirement) in the average monthly and maximum daily columns. These recorded flows must represent the actual discharge from Epping's treatment works to the Lamprey River and must be recorded continuously.

Five-Day Carbonaceous Biochemical Oxygen Demand and Ammonia

Average Monthly and Maximum Daily limitations for $CBOD_5$ and Ammonia Nitrogen as N were determined by NHDES-WD for facility design flows of 0.50 MGD and two seasonal periods (summer: June 1st through October 31st, and winter: November 1st through May 31st) using a version of EPA's DO deficit model applied to the Lamprey River. This mathematical computer model (Equation IV-49 in EPA Manual 600/6/82-004a) was calibrated and verified by NHDES-WD using data sets collected from the Lamprey River during the 1993-1995 time period. The summer seasonal period has the year's warmest water temperatures, whereas, the winter period has the year's coldest water temperatures. These temperature differences between seasons significantly affect effluent limits derived from the model, consequently, a set of draft permit limits for each period is needed.

Draft permit limits developed from this model are sufficient to protect Class B NH Standards for DO in the receiving water after mixing with the effluent. That is, the combined effect of $CBOD_5$

and Ammonia Nitrogen as N limits, on an average monthly basis, will not cause the DO in the Lamprey River to be less than a daily average of 75 % of saturation, or, on a maximum daily basis, will not cause the DO to be less than an instantaneous minimum of at least 5.0 mg/L. In the model, these DO criteria were appropriately adjusted to withhold 10 % of the Lamprey River's assimilation capacity for the future use. The DO modeling was performed at a river flow equal to the annual 7Q10 low flow (3 cubic feet per second (cfs) with an effluent flow that contains not less than 7.0 mg/L of DO. This DO constraint in the model represents the basis for the DO limit in the draft permit of not less than 7.0 mg/L, since the permit limit must be consistent with any waste load allocation established by the State. We also anticipate this limit will be a State Certification Requirement.

The average monthly Ammonia Nitrogen as N limits for summer and winter conditions are necessary to meet D.O. standards at the $CBOD_5$ limits shown. Other combinations of $CBOD_5$ and Ammonia Nitrogen as N are possible. The summer Ammonia Nitrogen as N limit is well below that needed to protect aquatic life from in-stream chronic toxicity due to Ammonia. The State of New Hampshire does not have numeric toxicity criteria for Ammonia for winter periods, however, EPA, has determined that the limits shown will protect the river from the chronic toxicity effects of Ammonia, based on an evaluation of the concentration of ammonia in the effluent and EPA’s ambient Water Quality Criteria for ammonia in the winter.

Daily maximum concentrations for summer and winter Ammonia Nitrogen as N were obtained by multiplying the average monthly limit by 1.5. This value was then input into the D.O. model to determine the appropriate maximum daily $CBOD_5$ limit.

The average weekly concentrations of $CBOD_5$ were obtained by multiplying the average monthly limit by a factor of 1.6 and rounding appropriately. The factor of 1.6 corresponds to the ratio of the average weekly to average monthly standards for $CBOD_5$ for secondary treatment at POTWs (40/25) in the NH Standards.

Total Suspended Solids

The effluent limitations for TSS are based upon the level of $CBOD_5$ allowed in the effluent. TSS is used as a measure of the operational performance of the facility. Secondary Treatment requirements in 40 CFR §133.102 include the same effluent limits for TSS as for BOD_5/$CBOD_5$. EPA has historically followed that example when developing water-quality based limits for POTWs based on either BOD_5 or $CBOD_5$. Additionally, the permittee's lagoon treatment system, with its long detention time, will frequently produce similar effluent concentrations of $CBOD_5$ and TSS. EPA also

believes that if TSS is not set at similar levels to $CBOD_5$ the permittee could have trouble meeting its permitted limit for $CBOD_5$ because TSS can have an oxygen consuming component. Furthermore, effluents with low TSS concentrations are less likely to cause metals exceedances than effluents with higher TSS concentrations due the particulate forms of metal often times associated with TSS.

Mass Limits

The newly revised NH Standards require mass loadings for each $CBOD_5$ and TSS concentration limited in the draft permit (See Section Env-Ws 430.47). Because $CBOD_5$ and Ammonia Nitrogen as N were modelled together for DO considerations in the 1995 study and since $CBOD_5$'s mass is being limited, therefore, Ammonia's mass is being similarly limited in the draft permit. In the study, a maximum flow from the POTW was specified which EPA and NHDES-WD consider the POTW's water-quality based flow to differentiate it from a POTWs design flow. Since the ACT and federal regulations require EPA to consider water-quality requirements (if needed) when developing permit limits, it's appropriate to consider the specific maximum flow specified in the study as the flow from the POTW for purposes of setting mass limits.

This will ensure that the plant's effluent does not cause or contribute to a violation of the appropriate in-stream DO standards when the receiving water is flowing at 7Q10 levels and the facility is discharging at maximum flow specified in the study. See Attachment C for the equation to calculate these various loads.

