

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I - NEW ENGLAND
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

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

NPDES PERMIT NO. : **MA0101524**

NAME AND ADDRESS OF APPLICANT:

**Town of Great Barrington
Department of Public Works
Great Barrington, MA 01230**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Town of Great Barrington Wastewater Treatment Facility
100 Bentley Road
Great Barrington, MA 01230**

RECEIVING WATER: **Housatonic River**

CLASSIFICATION: **B** (Housatonic River Watershed)

I. PROPOSED ACTION, TYPE OF FACILITY, AND DISCHARGE LOCATION

The above named applicant has applied to the U.S. Environmental Protection Agency for re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The existing permit expired on July 22, 2005, but continues in effect in accordance with the Administrative Procedures Act. This permit and the authorization to discharge will expire at midnight, five (5) years from the last day of the month preceding the effective date.

The facility is engaged in the collection and treatment of municipal wastewater and also receives flow from one significant industrial user, the Fox River Paper Company (formally named the Rising Paper Company). This paper mill is required to meet local and categorical limits before discharging to the Town's treatment system, and is regulated under the following federal regulations: "Federal Categorical Standards for Pulp and Paper & Paperboard, Subpart R - Nonintegrated Fine Papers, and Subcategory, Existing Sources, Cotton Fiber Furnish - 40 CFR § 430.180." There have been no problems reported by the facility attributed to the waste discharged by this industrial user. The Town's discharge is from a secondary wastewater treatment plant and the effluent is discharged to the Housatonic River. The Housatonic River is an interstate water which flows across the Massachusetts/Connecticut state line at Sheffield, MA and discharges into Long Island Sound at Milford, Connecticut.

II. DESCRIPTION OF THE DISCHARGE

A quantitative description of the wastewater treatment plant discharge in terms of significant effluent parameters based on recent monitoring data is shown on **Attachment A** of this fact sheet.

III. LIMITATIONS AND CONDITIONS

The effluent limitations of the draft permit and monitoring requirements may be found in the draft NPDES permit.

IV. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

The Great Barrington Wastewater Treatment Plant (WWTP) is a secondary wastewater treatment plant which discharges an annual average flow of about 2.6 million gallons per day (MGD). The Town increased the flow capacity of the plant from 3.2 MGD to 3.65 MGD by constructing an additional secondary clarifier. The Town has asked that its authorized discharge flow remain at 3.2 MGD because the population of the Town is not expected to grow in the near future and the additional capacity will not be utilized. The draft permit is therefore based on a design flow of 3.2 MGD and the permit includes a flow limitation of 3.2 MGD. Any future increase in the flow limit can only be done through a permit modification and will be subject to the State's antidegradation policy and will likely include more stringent discharge limitations.

The wastewater treatment is an activated sludge system which consists of primary clarification, activated sludge biological treatment, secondary clarification, chlorine disinfection, and dechlorination. Treated effluent from the facility is discharged through a single pipe to the Housatonic River. Solids are removed from the primary and secondary clarifiers, and are treated through the following process operations: a sludge mixing tank, gravity sludge thickeners, and a belt filter press. The sludge is dewatered to about 30% solids and transported by a licenced hauler to the Synagro incineration facility in Waterbury, Connecticut. The collection system consists of separate sanitary sewers. This facility's flow schematic and location are shown on figures 1 and 2 of this fact sheet.

B. AVAILABLE DILUTION

Massachusetts Water quality Standards require that quality criteria be achieved in rivers and streams under 7Q10 low flow conditions. The 7Q10 is defined as the mean low flow over 7 consecutive days, recurring every ten years. See 314 CMR 4.03(3). The 7Q10 flow used to calculate the water quality-based limits in the current permit was 56.06 cubic feet per second (cfs). A new estimate of the 7Q10 was made using the U.S. Geological Survey Stream Statistical Analysis Model, Applet Map, which estimates a 7Q10 of 53.55 cfs. The new 7Q10 estimate was used to calculate the available dilution.

The available dilution (also referred to as the dilution factor) used to calculate water quality-based limits in the draft permit was calculated to be 11.8 (the dilution factor used in the current permit was 12.3). This calculation was based on a plant design flow of 3.2 million gallons per day and the estimated 7Q10 of 53.55 cfs (see **Attachment B** of this Fact Sheet - Calculations).

