

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

FACT SHEET

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

PUBLIC NOTICE START AND END DATES:

PUBLIC NOTICE NUMBER:

CONTENTS: Twenty-nine (29) pages including six (6) Attachments A through F.

NPDES PERMIT NO.: NH0100609

NAME AND MAILING ADDRESS OF APPLICANT:

Rockingham County Complex
116 North Road
Brentwood, New Hampshire 03833

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Facility Location

Rockingham County Wastewater Treatment Facility
116 North Road
Brentwood, New Hampshire

Mailing Address

Rockingham County Wastewater Treatment Facility
116 North Road
Brentwood, New Hampshire 03833

RECEIVING WATER: Ice Pond Brook (Hydrologic Basin Code: 01060003)

CLASSIFICATION: Class B

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

The above named applicant has applied to the U.S. Environmental Protection Agency, New England Office (EPA-New England) for reissuance of its NPDES permit to discharge treated wastewater into the designated receiving water (Ice Pond Brook, a small tributary to Dudley Brook, which is a tributary to the Exeter River). The treatment facility collects and treats: (1) domestic wastewater from the Rockingham County Complex, which includes a nursing home and correctional facility; (2) **green sand filter/water softener backwash wastewater from the County's water treatment facility;** and (3) **continuous boiler blowdown from the main facility boiler and a smaller boiler at the correctional facility.**

The plant is designed as a 0.178 million gallon per day (MGD) two-celled aerated lagoon wastewater treatment facility with an 18 million gallon storage lagoon. Two methods of effluent disposal are used at the facility. The treatment plant discharges up to 0.084 MGD to Ice Pond Brook (outfall 001), but only during the period from October 1st through April 30th, and this only occurs when the flow in Ice Pond Brook, upstream of Outfall 001, is greater than or equal to 0.28 cubic feet per second (0.18 MGD). The remaining flows are stored in the holding pond until summer and then discharged to a spray irrigation disposal system along with the treated flows generated from May 1st to September 30th. The draft permit is based upon a design flow of 0.084 MGD, which is the flow that is discharged to surface waters. This flow is referred to as the "surface water discharge design flow" throughout this Fact Sheet.

Treatment consists of screening/grit removal, two aerated treatment lagoons, a single 18.0 million gallon aerated facultative storage lagoon, and disinfection with ultraviolet light prior to discharge to Ice Pond Brook via outfall 001, or to spray irrigation disposal. The treatment system is designed to preclude discharges from Outfall 001 when the gaging station just upstream from the outfall measures a flow less than 0.28 cubic feet per second (cfs). An automatic valve in the outfall pipeline closes whenever the flow in the brook drops below 0.28 cfs, stopping the discharge to Outfall 001.

Rockingham County's existing permit (hereinafter called the "current permit") was issued on December 24, 1997, and expired on January 23, 2003. The applicant filed a complete application for permit reissuance within the time period specified by 40 Code of Federal Regulations (CFR) Section 122.6. Therefore, the current permit has been administratively extended until a new permit can be issued.

The current permit authorizes a discharge of up to 0.084 MGD from Outfall 001 to Ice Pond Brook only from October 1st through April 30th. This 7-month discharge period will be continued in the draft permit. The location of the treatment facility, Outfall 001 and the receiving water are shown in **Attachment A** and their locations are unchanged from the current permit.

II. Description of Discharge.

A quantitative description of significant effluent parameters based on discharge-monitoring data collected for Outfall 001 during the winter discharge seasons of 2000, 2001 and 2003 are shown in **Attachment B**. The facility did not discharge to outfall 001 in 2002 because large quantities of wastewater leaked from the lagoons during liner failures in 2001 and 2002. The holding pond liner failed in April 2001 and, except for a small amount that was disposed of by spray irrigation, the entire holding pond contents leaked out through the underdrain system to Ice Pond Brook. In April of 2002, one of the aerated lagoon liners failed and a smaller quantity of wastewater leaked from the lagoon. During this event, most of the wastewater was transferred from the leaking lagoon to the holding pond. The lagoon liners were replaced in 2002 and the facility began discharging to Outfall 001 again in January 2003.

The current permit authorizes discharges to outfall 001 from October 1st to April 30th, but the facility has not discharged during the months of October, November or December since the current permit was issued in 1997. Therefore the 2000, 2001 and 2003 data in **Attachment B** are based on a total of ten months of discharge-monitoring data.

Effluent characteristics reported on discharge-monitoring reports are listed in **Attachment B**. The draft permit contains limitations for five-day carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), ammonia as nitrogen, dissolved oxygen, pH, *Escherichia coli* (*E. coli*) bacteria, whole effluent toxicity (WET) and a monitoring requirement for Flow. The draft permit also includes a new monitoring/reporting requirement for total recoverable copper.

III. Limitations and Conditions.

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

IV. Permit Basis and Explanation of Effluent Limitations Derivation.

A. Background

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

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

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

Water-quality based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards. See Section 301(b) (1)(C) of the ACT. A water-quality standard consists of three elements: (1) beneficial designated use or uses for a water body or a segment of a water body; (2) a numeric or narrative water-quality criteria sufficient to protect the assigned designated use(s); and (3) an antidegradation requirement to ensure that once a use is attained it will not be eroded. Receiving water requirements are established according to numerical and narrative standards in the state's water quality standards adopted under state law for each stream classification. When using chemical-specific numeric criteria to develop permit limits both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR 122.44 (d)(1) and are implemented under 40 CFR §122.45(d). In addition to the average weekly limit for POTWs under 40 CFR §122.45(d), the Region believes it is necessary to establish a maximum daily limit since the basis for the average weekly limit derives from the secondary treatment requirements for BOD₅ and TSS and is not directly related to achieving chemical specific water-quality standards for toxic pollutants which are based on acute (short-term) and chronic (long-term) criteria. Given that, it would be impracticable to rely only on monthly or weekly average limits to ensure that Water Quality Standards for toxic pollutants are met. Therefore, the Region establishes maximum daily and average monthly limits for chemical-specific toxic pollutants, such as copper. The POTW's design flow is used when deriving constituent limits for daily and monthly time periods as well as weekly periods where appropriate. Also, the dilution provided by the receiving water is factored into this process of developing permit limits for some parameters. Furthermore, narrative criteria from the state's water-quality standards are often used to limit toxicity in discharges where: (1) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (2) toxicity cannot be traced to a specific pollutant.