In addition, 40 CFR § 122.45(f)(1) requires that all pollutants limited in permits shall have limits, standards, or prohibitions expressed in terms of mass unless the pollutant cannot be appropriately expressed as a mass limit or standards require that the limit be expressed otherwise, neither of which is the case here. Also, in accordance with the **Technical Support Document for Water Quality-based Toxics Control**, **EPA/505/2-90-001, March 1991,** the application of both mass-based and concentration-based limits is necessary to assure attainment of water-quality standards, especially in waters with low available dilution. Because this is a low dilution receiving water, mass limits are required for all limited oxygen-consuming pollutants in order to protect the State's dissolved-oxygen standard.

pH

The pH limits in the draft permit remain unchanged from the existing permit, however, language has been added to the State Permit Conditions portion of the draft permit allowing for a change in pH limit(s) under certain conditions. A change would be

considered if the applicant can demonstrate to the satisfaction of NHDES-WD that the in-stream pH standard 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(s) to outside the 6.5 to 8.0 Standard Units (S.U.), EPA has added a provision to this draft permit (See SPECIAL CONDITIONS section). That provision will allow EPA to modify the pH limit(s) using a certified letter approach. This change will be allowed as long as it can be demonstrated that the revised pH limit range does not alter the naturally occurring receiving water pH. Reference 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(l)(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 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 the NH Standards amended on September 30, 1996.

Historically, the NHDES-WD, has required pH limits to be satisfied at end-of-pipe with no allowance for dilution. Therefore, the limit for pH is based upon State Water Quality Standards and we expect this will be a State Certification Requirement under section 401(d) of the CWA, 40 CFR §§124.53 and 124.55.

The limitations for pH are based upon limitations in the existing 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.

Escherichia coli

Effluent limitations for Total Coliform bacteria are limited in the existing permit. Effective August 31, 1991, revision of State statutes changed the bacteria testing requirements for discharges to freshwater and saltwater receiving waters (N.H. RSA 485-A:8). This has resulted in the replacement of testing for Total Coliform with testing for *Escherichia coli* bacteria in the draft permit.

There are two sets of Escherichia coli bacteria limits in the State's Statutes (N.H. RSA 485-A:85): one for non-designated beach areas; and a more stringent one for beach areas. For the existing permit, since no designated beaches exist downstream of the outfall, the non-designated beach area limit was implemented. However, even though there are no designated beach areas downstream of the discharge recent public comments indicate that plenty of swimmers use the river. Consequently, EPA and NHDES-WD believe its in the best interests of public health to condition the draft permit with the designated beach area limits for Escherichia coli bacteria. Historically, the NHDES-WD, has required bacteria limits to be satisfied at end-of-pipe with no allowance for dilution. Therefore, the limit for Escherichia coli bacteria (for non-designated beach areas) is based upon State Water Quality Standards and we expect this will be a State Certification Requirement under section 401(d) of the CWA, 40 CFR §§124.53 and 124.55. Calculation for compliance with the Average Monthly limit for Escherichia coli shall be determined by using the geometric mean. The original basis for this limitation is found in New Hampshire's State statutes (N.H. RSA 485-A:8).

Settleable Solids

Settleable Solids (SS) is monitored in the existing permit but will not be either monitored or limited in the draft permit because NHDES-WD and EPA believe the test yields uncertain results. Furthermore, NHDES-WD and EPA view SS as a "process-control parameter" rather than an effluent limitation. TSS is a more appropriate measure of the solids content discharging to the receiving water; therefore, SS was deleted from the draft permit. This does not violate antibacksliding regulations as this parameter was only monitored in the existing permit. Also, TSS is limited in the draft permit.

G. Nonconventional and Toxic Pollutants

Water-quality based limits for specific toxic pollutants such as Total Residual Chlorine, Ammonia, Total Recoverable 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 know as the federal "Gold Book" criteria which EPA summarized and published in **Quality Criteria for Water, 1986 EPA 440/5-86-001 as amended**. Each criterion consists of two values--an acute aquatic-life criterion to protect against short-term effects, such as death, and a chronic aquatic-life criterion 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 NH Standards.

Dilution

EPA uses these pollutant specific criteria (both acute and chronic aquatic-life criteria) along with available dilution in the receiving water to determine a specific pollutant's permit limits (maximum daily and average monthly). The State requires that all limits developed for the protection of aquatic life and human health from non-carcinogens be met at the 7Q10 flow (Env-Ws 430.26(e)). Available dilution of the receiving water is determined using the facility's design flow and the annual 7-day mean low flow at the 10-year recurrence interval (7Q10) of the receiving water just above the facility's outfall. The available dilution (also referred to as dilution factor) in the receiving water was determined using the plant's design flow (0.50 MGD), an estimate of the 7Q10 low flow in the Lamprey River at the treatment plant's outfall (3.0 cfs) and a 10 (%) set aside or reserve. Because an exact value of the 7Q10 flow at the outfall is not available, 7Q10 flow from the nearest U.S. Geological Survey (USGS) gaging station number 01073500 (streamflow measuring site) on the Lamprey River downstream of the outfall located near Newmarket, NH was used with an appropriate adjustment for the intervening drainage area between the gaging station and the outfall. The Newmarket gaging station has a 7Q10 flow of 4.91 cfs and a drainage area of 183 sq. mi. The State has determined the drainage area above Epping’s outfall to be 114 sq. mi. The 7Q10 flow at Epping’s outfall was calculated by applying the ratio of their respective drainage areas (183/114) to the 7Q10 flow at the Newmarket, NH gage. To calculate dilution, the State's set aside reserves 10 % of the Assimilative Capacity of the receiving water pursuant to RSA 485-A:13,I.(a) and Env-Ws 430.25. Inclusion of the State's reserve capacity rule is new to this draft permit as it was not included in the existing permit.