C. OUTFALL 001 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

Secondary treatment technology guidelines (effluent limits), which represent the minimum level of control for Publicly Owned Treatment Works, can be found at 40 CFR Part 133. Since all Clean Water Act statutory deadlines for meeting technology-based guidelines (effluent limits) have expired, the deadline for compliance with technology-based effluent limits for a Publicly Owned Treatment Works is the date of permit issuance (See also: 40 CFR §125.3(a)(1)). Extended compliance deadlines cannot be authorized by a NPDES permit, if the statutory deadlines have passed.

Section 301(b)(1)(C) of the Clean Water Act requires water quality-based limits 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. Receiving water requirements are established according to numerical and narrative standards adopted under state law. A water quality standard consists of three elements: (1) beneficial designated use(s) for a water body or segment of a water body; (2) a numeric or narrative water quality criteria sufficient to protect the designated use(s); and (3) an anti-degradation requirement to ensure that once a use is attained, it will be maintained.

EPA's regulation at 40 C.F.R. § 122.4(d) prohibits the issuance of an NPDES permit unless its conditions can "ensure compliance with the applicable water quality requirements of all affected States." Both Massachusetts and Connecticut are "affected states" in the context of this permit issuance, and both states' water quality standards are relevant to the permit limitations. Similarly, 40 C.F.R. § 122.44(d) requires EPA to impose conditions that achieve applicable water quality standards.

Pursuant to 40 CFR § 122.44 (d), permittees must achieve water quality standards established under Section 303 of the CWA, including state narrative criteria for water quality. Additionally, under 40 CFR § 122.44 (d)(1)(i), "Limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." When determining whether a discharge causes, or has the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numeric criterion, the permitting authority will use procedures which account for existing controls on point and non-point sources of pollution, and where appropriate, consider the dilution of the effluent in the receiving water.

2. Water Quality Standards; Designated Use; Outfall 001

The Housatonic River has been classified as Class B by the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4)(a). The Massachusetts Surface Water Quality Standards describes Class B waters as having the following uses: (1) a habitat for fish, other aquatic life, and wildlife, (2) primary and secondary contact recreation, (3) a source of public water supply (i.e., where designated and with appropriate treatment), (4) suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses, and (5) will have consistently good aesthetic value.

The Massachusetts Year 2004 Integrated List of Waters lists the Housatonic River downstream of the Great Barrington treatment plant as a Category 5 water (waters requiring a TMDL). The pollutants causing the impairments and needing a TMDL are listed as priority organics, taste, odor and color. The

Connecticut 2004 List of Waterbodies Not Meeting Water Quality Standards lists the Housatonic River from the MA/CT border to the Great Falls Dam in Salisbury as impaired for fish consumption due to PCBs. Lake Lillinoah, located about 45 miles south of the MA/CT border, is listed as impaired for fish consumption due to PCBs, and primary and secondary contact recreation due to algal growth/chlorophyll *a*, nutrients, debris and garbage, exotic species, noxious aquatic plants and odor. The potential source of these impairments is listed as agriculture, contaminated sediments, debris and bottom deposits, hydromodification, hydropower generation, industrial point sources, municipal point sources, and sources outside of state jurisdiction and boundaries.

OUTFALL 001 - CONVENTIONAL POLLUTANTS:

Biochemical Oxygen Demand (BOD) - The draft permit includes average monthly and average weekly concentration limits and average monthly percent removal BOD limitations which are based on the requirements set forth at 40 C.F.R. § 133.102(a)(1), (2), (3), and 40 C.F.R. § 122.45(f). The draft permit also includes an average monthly mass limitation based on a 3.2 MGD design flow.

Total Suspended Solids (TSS) - The draft permit includes average monthly and average weekly concentration limits and average monthly percent removal TSS limitations which are based on the requirements set forth at 40 C.F.R. § 133.102(b)(1), (2), (3), and 40 C.F.R. § 122.45(f). The draft permit also includes an average monthly mass limitation based on a 3.2 MGD design flow.

pH - Historically, MassDEP has required compliance with pH limits at the end-of-pipe with no allowance for dilution. Therefore, the pH limits proposed in the draft permit are based on the Class B water quality criteria, with no allowance for dilution. These limits are State certification requirements for Publicly Owned Treatment Works under section 401(d) of the Clean Water Act, 40 CFR § 124.53 and § 124.55, and are at least as stringent as pH limitations set forth at 40 CFR § 133.102(c).