The NPDES permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water-quality criterion. See

40 CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers: (1) existing and planned controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permittee's reissuance application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the species to toxicity testing; (4) statistical approach outlined in **Technical Support Document for Water Quality-based Toxics Control, March 1991, EPA/505/2-90-001** in Section 3; and, where appropriate, **(5) dilution of the effluent in the receiving water under design low flow conditions. When calculating in-stream dilution, ten percent** of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Ws 1705.01. The current set of these Regulations, recently revised, were adopted on December 3, 1999, and became effective on December 10, 1999. Hereinafter, these New Hampshire Surface Water Quality Regulations are referred to as the NH Standards.

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

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

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

B. Conventional Pollutants, Ammonia and Flow

Minimum Flow in Ice Pond Brook

The receiving water dissolved-oxygen (DO) modeling completed in 1997 for development of the DO-based limits in the current permit was based on a flow rate of 0.28 cfs (0.18 MGD) in Ice Pond Brook. This was the flow limit in the facility's earlier permit, issued June 18, 1986, which prohibited discharges whenever the flow in Ice Pond dropped below 0.28 cfs. A 1989 study by the County's consultant and a subsequent study by NHDES-WD in 1995 determined that Ice Pond Brook could not meet the DO water quality standard during the summer months regardless of BOD concentrations in the effluent. Therefore, the current (1997) permit includes the same 0.28 cfs flow

limit, but it further restricts discharges to Ice Pond Brook by limiting them to the months of October through April. These discharge restrictions have been retained in the draft permit.

CBOD₅, TSS, Ammonia, DO and Flow

No additional DO modeling was completed for development of the draft permit. There have been no changes in the design conditions at the treatment facility, and there has been no additional ambient water quality data collected from Ice Pond Brook since the current permit was issued in 1997. The 1997 DO modeling completed to develop the current permit limits analyzed various combinations of effluent CBOD₅, ammonia, DO and flow. The final combination of limits included in the current permit were those that the county would most likely be able to achieve with the existing treatment facility that would also be protective of the Class B DO standards in the receiving water downstream from Outfall 001. That is, the combined effect of the CBOD₅ and ammonia average monthly limits and the minimum DO limit will not cause the DO in Ice Pond Brook to fall below a daily average level equal to 75 percent saturation. Similarly, the combination of the CBOD₅ and ammonia maximum daily limits and the minimum DO limit will not cause the in-stream DO to be less than an instantaneous minimum of 5.0 mg/l. These DO criteria were then adjusted in the DO model to withhold 10 percent of Ice Pond Brook's assimilative capacity for future use in accordance with Env-Ws 1705.01. For example, the instantaneous minimum DO in Ice Pond Brook of 5.52 mg/l was used instead of 5.0 mg/l during the development of the maximum daily limits in the current permit.

The effluent flow modeled when developing the limits for CBOD₅, ammonia and minimum DO in the current permit was equal to the surface water discharge design flow of 0.084 MGD since modeling using a higher flow resulted in limits that the county would not be able to achieve. This discharge flow is indirectly limited in the current permit in the form of the mass limits for CBOD₅, TSS and ammonia.

The 1997 modeling that was used to develop limits in the current permit was performed using an effluent DO concentration of not less than 9.0 mg/l. Any lower DO concentration in the effluent would have resulted in more stringent limits for the other parameters (CBOD₅, TSS and/or ammonia). This DO constraint in the model represents the basis for the DO limit in the current permit of not less than 9.0 mg/l at any time. Over the portion of the year during which the facility is permitted to discharge, algae are most likely to be present in the lagoon in October and April. During a diurnal cycle, dawn is the time most likely to experience low DO in a facultative lagoon or in surface waters due the effects of algal respiration and the lack of photosynthesis at night. Thus the critical times for monitoring DO are between the hours of 6:00 a.m. and 8:00 a.m. during the months of October and April. The 9.0 mg/l DO limit and monitoring requirements in the draft permit are also present in the current permit.

The ammonia limits in the draft permit were carried forward from the current permit, and are therefore based on meeting the NH standard for DO under the conditions modeled in 1997. These limits are more stringent than is necessary to meet the acute and chronic aquatic life criteria for ammonia in the **NH Standards (see discussion of ammonia limits on page 9 of this Fact Sheet)**.

The CBOD₅, TSS and ammonia mass-based limits corresponding to the respective concentration-based limits in the draft permit are based on 40 CFR Section 122.45(f) which requires the Agency to express all permit limits in terms of mass. The average monthly and average weekly concentration-based limits for CBOD₅ and TSS are more stringent than the requirements under Section 301(b)(1)(B) of the ACT as defined for Secondary Treatment Standards in 40 CFR Section 133.102(a) and (b).

Average monthly, average weekly (where applicable) and maximum daily allowable mass-based (load) limitations for CBOD₅ and TSS and Ammonia shown in the draft permit are based on the POTW's average daily surface water discharge design flow of 0.084 MGD and the appropriate constituent concentration for the respective time period being limited. See Attachment C for the equation used to calculate each of these mass-based limits. For example, the Average Monthly CBOD₅ load of 8.4 lbs/day is based on the average monthly CBOD₅ concentration of 12 mg/l, the facility's surface water discharge design flow of 0.084 MGD, and a conversion factor of 8.345 to convert mg/l and MGD to lbs/day.

Percent removal requirements for CBOD₅ and TSS are based upon the requirements of 40 CFR Section 133.102 (a) (3) and (b)(3), respectively.

In addition to all of the above, the concentration-based and mass-based effluent limits for CBOD₅, TSS, ammonia and DO in the draft permit are based upon limits in the current permit in accordance with antibacksliding requirements found in 40 CFR §122.44(1), since the permittee has been able to achieve consistent compliance with those limits.

pH and Bacteria Limits Including Related Conditions

The draft permit includes effluent pH range limits of 6.5 to 8.5 Standard Units (S.U.). The lower pH effluent limitation of 6.5 Standard Units (S.U.) in the draft permit is based upon applying Env-Ws 1703.18(b) at the point of discharge. The upper pH effluent limit of 8.5 S.U. is based on a demonstration study completed by the applicant, and accepted by both EPA-New England and NHDES-WD, which includes an allowance for dilution by the receiving stream.