The POTW's dilution factor was calculated to be 4.4 using a plant design flow of 0.50 MGD and a receiving water 7Q10 flow of 3.0 cfs and a 10 % reserve factor for assimilative capacity. This was applied to both the summer and winter periods. See Attachment C, Available Dilution Factor for the equation used in this determination.

Disinfection

The permittee intends to use ultraviolet (UV) light to disinfect the effluent discharged from the upgraded treatment works instead of chlorine which it presently uses. However, until the upgrade is completed and operational, the treatment works will need to continue its use of chlorine for disinfection purposes. In fact, even after the upgrade is completed, chlorine may need to be used as backup disinfection in case of UV failure. Therefore, since a combination of chlorine and UV will be used for disinfection, a

Total Residual Chlorine (TRC) limitation is being continued in this draft permit on a “Whenever In Use” basis. The TRC limitations for average monthly and maximum daily periods are based on the acute and chronic aquatic-life criteria in the NH-Standards of 0.019 and 0.011 mg/l, respectively, multiplied by the available dilution (4.4) in the receiving water. Consequently, in this draft permit, using the acute derived value yields a maximum daily limit of 0.084 mg/l, whereas, using the chronic derived value yields an average monthly limit of 0.048 mg/l. (See Attachment C for the formula used to calculate these water-quality based limits.)

Metals

The NHDES-WD is proposing further study of the occasional wet-weather instream water quality exceedances of copper and zinc. At this time, EPA does not have sufficient data to determine if the metals copper and zinc are discharged by the WWTF at concentrations sufficient to cause or contribute to the excursions of NH Standards by the upgraded facility, especially in light of the fact that the upgraded facility has not yet been constructed. Since the NH Standards adopted on September 30, 1996, established criteria based on Dissolved Metals (previous NH Standards were based on Total Recoverable Metals), the "reasonable potential" determination to cause or contribute to a violation of a particular metal's criterion in the NH Standards is now based upon its comparison with the dissolved fraction in the effluent after accounting for available dilution in the receiving water. However, if permit limits for metal(s) do become necessary those limits would still be required to be expressed in terms of Total Recoverable Metals (40 CFR 122.45(c)).

This means that if the dissolved metal(s) concentration in the effluent is likely to cause or contribute to an exceedance in the receiving water of the State's dissolved metal(s) criteria after allowances for available dilution a Total Recoverable Metal limit is required in the permit. That limit is set such that the Total Recoverable Metal concentration in the effluent (that is the combined effect of both dissolved and particulate fractions) will not cause an exceedance of a particular dissolved metal's acute and/or chronic aquatic-life criterion in the NH Standards after mixing with the receiving water. For more information on how Total Recoverable Metals limits are set, refer to **The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit From A Dissolved Criterion, EPA, Office of Water, EPA 823-B-96-007, June 1996.**

EPA has decided to impose a metals monitoring-only requirement in the draft permit to gather sufficient information to determine if Epping's contribution of copper and zinc causes or contributes to a violation of the NH Standards in the receiving water. EPA believes this approach is necessary and appropriate due to the plant’s small available dilution (4.4) and to the lack of actual effluent data from the upgraded advanced treatment works. Obviously, no actual effluent data can exist since the upgraded plant has not been constructed. In theory, this upgraded treatment works should produce an effluent that will not violate State Surface Water Regulations due to its highly polished nature (i.e.,extremely low $CBOD_5$ and TSS). In fact, this advanced plant should produce a discharge with significantly less metals than the existing facility. However, if metals analysis from the upgraded

works do show the State’s Surface Water Quality Regulations are being violated EPA will issue the Town a 308-Letter requiring intensive sampling of their effluent for the metals of concern to begin within 30 days of receipt of the 308-Letter. Results from the 308-Letter are considered “New Information” and will serve as justification to reopen the permit for metals limits should those results indicate instream water quality violations due to metals. If a 308-Letter should become necessary, it will require samples be collected using EPA Method 1669 “Clean Sampling Techniques” for detecting trace level concentrations of these heavy metals in the effluent discharged from the treatment works.