A change of pH limits in the draft permit would be considered if the applicant demonstrates to the satisfaction of EPA and the MassDEP that the in-stream pH standard will be protected when the discharge is outside the permitted range. The applicant may request in writing that the permit limits be modified by the agencies to incorporate the results of the demonstration, or the limits may be modified by the agencies in response to comments made during the public comment period.

E. Coli Bacteria - The draft permit includes proposed *E. coli* bacteria monitoring requirements which are seasonal and are based on state certification requirements.

Fecal Coliform Bacteria - The draft permit includes proposed fecal coliform bacteria limitations which are seasonal and are based on the Class B water quality criteria with no allowance for dilution.

Total Residual Chlorine (TRC) - The draft permit includes proposed total residual chlorine limitations which are seasonal and are based on state water quality standards. Since the draft permit includes seasonal monitoring requirements and limitations for total chlorine residual, the permittee is not authorized to discharge chlorine during the winter period. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The water quality criteria established for chlorine are 19 µg/l daily maximum and 11 µg/l monthly average in the receiving water. Given a dilution factor of 11.8, the residual chlorine limits have been set at 0.224 mg/l daily maximum and 0.13 mg/l monthly average. (See **Attachment B** of this Fact Sheet - Calculations.)

The permit also includes a requirement that the chlorination and dechlorination systems include alarms for indicating system interruptions or malfunctions and that interruptions or malfunctions be reported with the monthly compliance reports. This requirement is intended to supplement the grab sampling requirements for chlorine and bacteria and is a recognition of the limitations of a grab sampling program for determining consistent compliance with permit limits.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Color - The following language will remain in the permit to ensure compliance with the water quality standard for color: “The effluent shall not cause or contribute to an exceedance of the water quality standard which requires that the receiving water shall be free from color and turbidity in concentrations that are esthetically objectionable conditions, or that would impair any use assigned to Class B waters.” This language was included in the current permit to address a color problem caused by the discharge from the Fox River Paper Company (formally named the Rising Paper Company).

Nitrogen - The draft permit continues the once per month monitoring requirement for ammonia-nitrogen, nitrite, nitrate, and Kjeldahl nitrogen. Year-round monitoring for ammonia nitrogen, nitrite, nitrate, and Kjeldahl nitrogen is required to establish a database of nitrogen loadings, which can be used to quantitatively assess the impact of loading and transport of nitrogen to Long Island Sound. The data will provide a more sound basis for future decisions relating to nitrogen loadings to the Sound. No numerical limitations for these pollutants are established in the draft permit for this time period.

Phosphorus - The current permit includes a total phosphorus monthly average effluent limitation of 1 mg/l. The Great Barrington Wastewater Treatment Plant does not provide phosphorus removal facilities; the Town believes that the Fox River Paper Company’s flow contribution, which is approximately fifty percent of the plant’s annual average flow, is sufficiently low in nutrients to allow attainment of the effluent limit without further treatment. Effluent data submitted by the Town on its discharge monitoring report shows violations of the phosphorus limits in 2003 and 2004; effluent data from 2005 and 2006 shows that the facility has complied with its effluent limit. According to the Town, when the use of phosphoric acid was discontinued in 2005, the violations were corrected.

As part of drafting the permit, EPA reevaluated the adequacy of the current permit limits. The following is a short description of the applicable water quality standards, recommended criteria, and effluent limit derivation.

The Massachusetts Water Quality Standards do not contain numerical criteria for total phosphorus. The criterion for nutrients is found at 314 CMR 4.05(5)(c), which states that nutrients “shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication.” The Massachusetts Water Quality Standards also require that “any existing point source discharges containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients.” (314 CMR 4.04). The Massachusetts Department of Environmental Protection (MassDEP) has established that a monthly average total phosphorus limit of 0.2 mg/l represents highest and best practical treatment for POTWs.

EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The 1986 Quality Criteria of Water (the Gold Book) recommends in-stream phosphorus concentrations of no greater than 0.05 mg/l in any stream entering a lake or reservoir, 0.1 mg/l for any stream not discharging directly to lakes or impoundments, and 0.025 mg/l within the lake or reservoir.