During development of this draft permit, Rockingham County submitted to NHDES-WD a letter and pH demonstration study dated April 17, 2003, requesting that the upper pH limit in the draft permit be changed to 8.5 S.U.. The NHDES-WD approved the demonstration study in a letter to Rockingham County **dated May 30, 2003 and also sent a letter to EPA-New England, dated May 30, 2003, stating that the proposed pH limits will meet NH Standards and that the State agrees that permit limits should be modified by EPA-New England to incorporate the results of the demonstration study.** This NHDES-WD letter included an original signature and satisfied the requirements of EPA's permitting approach to pH adjustment as stated in the Fact Sheet and the draft permit SPECIAL CONDITIONS. The County's study demonstrated to the satisfaction of NHDES-WD that if effluent at pH 8.5 is mixed with Ice Pond Brook water at the same ratio as occurs at design low flow conditions then the Class B water quality standard pH range of 6.5 to 8.0

S.U. will be protected. Based on NHDES-WD's approval letter and EPA-New England's permitting approach to pH adjustment following the State's approval, a revised upper pH limit of 8.5 S.U. has been established in the draft permit.

Further changes may be made to the pH limit range in the draft permit based upon the draft permit SPECIAL CONDITIONS. If the State approves results from another 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-New England anticipates that the limit determined from the demonstration study as approved by the NHDES-WD will satisfy all effluent requirements for this discharge category and will comply with NH Standards with regard to in-stream conditions.

Effluent limitations in the draft permit for *E. coli* bacteria are based upon the limitations found in New Hampshire's State statutes (N.H. RSA 485-A:8,II) for Class B waters that are not designated beach areas.

C. Nonconventional and Toxic Pollutants

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

Available Dilution

Available dilution, or the dilution afforded the POTW's effluent by the receiving water, for this facility's discharge is 2.84 based on the facility's surface water discharge design flow of 0.084 MGD and a minimum stream flow of 0.28 cfs (0.18 MGD), and the 90 percent reserve of assimilative capacity (saving 10 percent for future needs) per the NH Standards (Env-Ws 1705.01). See **Attachment C** for the equation used to calculate the dilution factor at the POTW's outfall.

Chlorine

Since the facility uses ultraviolet light for disinfection there is no need to have a limit or monitoring requirement for chlorine.

Ammonia

The ammonia limits necessary to prevent violations of the DO standard as derived from the DO model are more stringent than those necessary to prevent violations of the water quality criteria. Therefore, there is no need for ammonia limits to prevent aquatic toxicity. The average monthly and maximum daily permit limits that would be necessary to prevent violation of the chronic and acute water quality criteria are 7.1 mg/l and 27.3 mg/l respectively. These values are less stringent than the 6.1 mg/l average monthly and 12.2 mg/l maximum daily limits necessary to prevent violations of the DO standard. The draft permit includes the more stringent limits, and is therefore protective of both the ammonia toxicity criteria and the DO standard.

The chronic and acute water quality criteria-based values were determined using EPA's (December) 1999 Update of Ambient Water Quality Criteria for Ammonia in accordance with the NH Standards, Env-Ws 1704.01(c), which allow the use of updated water quality criteria. The average monthly ammonia limits were calculated based on fish early life stages being present, and the maximum daily ammonia limits are based on salmonid fish being present.

Metals Monitoring

EPA-New England has reviewed Rockingham County's last four (4) Whole Effluent Toxicity (WET) tests (March 1999-March 2003), see **Attachment D**, and has found that one (1) metal, copper, "may" have potential to exceed both the fresh water acute and chronic aquatic-life criteria concentrations in the NH Standards. The March 1999 effluent sample showed a copper concentration of 0.011 mg/l (11 ug/l), which would have been slightly above the allowable maximum daily limit for total recoverable (tr) copper of 0.0107 mg/l (10.7 ug/l), if such a limit was established for the facility. Four additional copper samples, all collected since the 1999 sample, have ranged from 0.005 mg/l to 0.007 mg/l (5 ug/l to 7 ug/l), below the level that could cause either acute or chronic water quality criteria violations in the receiving stream. The County has changed how it operates its ion exchange water softener at the potable water treatment facility since 1999. The softener now removes less hardness from the drinking water supply, so the 1999 sample may no longer be representative of current conditions.

The data profile produced by a WET sampling frequency of once or twice per year is insufficient for the EPA-New England to determine whether or not copper is being discharged at levels that cause, or have reasonable potential to cause, or contribute to an in stream excursion above the numeric water-quality criteria. Specifically, the frequency of monitoring in the WET testing program is too infrequent to properly determine effluent variability in the discharge as to: (1) within month variability; (2) month to month variability; and (3) monthly averages, all of which are used when deciding whether or not a discharge will likely exceed the State's respective acute and/or chronic aquatic-life criteria. Consequently, a monitoring requirement of "report" has been added under the

“maximum daily” and “average monthly” headings for tr copper in the draft permit with a monitoring frequency of 2/Month to determine if Rockingham County’s discharge does in fact have “reasonable potential” to cause or contribute to an excursion of the state’s water quality criteria for copper in the receiving water. Through the monitoring process, the presence or absence of copper as well as its variability in the effluent over time can be more clearly established than by the present five samples. **The NH Standards, which were adopted on September 30, 1996, and recently readopted on December 3, 1999, establish water quality criteria based on dissolved metals (previously NH Standards were based on total recoverable metals). Therefore, as described in the next paragraph, the “reasonable potential” determination for copper now involves calculating a total metal concentration that is equivalent to the dissolved metal water quality criterion, adjusting that number to account for available dilution in the receiving water, then comparing that result to the effluent metals data to determine if there is reasonable potential.**

Current NH Standards for metals are expressed in terms of dissolved metal, however, EPA is required by 40 CFR Section 122.45(c) to regulate total recoverable metal in NPDES permits. 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 allowed 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 criteria in the NH Standards after mixing with the receiving water. To convert the dissolved metal acute and chronic aquatic life criteria in the current NH Standards to total recoverable metal, a default translator equal to the conversion factors found in Table 1703.2 of the NH Standards is used along with a default receiving water hardness of 25 mg/l, unless the permittee can show that different translator and hardness values are more appropriate. For the period March 1999 through March 2003, receiving water hardness as reported in the Whole Effluent Toxicity tests averaged 36 mg/l with a range of 21 to 43 mg/l, indicating that the criteria in the NH Standards, which are based on a default hardness of 25 mg/l, are appropriate for this preliminary analysis. Accordingly, the dissolved metal standards found in Env-Ws 1703.21(b), Table 1703.1 are divided by the appropriate conversion factors from Table 1703.2 to derive the appropriate total recoverable acute and chronic aquatic-life criteria for copper of 3.8 ug/l and 2.8 ug/l respectively. Multiplying these criteria by the facility’s dilution factor of 2.84 yields the potential maximum daily limit of 10.7 ug/l and the potential average monthly limit of 8.0 ug/l. See **Attachment C** for the equation used to compute these potential water-quality-based limits. This approach is consistent with the recommendations contained in Section 1.5 of the Metals Translator Guidance cited at the end of this paragraph. If there is disagreement with the above assessment, the permittee has the option of performing additional sampling of the effluent, receiving waters and effluent/receiving water mixtures in order to develop site-specific partition coefficients for this metal using the procedures described in **“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-New England recommends using Clean Techniques for sampling as found in EPA Method 1669 as a first approach if the permittee believes their sampling methods contaminate the samples that are being collected. In addition, the permittee may choose to use some form of Clean Analytical Techniques such as a Class 10, 100 or 1000 Hood and/or Bench for sample preparation in the laboratory or even a laboratory clean room.