Therefore, total recoverable and dissolved copper and zinc are to be monitored on a once (1) per month basis. Since the total recoverable form of both metals is also monitored as part of the Whole Effluent Toxicity (WET) requirement described in **Section IV.H. Whole Effluent Toxicity** at a frequency of once (1) per quarter, the permittee may opt to determine dissolved copper and zinc fractions on the same sample for which Total Recoverable copper and zinc are being measured as partial fulfillment of this monitoring-only requirement for metals.

The permit has been conditioned such that the lowest reportable concentration for each metal is set equivalent to the ML. Each metal's ML is defined as the concentration in a sample equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure assuming that all the method-specific sample weights, volumes and processing steps have been followed. EPA Region I has established MLs for copper of 2.5 ìg/L and zinc of 2.5 ìg/L using aqueous samples for Furnace AA analysis concentrated by a factor of up to two (2), if necessary.

This monitoring-only approach seems reasonable since one data set collected from the existing plant’s discharge shows no metal limits would be needed for that plant, and if that sample had been collected from the upgraded plant’s discharge, no metals limit would be needed for that facility either. That sample, collected on June 16, 1999, shows the existing treatment works discharges aluminum, copper, lead and zinc at dissolved values of <0.05, <0.001, <0.001 and <0.005 mg/l and at total recoverable values of <0.05, 0.0017, <0.001 and 0.005 mg/l, respectively. For comparative purposes, if for the upgraded treatment works, total recoverable limits were included in the draft permit for aluminum, copper, lead and zinc to protect the State’s dissolved chronic aquatic-life criteria, average monthly limits would be 0.383, 0.0160, 0.0024 and 0.144 mg/l, respectively, after accounting for available dilution. These hypothetical metals limits are more restrictive for the upgraded facility than the existing facility

because of the upgraded facility's higher design flow allows for less available dilution. However, aluminum will be limited in the draft permit due to its use in the treatment process for phosphorus removal. (See Total Phosphorus discussion below.)

Total Phosphorus

New Hampshire administrative rules state: "Existing discharges containing phosphorus which encourage cultural eutrophication shall be treated to remove phosphorus to ensure attainment and maintenance of water quality standards" (Env-Ws 430.16(c)).

As stated previously, in addition to low DO violations, algal blooms were reported downstream of the Epping WWTF. The 1995 study indicates that the Epping WWTF is a source of excessive nutrients (nitrogen and phosphorus) and as such nutrient removal is required. NHDES-WD has assessed the relative loads of phosphorus from the WWTF to the river and has determined that a maximum daily limit of 0.28 mg/l year round is necessary to protect water quality standards.

This limit reduces the Epping WWTF loading over 90 % and should significantly reduce the potential for algal blooms in the river.

Phosphorus removal in the upgrade will be accomplished by injecting liquid alum (aluminum sulfate) solution into the waste stream to form aluminum phosphate. This is a physical-chemical treatment process in which chemical precipitation and flocculation of phosphorus occur followed by sedimentation or settling. EPA-New England believes that dissolved aluminum not consumed in this chemical precipitation and flocculation process has a "reasonable potential" to violate the State's Water Quality Standards for aluminum since not all the aluminum will be tied up in side reactions and/or precipitated out of the wastewater column. Therefore, EPA is required under 40 CFR 122.44(d)(1)(i) to establish water-quality based effluent limitations sufficient to control the pollutant of concern, namely aluminum, in order to protect the State's Surface Water Quality Regulations. Furthermore, EPA is required by 40 CFR 122.45(c) to express all metals limitations in terms of the Total Recoverable Metal. The aquatic-life criteria in the State Water Quality Standards is in terms of total recoverable; therefore we have a direct comparison for the purposes of computing a water-quality based effluent limitation for aluminum.

The Total Recoverable Aluminum (TRA) limitations in the draft permit for the average monthly and maximum daily periods are based on the chronic and acute aquatic-life criteria, respectively, in the State's Surface Water Quality Regulations multiplied by the

available dilution of 4.4 in the receiving water. The TRA's chronic criterion is 0.087 mg/l, whereas, its acute criterion is 0.750 mg/l. Consequently, in this draft permit, the chronic value is translated to 0.383 mg/l and shown as the average monthly limit; whereas, the acute value is translated to 3.30 mg/l and shown as an maximum daily limit. (See Attachment C, Aquatic-Life Criteria Based Limits, for the equation used in this determination.)

H. 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. The New England Regional Office 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 the NH Standards address individual chemicals, whereas, whole effluent toxicity approaches evaluate interactions between pollutants thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, Whole Effluent Toxicity 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 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 430.50(a)). 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. Whole effluent tests of POTW effluent in EPA Region I have demonstrated the presence of chronic toxicity at several facilities like the permittee's with dilution factors of less than 20. The complex nature of discharges from municipal POTWs and the low dilution available in the receiving water all contribute to a "reasonable potential" to cause an excursion of the "no toxics" provision in the State's regulation. Inclusion of the whole effluent toxicity limit in the draft permit will demonstrate compliance with both the ACT's and the State's narrative water-quality criterion of "no toxics in toxic amounts".