More recently, EPA has released “Ecoregional Nutrient Criteria,” established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published criteria represent conditions in waters in that ecoregion that are minimally impacted by human activities, and thus representative of water without cultural eutrophication. Great Barrington is within Ecoregion VIII, *Nutrient Poor Largely Glaciated Upper Midwest and Northeast*. Recommended criteria for this eco-region is a Total Phosphorous criterion of 10 µg/l (0.010 mg/l) and chlorophyll *a* criteria of 0.63 µg/l (0.00063 mg/l). These recommended criteria are found in the *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion VIII* (USEPA 2001).

The current permit limit of 1 mg/l, which is in effect from April 1 - October 15. Under 7Q10 flow conditions and design flow this limit would result in an instream phosphorus concentration of about 0.085 mg/l (1/11.8) , which is less than the Gold Book recommendations, although not the more stringent ecoregion criterion.

The Gold Book criterion was developed from an effects-based approach, versus the eco-regional criteria that were developed on the basis of reference conditions. The effects-based approach provides a threshold value above which adverse effects (i.e., water quality impairments) are likely to occur. It applies empirical observations of a causal variable (i.e, phosphorus) and a response variable (i.e., chlorophyll *a*) associated with designated use impairments. Reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregion class. They are a quantitative set of river characteristics (physical, chemical and biological) that represent minimally impacted conditions. The effects-based approach is more directly associated with an impairment to a designated use (i.e. fishing, swimming), and is a reasonable basis for the establishment of permit limits designed to protect those designated uses.

EPA has therefore decided to use the Gold Book criteria as the basis for the permit limits and has determined that the existing limit is adequate to ensure that the discharge does not cause or contribute to violations of MA water quality standards and also believes that CT water quality standards will be achieved.

The draft permit does however extend the effective period of the phosphorus limit to year-round. EPA believes that the winter period limitation on phosphorus is necessary to ensure that phosphorus discharged in the winter period does not accumulate in the sediments downstream. The limitation assumes that the vast majority of the phosphorus discharged will be in the dissolved fraction and that dissolved phosphorus will pass through the system given the short detention time of the impoundments and the lack of plant growth during the winter period. If future evaluations indicate that phosphorus may be accumulating in the impoundments, the winter period phosphorus limit may be reduced in future permit actions.

A monitoring requirement for ortho-phosphorus during the winter period is also included in the draft permit. Monitoring for ortho-phosphorus is necessary to identify whether the particulate fraction remains low and to further understand the physical dynamics of phosphorus in the non-growing season. Without the ortho-phosphorus monitoring requirement, the Agencies cannot ensure that the higher loads authorized in the winter period are sufficiently protective of standards, specifically that the higher loads will not cause or contribute to instream eutrophication. The monitoring requirement in the draft permit requires sampling results that reflect the dissolved ortho-phosphorus (P) concentration in the discharge.

OUTFALL 001 - METALS

The Massachusetts Water Quality Standards include requirements for the regulation and control of toxic constituents and also require that EPA criteria established pursuant to Section 304(a) of the CWA shall be used unless site-specific criteria are established. **Attachment B** shows the calculations for the acute and chronic limits for copper, lead, aluminum, and zinc, if limits were established in the permit. Effluent data for copper, lead, aluminum, and zinc indicate that there is not a reasonable potential to exceed criteria.

OUTFALL 001 - TOXICS CONTROL

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts State Surface Water Quality Standards include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria:

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that domestic sources, as well as industrial sources, contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. In addition, MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters" requires four whole effluent toxicity tests per year for discharges with dilution factors between 10 and 20, and that effluent limits be established for acute toxicity. Accordingly, based on the potential for toxicity from domestic and industrial contributions, the state narrative water quality criterion, the level of dilution at the discharge location, and in accordance with EPA and MassDEP policy and 40 CFR § 122.44(d), the draft permit includes a whole effluent acute toxicity limitation (LC₅₀). (See also "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 49 Fed. Reg. 9016 March 9, 1984, and EPA's "Technical Support Document for Water Quality-Based Toxics Control", September, 1991.)

The proposed draft permit includes a requirement for a 7-day Chronic and a Modified Acute toxicity test using the daphnid, Ceriodaphnia dubia, only. The toxicity tests must be performed in accordance with the test procedures and protocols specified in **Attachment A** of the permit, and the tests will be required four times a year. The months that are required for testing in the permit will change, in order to sample at the same time as other NPDES permits within the Housatonic River Watershed. This schedule change will take effect on August 1, 2007, rather than when the permit becomes effective, due to the timing of the permittee's lab contract renewal.