Results from this new “monitoring-only” requirement will be considered “new information” and the permit may be modified as provided in 40 CFR §122.62(a)(2) to incorporate a limit for total recoverable metal(s) should that prove necessary. The permit has been conditioned such that the lowest reportable concentration for each metal is set equivalent to the ML (“minimum quantification level”). 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-New England has established a ML for copper of 2.5 ug/l, using aqueous samples for Furnace AA analysis concentrated by a factor of up to two (2), if necessary.

D. Whole Effluent Toxicity

EPA's **Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991**, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the Nation’s waterways. EPA-New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. These approaches are designed to protect aquatic life and human health. Pollutant specific approaches such as those in the Gold Book and State regulations address individual chemicals, whereas, Whole Effluent Toxicity (WET) approaches evaluate interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "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.

New Hampshire law states that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;..." (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Ws 1730.21(a)(1)). The federal NPDES regulations at 40 CFR §122.44(d)(1)(v) require whole effluent toxicity limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an excursion above the State's narrative criterion for toxicity. Furthermore, results of these toxicity tests will demonstrate compliance of the POTW’s discharge with the “no toxic provision of the NH Standards”.

Accordingly, to fully implement the “integrated strategy” and to protect the “no toxic provision of the NH Standards”, EPA-New England requires toxicity testing in all municipal permits with the type of toxicity test(s) (acute and/or chronic) and effluent limitation(s) (LC50 and/or C-NOEC) based on the available dilution as shown in **Attachment E**. **That policy (Attachment E)** is for major

permittees, however, the applicable toxicity policy for minor POTWs (less than 1.0 MGD design flow) is identical to that shown in **Attachment E** except that the monitoring frequency is reduced to annual testing for available dilutions above 20:1. Even though the Rockingham County Complex is considered a minor POTW, its dilution factor of 2.84:1 is considerably less than 20:1; therefore, its monitoring frequency for WET testing is the same as for major facilities.

In addition, the effluent limitations in the draft permit for LC50 and C-NOEC are based upon those in the current permit in accordance with the antibacksliding requirements found in 40 CFR Section 122.44(1) for the permittee has been able to achieve consistent compliance with these limitations. Specifically, the draft permit is conditioned to require the permittee to continue performing annually, two(2) chronic and modified acute toxicity tests using two (2) species per test during calendar quarters ending March 31st, and December 31st each year and for the test results to meet an acute LC50 limit of 100 percent effluent concentration and a chronic C-NOEC limit of equal to or greater than 35 % effluent concentration. The two (2) species used in these toxicity tests are Daphnid (Ceriodaphnia dubia) and Fathead Minnow (Pimephales promelas).

The LC50 is defined as the percentage of effluent that would be lethal to 50 % of the test organisms during an exposure of 48 hours. Therefore, a 100 % limit means that a sample of 100 % effluent shall have no greater than a 50 % mortality rate in that effluent sample. Whereas, C-NOEC (Chronic-No Observed Effect Concentration) is defined as the **highest** concentration to which aquatic test organisms are exposed in a life cycle or partial life cycle test, which causes no adverse effect on growth, survival or reproduction at a specific time of observation as determined from hypothesis testing where the tests results (growth, survival and/or reproduction) exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the draft permit requires the permittee to report the lowest concentration where there is no observable effect. See the draft permit's **ATTACHMENT B (VII. TOXICITY TEST DATA ANALYSIS)** on page A-9 for additional clarification in selecting the appropriate C-NOEC value. The modified acute toxicity test required in the draft permit is measured 48 hours into the chronic test. Toxicity test results are to be submitted by the 15th day of the month following the end of the quarter sampled. For example, test results of the first calendar quarter (January-March) are to be submitted with the DMR for March due to EPA-New England and NHDES-WD by April 15th.

This draft permit, as in the current permit, requires the permittee to continue reporting selected parameters from the chemical analysis of the WET tests 100 percent effluent sample. Specifically, hardness as CaCO₃ and total recoverable aluminum, cadmium, copper, chromium, lead, nickel and zinc are to be reported on the appropriate DMR for entry into EPA's Permit Compliance System's Data Base. EPA-New England does not consider these reporting requirements an unnecessary burden as reporting these constituents is already required with the submission of each toxicity testing report.

The WET limits in the draft permit have been conditioned to allow EPA-New England to modify, or alternatively, revoke and reissue to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of the toxicity tests indicate the discharge causes an exceedance of any State water quality criterion. Results from these toxicity tests are considered

“new information” and the permit may be modified as provided in 40 CFR §122.62(a)(2). Alternately, if a permittee has consistently demonstrated on a maximum daily basis that its discharge, based on data for the most recent one-year period, or four sampling events, whichever yields the greater time period, causes no acute and chronic toxicity at the permitted limits then the permittee will be considered eligible for a reduced frequency of toxicity testing. This reduction in testing frequency is evaluated on a case-by-case basis.

Accordingly, a special condition has been carried forward from the current permit into the draft permit that allows for a reduced frequency of WET testing using a certified letter from EPA-New England. This permit provision anticipates the time when the permittee requests a reduction in WET testing that is approvable by both EPA-New England and the NHDES-WD. As previously stated, EPA-New England’s current policy is that after completion of a minimum of four consecutive WET tests all of which must be valid tests and must demonstrate compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to EPA-New England seeking a review of the toxicity test results. EPA-New England’s policy is to reduce the frequency of toxicity testing to no less than one (one-species) test per year. The permittee is required to continue testing at the frequency specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA-New England indicating a change in the permit condition. This special condition does not negate the permittee’s right to request a permit modification at any time prior to the permit expiration.

E. Storm Water

Investigations by the County’s consultants in 1988/89 and the NHDES-WD in 1995 revealed that due to the combination of naturally occurring low flow conditions in Ice Pond and Dudley Brooks and point/non-point source runoff of oxygen-demanding pollutants, that even with a high level of treatment of the County’s wastewater that the NH Standards for DO would not be met during critical low flow conditions unless oxygen-demanding pollutants from storm drains were controlled.