The EPA Region I current policy (June 1989) requires toxicity

testing in all municipal permits until no toxicity is demonstrated at the permitted level. The type of toxicity test (acute or chronic) and effluent limitations (LC50 and/or C-NOEC) are based on available dilution (See Attachment D).

Based on the above, the draft permit requires the permittee to perform annually four (4) chronic and four (4) modified acute toxicity tests using two (2) species. For both summer and winter period, the draft permit contains a LC50 limit of 100 % effluent concentration and a C-NOEC limit of 22.7 % or greater effluent concentration. See Attachment C, page C-2 for equation used to calculate C-NOEC.

LC50 is defined as the concentration of toxicant, or in this draft permit, as a percentage of effluent lethal to 50 % of the test organisms during a specific time period.

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 test 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.

Any permittee (in this case, the Town) who 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. However, given that this facility will likely undergo a major upgrade in the near term, EPA will not entertain any requests from the permittee for a reduction in toxicity testing frequency until at least four quarterly sampling events have been completed following the facility upgrade being considered complete and fully operational. If these criteria are met, monitoring frequency and testing requirements may be reduced either through a permit modification (40 CFR §122.62) or the Special Condition discussed in the following paragraph, but never to less than one test per year.

As a special condition of this draft permit, the frequency of testing may be reduced by a certified letter from the EPA. This permit provision anticipates that the permittee may wish to request a reduction in WET testing. 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 the EPA seeking a review of the toxicity test results. The EPA will review the test results and other pertinent information to make a determination that such a reduction is justified. The frequency of toxicity testing may be reduced to as little as one 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 indicating a change in the permit conditions. This special condition does not negate the permittee's right to request a permit modification at any time prior to the permit expiration.

Alternately, if toxicity violations are shown, monitoring frequencies and testing requirements may be increased in addition to enforcement actions. The permit may also be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements or chemical specific limit(s) if EPA decides that is necessary to adequately protect the State's Surface Water Quality Regulations and assigned uses of the waterways during the remaining life of the permit. Results of these toxicity tests are considered "new information not available at permit development"; therefore, the permitting authority is allowed to use said information to modify an issued permit under authority in 40 CFR §122.62(a)(2).

This draft permit requires reporting of selected parameters determined from the chemical analysis of the WET tests 100 % effluent sample. Specifically, Hardness, and Total Recoverable Cadmium, Chromium, Lead and Nickel are to be reported on the appropriate Discharge Monitoring Report (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 required with the submission of each toxicity testing report. (See Draft Permit, Attachment A, **page A-9)**

I. 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 CWA Section 405(d) Technical Standards. In addition, EPA-New England has included with the draft permit a 48-page Sludge Compliance Guidance document for use by the permittee in determining their appropriate sludge conditions for their chosen method of sludge disposal.

The permittee is also required to submit to EPA and to NHDES-WD annually, on February 19th, an annual report containing the information specified in the Sludge Compliance Guidance Document for the permittee’s chosen method of sludge disposal once that happens.

The permittee has an aerated lagoon system. In the permittee's recent sludge application they indicated that "it is possible that sludge will be removed during the next upgrade", inferring that the decision to remove sludge hinges in large part on the design of the facility upgrade, which as of permit development has not begun.

J. Industrial Users

The permittee is presently not required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR §403 and Section 307 of the Act. However, the draft permit contains conditions that are necessary to allow EPA and NHDES-WD to ensure that pollutants from industrial users will not pass through the facility and cause water quality standards violations and/or sludge use and disposal difficulties or cause interference with the operation of the treatment facility. The permittee is required to notify EPA and NHDES-WD whenever a process wastewater discharge to the facility from a primary industrial category (see 40 CFR §122 Appendix A for list) is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of issuance of the permit. The permit also contains the requirements to: (1) report to EPA and NHDES-WD the name(s) of all Industrial Users subject to Categorical Pretreatment Standards 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 finally issued permit, and (2) submit to EPA and NHDES-WD copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users.

K. Additional Requirements and Conditions

The effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the ACT and in accordance with 40 CFR §§§122.41(j), 122.44(i) and 122.48. Compliance monitoring frequencies for Flow, pH, Escherichia coli and Total Residual Chlorine have been established in accordance with the EPA/NHDES-WD Effluent Monitoring Guidance mutually agreed upon and first implemented in March 1993 and last revised on July 19, 1999. Even though that Guidance allows for $CBOD_5$, TSS and Ammonia to be sampled at a minimum of 2/Week for this type of treatment facility (akin to activated sludge) a TMDL is a special exception requiring additional monitoring to ensure compliance with the: NPDES permit; State's Surface Water Quality Regulations; and the State's TMDL for the Lamprey River. Therefore, EPA and NHDES-WD believe a 3/Week sampling schedule with sampling on Monday, Wednesday, and Friday are needed for $CBOD_5$, TSS, Ammonia and Escherichia coli (covered in the Guidance), and Phosphorus (not covered in the Guidance). Even though that Guidance does not cover Dissolved Oxygen or Total Recoverable Aluminum, a metal that is part of a treatment process (phosphorus removal), EPA with NHDES-WD concurrence believes that the 1/Day and 1/Week, respectively, are appropriate. Although the Guidance document suggests metals be monitored at 2/Month, EPA and NHDES-WD believe 1/Month is sufficient because Epping's new plant will be an advanced plant whose effluent will be highly polished and, therefore, should discharge significantly less metals than the existing facility over the range in effluent discharges. WET test monitoring requirements have been set according to EPA - New England's Municipal Toxicity Policy. Sample type was either set at 24-Hour Composite or Grab depending on the parameter being sampled and its inherent instability or special type of sampling techniques. 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 where appropriate.