OUTFALL 001 - NUMERICAL EFFLUENT LIMITATIONS FOR TOXICANTS

EPA and the MassDEP may use the results of the toxicity tests and chemical analyses conducted by the permittee, required by the permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants.

D. SLUDGE CONDITIONS

Section 405(d) of the CWA requires that EPA develop technical standards regarding the use and disposal of sewage sludge. On February 19, 1993, EPA promulgated technical standards. These standards are to be implemented through permits. The conditions in the permit satisfy this requirement.

E. DEVELOPMENT OF LIMITATIONS FOR INDUSTRIAL USERS

The permittee is required to identify, in terms of character and volume of pollutants, any significant indirect dischargers into the POTW subject to pretreatment standards under section 307(b) of the Clean Water Act and 40 CFR Part 403.

F. INDUSTRIAL PRETREATMENT PROGRAM

The permittee is required to administer a pretreatment program based on the authority granted under 40 C.F.R. § 122.44(j), 40 C.F.R. § 403 and section 307 of the Clean Water Act. In accordance with 40 C.F.R. § 403, the permittee is obligated to modify, if necessary, its pretreatment program plan, to be consistent with current Federal Pretreatment Regulations. The permittee is also required to implement its pretreatment program in accordance with the requirements at 40 C.F.R. Part 403 (General Pretreatment Regulations). These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices. Those activities that the permittee must perform include, but are not limited to, the following: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) issue industrial user discharge permits, (3) conduct compliance monitoring activities (e.g., sampling and inspections at industrial users), and (4) initiate enforcement actions against non-complying industrial users.

Lastly, the permittee must submit an annual pretreatment report by **October 31**, which describes the permittee's pretreatment program activities over its pretreatment reporting period of September 1 - August 31.

V. ESSENTIAL FISH HABITAT DETERMINATION (EFH)

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 Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat, which is defined 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 C.F.R. § 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. Essential fish habitat is only designated for 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. The Housatonic River is not covered by the EFH designation for riverine systems and thus EPA and the MassDEP have determined that a formal EFH consultation with NMFS is not required.

VI. MONITORING AND REPORTING

The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

VII. STATE PERMIT CONDITIONS

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection pursuant to M.G.L. Chap. 21, §43.

VIII. GENERAL CONDITIONS

The general conditions of the permit are based on 40 CFR Parts 122, Subparts A and D and 40 CFR § 124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

IX. STATE CERTIFICATION REQUIREMENTS

The staff of the MassDEP has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the draft permit will be certified.

X. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

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 the U.S. EPA, Office of Ecosystem Protection, MA Unit (CMP), One Congress Street, Suite-1100, Boston, Massachusetts 02114. 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 will state the nature of the issues proposed to be raised in the hearing. Public hearings may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates a 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 a 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. Permits may be appealed to the Environmental Appeals Board in the manner described at 40 CFR § 124.19.

XI. EPA and MassDEP CONTACTS

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

Janet Labonte
Chemical/Environmental Engineer
U.S. Environmental Protection Agency
Office of Ecosystem Protection (CMP)
One Congress Street - Suite-1100
Boston, MA 02114
Telephone: (617) 918-1667

Paul Hogan
Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor Worcester, MA 01608
Telephone: (508) 767-2796, Fax: (508) 791-4131