The storm water runoff at the county complex is directed to Ice Pond and Ice Pond Brook through several small storm drainage networks. These outfalls represent potential sources of oxygen-demanding and other pollutants. Examples include leakage of vehicle fluids on and sanding of parking lots and roads (oil & grease, COD, TSS and phosphorus), pesticide and fertilizer application to the lawns (COD, nitrogen and phosphorus), and runoff from certain operations at the County Complex including loading docks, a laundry, vehicle fueling areas and the boiler buildings (chemical oxygen demand and nutrients).

Part IB of the current permit required the County to develop a storm water pollution prevention plan and perform twice-per-year monitoring at four of its storm water outfalls. The storm water sampling and analysis data collected by the County since 1998 are summarized in **Attachment F**. These data indicate that pollutant waste loads due to the storm water point sources have fluctuated significantly, and have not shown consistent improvement over time. For this reason, EPA-New England and NHDES-WD have determined that the storm water conditions should be continued in the draft permit. Accordingly, pursuant to Section 402(p) of the Act and 40 CFR § 122.26(a)(9), and based

on the preceding discussion, it has been determined that the requirement in the current permit for the County to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) reasonable and appropriate to address oxygen-demanding pollutants from point source discharges of storm water runoff, and, therefore, that requirement has been carried forward in the draft permit. Furthermore, continued periodic monitoring of the storm water is necessary to evaluate the efficacy of the SWPPP.

There are two point source storm water discharges to Ice Pond (SW-1 and SW-2) and six point source storm water discharges to Ice Pond Brook (SW-3 through SW-8) as shown on the sketch in **Attachment F**. The drainage areas for these outfalls include the activities that are listed in **Table 1** below. Of these eight outfalls, SW-1, SW-2, SW-5 and SW-8 were selected for monitoring since they are most likely to contain oxygen-demanding pollutants. The six (6) parameters to be monitored semiannually include oil and grease (O&G), 5-day biochemical oxygen demand (BOD₅), chemical oxygen demand (COD), total suspended solids (TSS), total kjeldahl nitrogen (TKN) and total phosphorus (P). The remaining outfalls do not need to be monitored since they are either unlikely to contain significant pollutant loadings or they are substantially identical to the outfalls selected.

Table 1. Storm Water Outfall Descriptions

Outfall Number	Type of Surface(s)	Activities Conducted
SW-1	roof, pavement, loading dock	deliveries to complex, parking
SW-2	roof, pavement	fuel deliveries, laundry, boilers
SW-3	roof, pavement, grass, loading dock	fuel deliveries, laundry, boilers
SW-4	roof, pavement	Corrections Building
SW-5	roof, pavement, loading dock	deliveries to corrections building
SW-6	grass	lawn care
SW-7	roof, pavement, grass	parking, lawn care
SW-8	roofs, gravel, grass, pavement, fire pond	vehicle fueling, landscaping material, storage, carpentry

The draft permit in Part I.B. requires the permittee to conduct monitoring on outfalls SW-1, SW-2, SW-5 and SW-8 as described above and to maintain and implement the SWPPP as described in the draft permit's **ATTACHMENT B**. The permit also contains a reopener clause to allow the permit to be modified to include additional controls on point and non-point sources of pollutants located on County-owned land if monitoring by the county or others during the term of the reissued permit indicates the need for such controls.

F. Sludge

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

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

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

In their March 2002 NPDES reapplication, the applicant estimated that sludge accumulations were less than one inch in the middle of the lagoons and only six to eight inches at the edges. Later that year, as part of the lagoon liner replacement project, the permittee removed all of this accumulated sludge from **the two (2) aerated lagoons.** **The sludge removed from the facility was sent to POTWs in Merrimack New Hampshire and South Berwick Maine for further processing.** **Given the slow sludge accumulation rate and that the lagoons were cleaned in 2002,** no sludge removal is contemplated during the five (5) year life of this permit.

G. Industrial Users

The permittee is not required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR §403 and §307 of the ACT. However, the draft permit contains conditions that are necessary to allow EPA-New England and NHDES-WD to insure that pollutants from industrial users will not pass through the facility and cause water-quality standards violations and/or sludge use and disposal difficulties or cause interference with the operation of the treatment facility. The permittee is required to notify EPA-New England and NHDES-WD whenever a process wastewater discharge to the facility from a primary industrial category (See 40 CFR §122 Appendix A for list) is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of issuance of the permit.

H. Antidegradation

This draft permit is being reissued with allowable waste loads and parameter coverages identical to

or more stringent than those in the current permit with no change in outfall location. The State of New Hampshire has indicated that there is no lowering of water quality and no loss of existing water uses and that no additional antidegradation review is warranted at this time.

I. Additional Requirements and Conditions

The effluent monitoring requirements in the draft permit and shown in **Table 2** below have been established to yield data representative of the discharge under the authority of Section 308(a) of the ACT in accordance with 40 CFR §§§ 122.41(j), 122.44(i) and 122.48. In the draft permit, compliance monitoring frequency and sample type for flow, CBOD₅, TSS, ammonia, dissolved oxygen, pH, Escherichia coli bacteria and total recoverable **copper** have been established in accordance with the latest version of EPA/NHDES-WD’s Effluent Monitoring Guidance (EMG) mutually agreed upon and first implemented in March 1993 and last revised on July 19, 1999. In addition, the WET test monitoring requirements have been set according to EPA-New England’s Municipal Toxicity Policy. See **Table 2** for a comparison of sampling frequencies and sample types in the current versus draft permits.

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

**Table 2. Sampling Frequencies and Sample Types in the Current and Draft Permits
(Changes to current permit are highlighted under draft Permit.)**

PARAMETER	CURRENT PERMIT		DRAFT PERMIT	
	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Flow	Continuous	Recorder	Continuous	Recorder
CBOD ₅	1/Week	Grab	1/Week	Grab
TSS	1/Week	Grab	1/Week	Grab
Percent Removal of CBOD₅ and of TSS	Not Required	Not Required	1/Month	Grab for influent and for effluent

Table 2. Sampling Frequencies and Sample Types in the Current and Draft Permits (continued)				
PARAMETER	CURRENT PERMIT		DRAFT PERMIT	
	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Total Ammonia (NH ₃ -N)	1/Week	Grab	1/Week	Grab
Dissolved Oxygen	1/Day	Grab	1/Day	Grab
pH	1/Day	Grab	1/Day	Grab
<u>Escherichia coli</u>	3/Week	Grab	2/Week	Grab
Tr Copper	Not Required	Not Required	2/Month	Grab
WET Test: Toxicity LC50 C-NOEC Hardness as CaCO ₃ Tr Aluminum Tr Cadmium Tr Chromium Tr Copper Tr Lead Tr Nickel Tr Zinc	All Parameters Quarters 1 & 4 (January to March & October to December)	Grab	All Parameters Quarter 1 & 4 (January to March & October to December)	Grab

The remaining conditions of the permit are based on the NPDES regulations 40 CFR, Parts 122 through 125, and consist primarily of management requirements common to all permits.