The following table shows the sampling frequencies and sample types from the existing permit and the draft permit. Changes are highlighted.

Table Two. Changes to Effluent Limitations and Monitoring Frequencies.

PARAMETER	Existing Permit		Final Permit	
	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Flow	Continuous	Recorder	Continuous	Recorder
pH	1/Day	Grab	1/Day	Grab
Dissolved Oxygen	Not Required	Not Required	1/Day	Grab
BOD_5 $CBOD_5$	2/Month Not Required	Grab Not Required	Parameter switched 3/Week[1]	Parameter switched 24-Hr. Comp.
TSS	2/Month	Grab	3/Week[1]	24-Hr. Comp.
Ammonia Nitrogen (as N)	Not Required	Not Required	3/Week[1]	24-Hr. Comp.
Total Phosphorus	Not Required	Not Required	3/Week[1]	24-Hr. Comp.
Total Coliform *Escherichia coli*;	1/Week Not Required	Grab Not Required	Parameter switched 3/Week[1]	Parameter switched Grab
Total Residual Chlorine	1/Day	Grab	1/Day **When-In-Use**	Grab
Metals Aluminum Copper Zinc	Not Required	Not Required	 1/Week 1/Month 1/Month	 Grab Grab Grab
WET Tests	Not Required	Not Required	1/3 Months	24-Hr. Comp.
Settleable Solids	1/Day	Grab	Eliminated	Eliminated

1. Samples shall be collected on Monday, Wednesday and Friday.

CHANGES TO DISCHARGE LIMITS TABLE ONE--Continued

Table One. Changes to Discharge Limits.

PARAMETER	Existing Permit Limits	Final Permit Limits
Flow	report only--average monthly, maximum daily	report only--average monthly, maximum daily
pH	6.5-8.0	6.5-8.0
Dissolved Oxygen	Not Required	Not less than 7.0 mg/l
BOD_5 $CBOD_5$	30/45/50 mg/l (Entire 68/--/-- lbs/day Year) Not Required Not Required Not Required Not Required	Parameter switched Parameter switched June 1st - October 31st 5/ 8/10 mg/l 20/33/41 lbs/day November 1st - May 31st 8/12/ 38 mg/l 33/50/158 lbs/day
BOD_5 or $CBOD_5$ Percent Removal	Minimum of 85 %	Parameter switched Minimum of 85 %
TSS	30/45/50 mg/l (Entire 68/--/-- lbs/day Year)	June 1st - October 31st 3/ 4/ 6 mg/l 12/16/25 lbs/day November 1st - May 31st 5/ 8/ 33 mg/l 21/33/138 lbs/day
TSS Percent Removal	Minimum of 85 %	Minimum of 85 %
Ammonia Nitrogen (as N)	Not Required	June 1st - October 31st 1.4/2.0 mg/l 5.8/8.3 lbs/day November 1st - May 31st 7.2/10.8 mg/l 30 /45 lbs/day
Total Phosphorus	Not Required	28 mg/l 1.1 lbs/day

PARAMETER	Existing Permit Limits	Final Permit Limits
Total Coliform	240 colonies per 100 ml for average monthly and weekly, maximum daily	Parameter switched
Escherichia coli	Not Required	47/88 colonies per 100 ml
Total Residual Chlorine	Narrative: No demonstr-able harm to aquatic life.-- Report only, maximum daily	0.048/0.084 mg/l **When-In-Use**
Metals Aluminum Copper Zinc	No Metals Required	 0.383/3.30 mg/l Monitor-only Monitor-only
WET Tests LC50 C-NOEC WET Metals	 Not Required Not Required Not Required	 $\geq$ 100. % $\geq$ 22.7 % Monitor-only
Settleable Solids	Report only--average monthly and weekly, maximum daily	Parameter Eliminated

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.

D. Antidegradation

This draft permit is being reissued with an increase in the allowable design flow of from 0.27 to 0.50 MGD long-term average daily flow. However, this increase in design flow will not result in an increase in the permitted discharge of either concentrations or loads for $CBOD_5$ and TSS to the Lamprey River over those in the existing permit. To the contrary, on an average monthly basis, permitted loads will be reduced in absolute terms by 82.4 % for the summer period and 69.1 % for the winter period for an annual average of 75 %. On an annual basis, this amounts to a savings of 609 pounds for each constituent. As compared to the existing permit, other parameters limited in this draft permit either have more stringent limits such as bacteria, or have been eliminated such as chlorine, or are being limited for the first time such as Ammonia, Total Phosphorus, and Dissolved Oxygen. The discharges of ammonia and phosphorus under the increased design flow represent a decrease in these constituent loadings to the Lamprey River as

compared to those loadings from the existing treatment works. The State of New Hampshire, following its antidegradation review provisions (Env-Ws 430.31 through 430.45) found in the New Hampshire Surface Water Quality Regulations adopted on September 30, 1996, has made a “preliminary antidegradation finding”, ...”that the flow increase will not result in any lowering of the dissolved oxygen water quality standard. This finding is contingent on the inclusion of new more stringent water quality based permit limits for $CBOD_5$, ammonia nitrogen as N, and dissolved oxygen in the reissued permit.” (from NHDES-WD letter to EPA dated May 18, 1999). In a subsequent letter to EPA dated September 22, 1999, the NHDES-WD concluded...”that the proposed flow increase will not result in any lowering of water quality for dissolved aluminum, copper, lead and zinc.” This metals finding is based on the samples collected on June 16, 1999. In conclusion, these decreased loadings will result in a significant improvement in the river's existing water quality and will result in the river meeting the State’s Surface Water Quality Regulations. Both these letters from the State of New Hampshire are contained in the permit file located in EPA-New England's Regional Office in Boston, Massachusetts, and provide supporting evidence for the State's position. The State's "preliminary antidegradation finding" is subject to public notice and review before becoming final. The Public Notice is written to serve as the public notice of both the permit and the State's "preliminary antidegradation finding". Public comments received on the State's "tentative antidegradation finding" will be responded to by the NHDES-WD and EPA in the Response to Public Comments Document that will accompany the finally issued permit if any comments are received. The NPDES permit, when issued, will, therefore, finalize the tentative antidegradation finding.

V. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations 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 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 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 CFR §§124.53 and 124.55.
The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the Clean Water 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 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 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. **The sludge conditions implementing section 405(d) of the CWA 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.

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to: Mr. John F. Hackler, Chief, Maine-New Hampshire NPDES Permit Unit, U.S. Environmental Protection Agency, One Congress Street, Suite 1100 (Mail Code: CAA), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. 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'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. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal evidentiary hearing to reconsider or contest the final decision. Requests for formal evidentiary hearings must satisfy the requirements of 40 CFR §124.74. In general, the reader should reference 40 CFR 124--PROCEDURES FOR DECISIONMAKING, Subparts A, D, E and F for specifics relative to this section.

VII. EPA/State Contacts.

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

Mr. Frederick B. Gay, Environmental Engineer
U.S. Environmental Protection Agency
One Congress Street
Suite 1100, Mail Code: CAA
Boston, Massachusetts 02114-2023
Telephone No.: (617) 918-1297
FAX No.: (617) 918-1505

Copies of the **Lamprey River Total Maximum Daily Load Study** report conducted by the NHDES-WD can be obtained or inspected at the address shown below by contacting:

Mr. Gregg Comstock, P.E.,Sanitary Engineer,
Watershed Management Bureau
Water Division
New Hampshire Department of Environmental Services
6 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095
Telephone No.: (603) 271-2457
FAX No.: (603) 271-7894

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

_____
Date

Attachments A-E (attachments included if available electronically)
Note: Attachments A and E not available

ATTACHMENT B

Concentrations of Effluent Characteristics at Outfall 001

The following effluent characteristics were derived from analysis of DMRs collected from Outfall 001 during the 24-month period, July 1997 through June 1999. During this monitoring period, the facility reported four (4) months of no discharge; the months of July and August 1997 and August and September 1998. Consequently, the averages shown below were computed by dividing by 20 months or the total number of months with discharge over the 24-month period. All these data were extracted from the DMRs submitted by Epping's Wastewater Treatment Facility. These effluent characteristics are summary statistics of the limitations and monitoring requirements in the existing permit issued on December 24, 1985. These effluent values characterize treated sanitary wastewater with minor commercial contributions discharged from this facility as there are no industrial contributions.

Effluent Characteristic	Average of Average Monthly[1]	Maximum of Maximum Daily[2]
Flow (MGD)	0.202	1.017, 0.63, 0.52
BOD_5 (lbs/day)	17.56	39.45[3], 37.97[3], 37.18[3]
BOD_5 (mg/l)	11.4	27. 25, 20
BOD_5 Removal (Percent)	94.6	88[4], 89[4], 89[4]
TSS (lbs/day)	18.5	52.6[3], 44.1[3], 40.2[3]
TSS (mg/l)	11.5	26, 26, 26
TSS Removal (Percent)	91.8	81[4], 83[4], 84[4]
pH (Standard Units)	--	7.21 to 8.58[5]
Total Coliform Bacteria (Colonies/100 ml)	42.26	200, 200, 200
Total Chlorine Residual (mg/l)	--	2.39, 2.37, 2.35
Settleable Solids (mg/l)	0.05	<0.1, <0.1, <0.1