V. Essential Fish Habitat.

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 *et seq.*(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA’s action or proposed actions that it funds, permits, or undertakes, “may adversely impact any essential fish habitat.” 16 U.S.C. § 1855(b). The Amendments broadly define “essential fish habitat” (EFH) as: “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. 16 U.S.C. § 1802(10). Adversely impact means any impact which reduces the quality and/or quantity of EFH. 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

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

Description of Proposed Action

The above named applicant has applied to EPA-New England for reissuance of its NPDES permit to discharge treated wastewater into the designated receiving water (Ice Pond Brook, a small tributary in the Exeter River watershed). The facility collects and treats: (1) domestic wastewater from the Rockingham County Complex, which includes a nursing home and correctional facility; (2) green sand filter/water softener backwash wastewater from the County's water treatment facility; and (3) continuous boiler blowdown from the main facility boiler and a smaller boiler at the correctional facility. The currently effective permit was developed based on a surface water discharge flow of 0.084 MGD for this treatment facility and that flow has been carried forward unchanged into the draft permit. The facility's current permit was issued on December 24, 1997, expired January 24, 2003, and has been administratively extended until a new permit can be issued for the applicant has filed a complete application for permit reissuance within the prescribed time period as per 40 CFR Section 122.6.

EFH Species

According to the New Hampshire Fish and Game Department (NHF&GD) there is no stocking of Ice Pond Brook. Also, Ice Pond Brook has very low flows during the summer months, and according to the wastewater treatment facility operator, the brook dries up during extended periods of dry weather. Given the above, it appears that Ice Pond Brook is not suitable habitat for any designated fish species.

EPA-New England's Opinion of Probable Impacts

Because of the facility's location on a small tributary stream, which dries up in the summer, EPA-New England considers the facility's discharge of treated effluent outside of EFH consideration. Therefore, no further discussion is warranted.

VI. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate the State's Surface Water Quality Regulations or waives its right to certify as set forth in 40 CFR §124.53.

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

request.

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

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the ACT, Sections 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law. In addition, the State should provide a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law. Since certification is provided prior to permit issuance, failure to provide this statement for any condition waives the right to certify or object to any less stringent condition which may be established by EPA-New England during the permit issuance process following public noticing as a result of information received during that noticing. If the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the ACT or State law, the State should include such conditions and, in each case, cite the ACT or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. **The sludge conditions implementing section 405(d) of the ACT are not subject to the 401 certification requirements.**

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

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to: Mr. Roger A. Janson, Associate Director Surface Water Programs, U.S. Environmental Protection Agency, One Congress Street, Suite 1100 (Mail Code: CWQ), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA-New England and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA-New England's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

VIII. EPA/State Contacts.

Additional information concerning the draft permit may be obtained between the hours of 9:00 A.M.

and 5:00 P.M. (8:00 A.M. and 4:00 P.M. for the state), Monday through Friday, excluding holidays from:

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

Date:

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

ATTACHMENT A

This attachment is for the overview map of the area—that is the USGS Topographic Map.

OVERVIEW MAP ATTACHED BY STAPLE TO BACK OF THIS PAGE

ATTACHMENT B

CONCENTRATIONS OF SELECTED EFFLUENT CHARACTERISTICS AT OUTFALL 001

The following selected effluent characteristics were derived from analysis of discharge-monitoring data collected for Outfall 001 during 2000, 2001 and 2003.(the facility did not discharge to Outfall 001 during 2002). These values were extracted from monthly Discharge Monitoring Reports (calendar month reporting period) submitted by the Rockingham County Wastewater Treatment Facility. They represent an effluent composed of treated domestic sewage and institutional wastewater discharged from this facility and provide an indication of this treatment works ability to meet its current permit limits. To fully understand the statistics presented in the table below, the reader should be thoroughly familiar with the definitions of average monthly, average weekly and maximum daily in Part II, General Conditions and Definitions, on pages 13, 14 and 18, respectively. In the table, some range values were rounded for ease of presentation.

It should be noted that lagoon liner failures in 2001 and 2002 interfered with normal operations at the facility. The holding lagoon liner failed in April 2001 and, except for a small amount that was disposed of by spray irrigation, the entire holding pond contents leaked out through the lagoon’s underdrain system to Ice Pond Brook. The holding lagoon liner was repaired during the summer of 2001, but the treatment facility did not discharge to Outfall 001 during the 2001/2002 discharge season. The liner in Lagoon Number 1 failed the following April (2002), but this time most of the lagoon contents were transferred to the holding pond, with only a small amount lost through leakage. Both aerated lagoon liners were replaced during the summer of 2002 and facility operations have returned to normal. Discharges to Outfall 001 resumed in January 2003.

Effluent Characteristic	Average of Average Monthly ¹	Range of Average Monthly	Average of Average Weekly ¹	Range of Average Weekly	Average of Maximum Daily ¹	Range of Maximum Daily
Flow (MGD)	0.076	0.07-0.082	--	--	0.1	0.086-0.172
CBOD ₅ (lbs/day)	3.2	1.7-4.6	3.9	1.9-6.2	3.9	1.9-6.2
CBOD ₅ (mg/l)	4.6	2.4-6.9	5.6	2.7-8.4	5.6	2.7-8.4
TSS (lbs/day)	4.6	1.4-7.8	5.6	1.9-9.3	5.6	1.9-9.3
TSS (mg/l)	6.8	2.1-11.7	7.9	2.6-12.5	8.8	2.6-20.0
Dissolved Oxygen (min. mg/l)	--	--	--	--	13	9.6-14.9
pH (Standard Units)	--	--	--	--	--	7.0-8.4
<i>E. coli</i> bacteria (Organisms/100 ml)	2.2	1-9.14	--	--	15	<3-61
Total Ammonia ² as N (lbs/day)	4	0.3-9.3	--	--	5.3	0.4-14.7
Total Ammonia ³ as N (mg/l)	6	0.6-11.2	--	--	6.7	1.1-13.0

ATTACHMENT B (CONTINUED)

CONCENTRATIONS OF SELECTED EFFLUENT CHARACTERISTICS AT OUTFALL 001

Effluent Characteristic	Average	Range
Whole Effluent Toxicity (LC50 in % Effluent)		
<i>Ceriodaphnia dubia</i>	>100	>100
<i>Pimephales promelas</i>	>100	>100
Whole Effluent Toxicity (C-NOEC in % Effluent)		
<i>Ceriodaphnia dubia</i>	78.3	35-100
<i>Pimephales promelas</i>	>75	25 to >100

1. Any value qualified with a less than sign was halved prior to computing average value.

ATTACHMENT C

Maximum Allowable Loads

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

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

L = Maximum allowable load, in lbs/day.