1. Any value qualified with a less than sign was halved prior to computation.
2. More than one value represents the second and third highest value, expect where footnoted with a “4”, which is the reverse.
3. Maximums of the average monthly values
4. Minimums of the average monthly values
5. Minimum and maximum daily values

ATTACHMENT C

Pertinent Equations

Maximum Allowable Loads

Equation used to calculate maximum allowable loads for $CBOD_5$, TSS, Ammonia Nitrogen as N and Total Phosphorus as P.

where:

L	=	Maximum allowable load, in lbs/day, rounded to nearest 1 lbs/day, except for Phosphorus.
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

Equation used to calculate dilution factor at Outfall 001.
where:

DF	=	Dilution Factor
Q_{001}	=	7Q10 flow at Outfall 001, in cfs.
0.90	=	Factor to reserve 10 % assimilative capacity.
Q_{PDF}	=	Treatment plant's design flow, in MGD.
1.547	=	Factor to convert MGD to cfs.

Aquatic Life Criteria Based Limits

Equation used to calculate "Maximum Daily" and "Average Monthly" draft permit limits for Specific Toxic Pollutants such as Total Recoverable Aluminum and Total Residual Chlorine. In the equation, user should substitute appropriate acute and chronic criteria presented in the Total Phosphorus discussion in the FACT SHEET for the Aquatic Life Criteria (ALC).

where:

STP = Maximum Daily/Average Monthly Specific Toxic Pollutant concentration depending on Aquatic Life Criteria chosen, in mg/L. See ALC below.
DF = Dilution Factor from equation on previous page.
ALC = Aquatic Life Criteria from NH Standards; use acute criterion for computing "Maximum Daily" limit, and chronic criterion for computing "Average Monthly" limit, both criterion in mg/L. However, if criterion expressed as micrograms/liter (ìg/L), multiply by 1000 to obtain 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.

where:

RCW = Receiving Water Concentration
DF = Dilution Factor from equation on previous page.
100 = Factor to convert reciprocal to a percent.

ATTACHMENT D

Toxicity Strategy for Major Permits

	HIGH RISK	MED-HIGH RISK	MED-LOW RISK	LOW RISK
DILUTION FACTOR	<10:1	10.1-20:1	20.1-100:1	>100:1
SAMPLING EVENTS PER YEAR	4(1/3 MONTHS)	4(1/3 MONTHS)	4(1/3 MONTHS)	2(1/6 MONTHS)
TOXICITY TESTS: FRESH WATER MARINE WATER	CHRONIC[1] CHRONIC & ACUTE	CHRONIC[1] CHRONIC & ACUTE	ACUTE ACUTE	ACUTE ACUTE
NUMBER OF SPECIES: FRESH WATER MARINE WATER	2 3	2 3	2 2	2 2
PERMIT LIMITS	LC50=100% C-NOEC[2]>=RWC[3]	LC50=100%	LC50=100%	LC50>=50%
TEST SPECIES: FRESH WATER MARINE WATER	DAPHNID[1] (*Ceriodaphnia dubia* or *Daphnia pulex*) FATHEAD MINNOW[1] (*Pimephales promelas*) INLAND SILVERSIDE[1] (*Menidia beryllina*) MYSID SHRIMP (*Mysidopsis bahia*) SEA URCHIN (*Arbacia punctulata*)		DAPHNID (*Ceriodaphnia dubia* or *Daphnia pulex*) FATHEAD MINNOW (*Pimephales promelas*) INLAND SILVERSIDE (*Menidia beryllina*) MYSID SHRIMP (*Mysidopsis bahia*)	

[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.

Flow in this draft permit has been set at the design flow (0.50 MGD) of the proposed treatment works. Since design flow is considered a long-term average daily flow, it is being limited under the average monthly column; whereas, a monitoring-only requirement has been included under the maximum daily column. In the existing permit, flow was only monitored. EPA believes a flow limit is necessary to induce the community to remove excessive inflow and infiltration (referred to as I/I) in its collection system thus reserving the plant's capacity to treat wastewater and not wastewater diluted with either stormwater or groundwater. Removing groundwater through I/I reduces base flow to streams in the vicinity of the collection system which ultimately lowers base flow including possibly the 7Q10 flow in the Lamprey River.

This flow limit will also compel the town to evaluate impacts on its treatment works ability to achieve permitted limits prior t accepting sewage flows form new connections or increased flows from existing connections. Furthermore, over the past two years the existing effluent flows from the treatment plant have average 0.25 MGD, or about half the capacity of the expanded facility. If sewage flows are not curtailed to the upgraded treatment works, it is likely that the design capacity of the upgraded plant will soon be exceeded necessitating even better treatment (another redesign and rebuild of the upgraded facility) to maintain water-quality standards in the Lamprey River. Therefore, EPA and the State believe this flow limit is necessary to insure the headworks loading to the treatment plant is not exceeded during the treatment work's normal design life (20 years), and especially, during the life of this permit. Recorded flows must represent the actual discharge from Epping's treatment works to the Lamprey River and must be recorded continuously.