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

Q_{PDF} = Treatment plant's design discharge to surface water, in MGD. (0.084 MGD).

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

Available Dilution Factor

Dilution Factor Equation at Outfall 001.

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

where:

DF = Dilution Factor. (Equals 2.84 for Rockingham County)

Q₀₀₁ = Required minimum stream flow just upstream from Outfall 001, (0.28 CFS).

0.90 = Factor to reserve 10 percent assimilative capacity.

Q_{PDF} = Treatment plant's surface water discharge design flow, in MGD. (0.084 MGD).

1.547 = Factor to convert MGD to CFS.

Water-Quality Criteria Based Limits Calculation for Total Copper

(Use acute aquatic-life criterion for computing "maximum daily" limit and chronic aquatic-life criterion for computing "average monthly" limit):

*Tr Copper Limit = DF * (Dissolved Aquatic-Life Water Quality Criteria ÷ Translator)*

where:

Tr Copper Limit = Total Recoverable Copper Limit (mg/l).

DF = Dilution Factor from equation above which equals 2.84.

0.0027 = Chronic Aquatic-Life Water-Quality Criterion for copper, in mg/l.

0.0036 = Acute Aquatic-Life Water-Quality Criterion for copper, in mg/l.

0.960 = Translator for dissolved Acute and Chronic Aquatic-Life Criteria

ATTACHMENT C (CONTINUED)

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 E.

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

where:

RCW = Receiving Water Concentration, in percent.

DF = Dilution Factor from equation above which equals 2.84.

100 = Factor to convert reciprocal to a percent.

ATTACHMENT D

**CONCENTRATIONS OF SELECTED CONSTITUENTS IN EFFLUENT COLLECTED FOR
WHOLE EFFLUENT TOXICITY TESTS**

Date	Average Receiving Water Hardness (mg/l)	Average Effluent Hardness (mg/l)	Tr. Al (mg/l)	Tr. Cd (mg/l)	Tr. Cu (mg/l)	Tr. Cr (mg/l)	Tr. Pb (mg/l)	Tr. Ni (mg/l)	Tr. Zn (mg/l)
3/99	21	140	0.014	<0.001	0.011	<0.002	<0.003	0.003	0.024
3/00	42	147	<0.015	<0.001	0.007	<0.002	<0.005	0.004	0.027
2/01	41	143	0.0214	<0.002	0.007	<0.0019	<0.0026	<0.003	0.0278
2/03	43	156	<0.01	<0.001	0.005	<0.002	<0.005	<0.003	0.023
3/03	35	138	<0.01	<0.001	0.007	<0.002	<0.005	0.004	0.027
Potential Permit Limits									
Potential Avg. Monthly Limit			0.25	0.0024	0.0080		0.0015	0.046	0.105
Potential Max. Daily Limit			2.13	0.0027	0.0107		0.0400	0.412	0.105

ATTACHMENT E

TOXICITY STRATEGY FOR MUNICIPAL PERMITS

STRATEGY ATTACHED BY STAPLE TO BACK OF THIS PAGE

ATTACHMENT F (CONTINUED)

**STORM WATER OUTFALL LOCATION MAP
NOT AVAILABLE ELECTRONICALLY**

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Judith A. Gates, Director, Rockingham County E&MS
Rockingham County Complex
116 North Road
Brentwood, New Hampshire 03833

Re: Public Notice
NPDES Application No. NH0100609
(for) Rockingham County Complex Publicly Owned Treatment Works

Dear Ms. Gates:

In accordance with Section 402 of the Clean Water Act, as amended, the U.S. Environmental Protection Agency (EPA), New England Region intends to issue a National Pollutant Discharge Elimination System (NPDES) permit to your facility in the near future.

The enclosed draft permit, developed by this office and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) contains effluent limitations and conditions to assure that the discharge receives adequate treatment and will not violate State water-quality standards. Also, enclosed is the Fact Sheet which briefly describes the basis for the permit conditions. You are encouraged to closely review and comment on all the enclosed documents.

If you have any questions or concerns regarding this draft permit or if you believe the draft permit does not accurately describe your discharge or contain a reasonable compliance schedule (where appropriate), you should notify each office, in writing, no later than the last day of the public comment period. Particular attention should be given to the following sections: Effluent Limitations and Monitoring Requirements, Monitoring and Reporting Requirements, and State Permit Conditions which are common to all permits; and other pertinent sections deemed necessary for your facility such as: Special Conditions, Reopener Clauses, Development of Limitations for Industrial Users, Industrial Pretreatment Program Conditions, Sludge Conditions, Storm Water Requirements, Combined Sewer Overflow Conditions, or other condition(s)/requirement(s) not previously mentioned.

The law requires public notice to be given of the preparation of a draft permit to allow opportunity for public comments and, if necessary, a public hearing. Concurrently with this letter EPA and the NHDES-WD have proceeded to publish the public notice of the proposed issuance of this permit. In order to preserve the right to a formal hearing to contest provisions in a final permit, all persons, including the applicant, who believe any condition of the draft is inappropriate must raise all reasonably ascertainable issues and submit all reasonable available arguments supporting their position by the close of the public comment period (40 C.F.R. §124.13). Following the close of the public comment period, your final permit will be issued provided no new substantial questions are raised. If new questions develop during the comment period, it may be necessary to draft a new permit, revise the Statement of Basis or Fact Sheet, and/or reopen the public comment period.

If you have any questions or would like to discuss any of the conditions contained in this draft permit, do not hesitate to contact Mr. Frederick B. Gay of my staff at (617) 918-1297.

Sincerely,

Brian Pitt, Team Leader
NPDES Permits Unit
Office of Ecosystem Protection

Enclosures: Draft Permit and Fact Sheet with related Attachments

cc: - NHDES-WD;

- Mr. John Harnden, Chief Operator, 116 North Road, Brentwood, NH 03833;
- Mr. Paul L. Adams, 23 Kelleys Corner Road, Chichester, NH 03234.

PERMIT ROUTING SHEET FOR NEW HAMPSHIRE PERMIT
PUBLIC NOTICE - STATE CERTIFICATION

PERMIT NAME: Rockingham County Complex Wastewater Treatment Facility

PERMIT NUMBER: NH0100609

MAJOR/MINOR: Significant Minor (Issued December 24, 1997 and Expired January 23, 2002)

COMMENTS: All limits in the draft permit have been carried forward, unchanged, from the current permit. The following additional requirements have been added to the draft permit:

1. **Percent removal limits for CBOD₅ and TSS have been added to this POTW permit in accordance with 40 CFR Section 133.102 (a) (3) and (b)(3).** This requirement was included in the permit issued to the facility on June 18, 1986, but was not included in the subsequent (current) permit issued in 1997. The permittee currently analyzes four influent grab samples each month, even though it is not required by the permit. The draft permit will require once per month influent grab sampling.

2. A twice per month monitoring/reporting requirement for tr copper has been added to the draft permit because the WET test sampling data indicated elevated copper levels, but did not provide sufficient data to complete a reasonable potential analysis for copper.

NAME	INITIALS	DATE IN	DATE OUT
Permit Engineer: FREDERICK B. GAY			
Brian Pitt ⁽¹⁾ , QA Review			
Jay Pimpare, Pretreatment (if necessary)			
Thelma Murphy, Sludge (if necessary)			
Joy Hilton, NH Compliance			
Diane Boisclair, Compliance - PCS			
Permit Engineer ⁽²⁾ : FREDERICK B. GAY			
Shelley Puleo/Sybil Anderson, Mail Public Notice, Certification Request Letter			

⁽¹⁾ - Eric Nelson may be consulted at this time regarding EFH issues if necessary.

⁽²⁾ - Permit Engineer to confirm that all necessary concerns of NHDES-WD and the permittee (as necessary) have been addressed to the extent possible with respect to the Fact Sheet and the draft permit prior to Public Noticing.

NEW HAMPSHIRE DEPARTMENT OF
ENVIRONMENTAL SERVICES
WATER DIVISION
P.O. BOX 95
CONCORD, NEW HAMPSHIRE 03302-0095

U.S. ENVIRONMENTAL PROTECTION AGENCY
EPA-NEW ENGLAND
OFFICE OF ECOSYSTEM PROTECTION
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTIONS 301 AND 402 OF THE CLEAN WATER ACT (THE "ACT"), AS AMENDED, A REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT, AND AN ISSUANCE OF A STATE SURFACE WATER PERMIT UNDER NH RSA 485-A:13, I(a).

DATE OF NOTICE:

PERMIT NUMBER: NH0100609

PUBLIC NOTICE NUMBER:

NAME AND MAILING ADDRESS OF APPLICANT:

Rockingham County complex
116 North Road
Brentwood, New Hampshire 03833

NAME, MAILING ADDRESS AND LOCATION OF FACILITY WHERE DISCHARGE OCCURS:

Facility Location

Rockingham County complex
116 North Road
Brentwood, New Hampshire 03833

Mailing Address

Rockingham County complex
c/o Judith A. Gates, Director, Rockingham County E&MS
116 North Road
Brentwood, New Hampshire 03833

RECEIVING WATER: Ice Pond Brook

RECEIVING WATER CLASSIFICATION: Class B

PROPOSED ACTION, TYPE OF FACILITY AND DISCHARGE LOCATION:

The above named applicant has applied to the U.S. Environmental Protection Agency's New England Office for reissuance of its NPDES permit to discharge treated wastewater effluent into Ice Pond Brook, a small tributary to Dudley Brook, which is a tributary to the Exeter River. Rockingham County's current permit expired on January 23, 2003, and, due to a timely reapplication, has been administratively extended until a new permit can be issued.

The treatment plant collects and treats: (1) domestic wastewater from the Rockingham County Complex, which includes a nursing home and correctional facility; (2) filter and water softener backwash wastewater from an on-site water treatment facility; and (3) boiler blowdown from two boilers at the facility.

The treatment plant is designed as a 0.178 million gallon per day (MGD) two-celled aerated lagoon wastewater treatment system with an 18 million gallon storage lagoon. Two methods of effluent discharge are employed. One, which is the focus of this draft permit, is to discharge up to 0.084 MGD of treated effluent to Ice Pond Brook, but only during the period from October 1st through April 30th, and only when flows in the brook just upstream of the discharge are greater than or equal to 0.28 cubic feet per second. The other is to store the remainder in the lagoon until summer and then, using spray irrigation, discharge it to various fields under a New Hampshire ground water discharge permit. Disinfection under both discharge scenarios is accomplished with ultraviolet light prior to discharge.

The proposed permit contains wastewater discharge limitations consistent with the State's Surface Water Quality Regulations, appropriate conditions as adopted from the current permit, and other ACT regulations. The proposed permit contains updated sludge conditions consistent with Section 405 of the ACT. In addition, the proposed permit contains other effluent limitations and conditions necessary to ensure that the discharge receives adequate treatment and that the State's Class B water-quality standards are maintained in the receiving water. Specific effluent limitations in the proposed permit are for five-day carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), **percent removal of CBOD₅ and TSS**, ammonia nitrogen, dissolved oxygen, pH, *Escherichia coli* bacteria, and whole effluent toxicity. The proposed permit also includes a monitoring and reporting requirement for total recoverable copper.

By law the permit will expire five years from the effective date of its issuance.

PREPARATION OF THE DRAFT PERMIT:

EPA-New England and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) have cooperated in the development of a draft permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure that State Water Quality Standards and provisions of the Clean Water Act will be met. EPA-New England has formally requested that the State certify the draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified. However, sludge conditions in the draft permit are not subject to State certification requirements.

INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantity of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions considered in preparing the draft permit) may be obtained at no cost by writing or calling EPA-New England's contact person named below:

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

The administrative record containing all documents relating to the draft permit is on file and may be inspected at the EPA-New England's Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

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 _____, to the U.S. Environmental Protection Agency, Mr. Roger A. Janson, Associate Director of Surface Water Programs, One Congress Street, Suite 1100 (Mail Code: CPE), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing to EPA-New England and the State Agency for a public hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA-New England's Boston office.

FINAL PERMIT DECISION:

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.

HARRY T. STEWART, P.E., DIRECTOR
WATER DIVISION
NEW HAMPSHIRE DEPARTMENT OF
ENVIRONMENTAL SERVICES

LINDA M. MURPHY, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
U.S. ENVIRONMENTAL PROTECTION AGENCY
EPA-NEW ENGLAND