Date

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

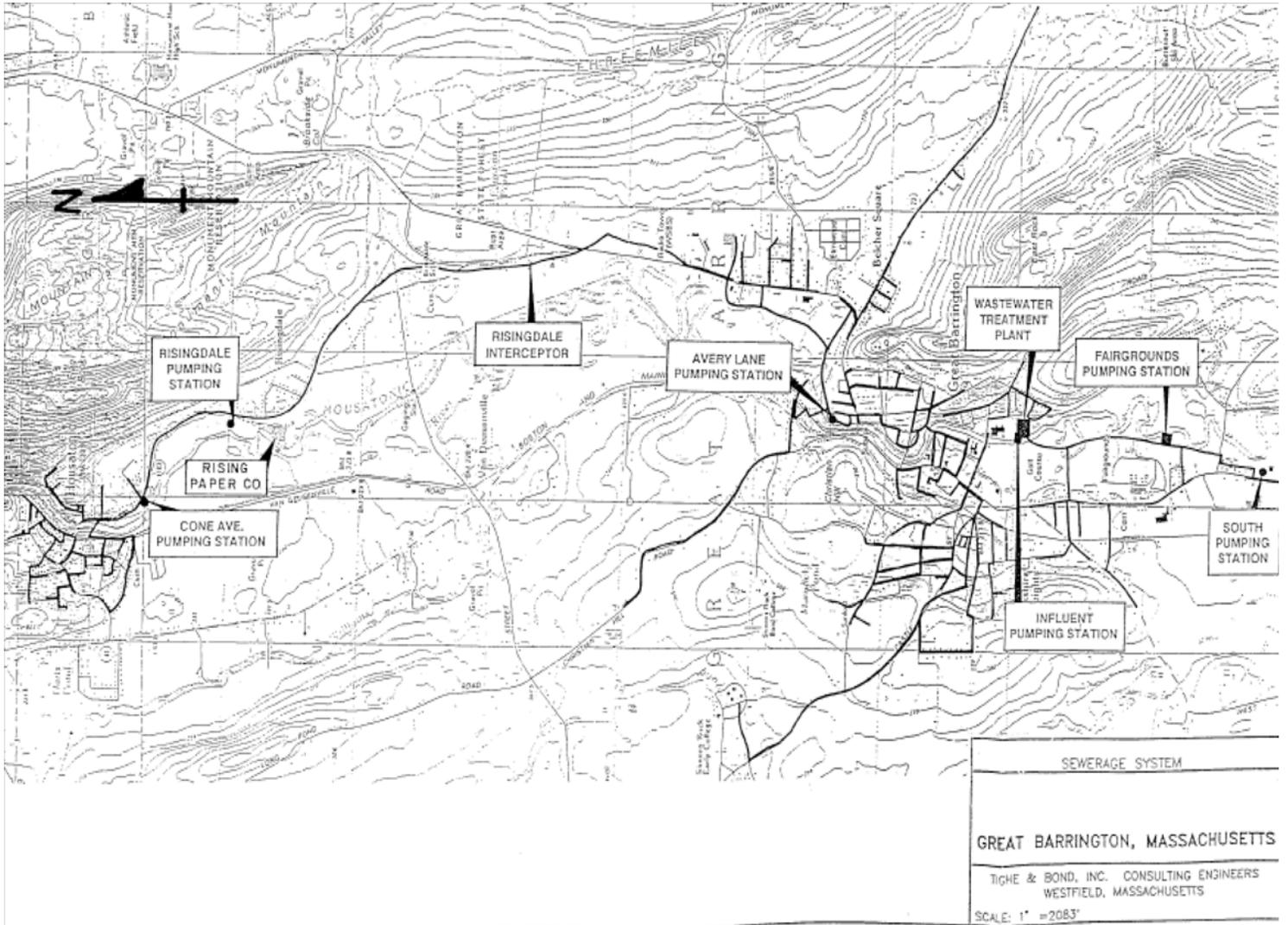


Figure 1: Location of the Great Barrington WWTP

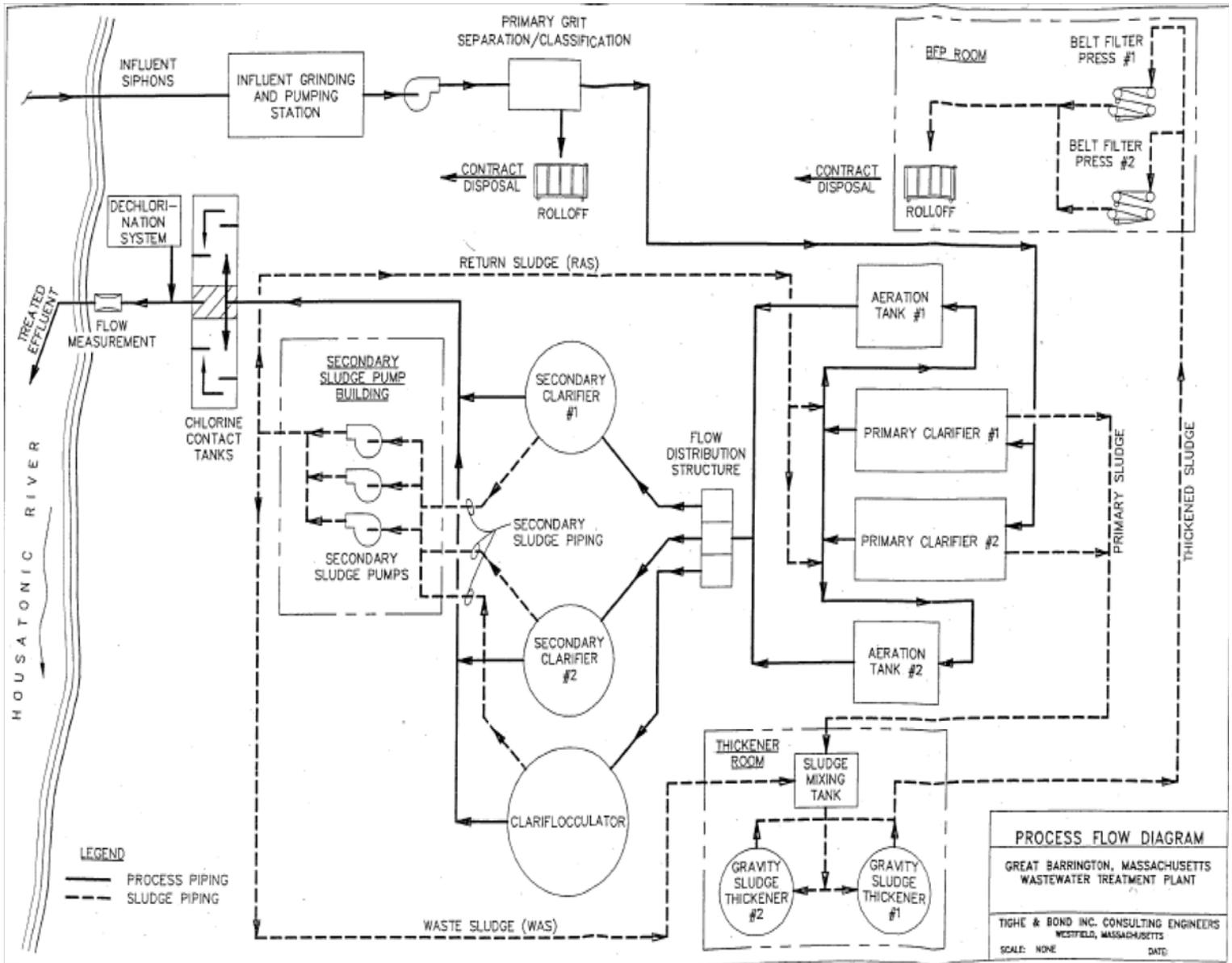


Figure 2: Great Barrington WWTP Flow Schematic

ATTACHMENT A
EFFLUENT MONITORING DATA
NPDES Permit No. MA0101524
Great Barrington, MA

DESCRIPTION OF DISCHARGE: Secondary Treated Wastewater

DISCHARGE: Outfall 001 (The receiving water is the Housatonic River)

EFFLUENT CHARACTERISTICS AT THE POINT OF DISCHARGE:

<u>Parameter</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
Flow (MGD)	2.65 (1.996 - 3.547)	—	—
BOD ₅ (lbs/day)	(49 - 248)	—	—
BOD ₅ (mg/l)	(2.4 - 9.9)	(3.38 - 17.2)	(4.13 - 25.5)
TSS (lbs/day)	(63.3 - 478)	—	—
TSS (mg/l)	(3.38 - 17.33)	(3.38 - 37.25)	(6.3 - 40.15)
pH (std units)	(6.61 - 7.43) minimum range	—	(7.52 - 7.83) maximum range
Fecal coliform (cfu /100 ml) (April 1 - October 15)	(1.2 - 25)	(1.7 - 62)	(3 - 176)
Total Residual Chlorine (mg/l) (April 1 - October 15)	(0 - 0.026)	—	(0 - 0.23)
Ammonia-Nitrogen (mg/l)	5.59 (0 - 18)	—	—
Total Kjeldahl Nitrogen (mg/l)	14.6 (0 - 66)	—	—
Total Nitrite (mg/l)	0.028 (0 - 0.43)	—	—
Total Nitrate (mg/l)	1.3 (0 - 5.8)	—	—
Total Phosphorus (mg/l) (April 1 - October 15)	1.11 (0.2 - 3.56)	—	—

The table above is continued on page 2.

Attachment A (continued);

<u>Parameter</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
Total Copper (mg/l)	0.015 (0.0075 - 0.026)	—	—
Total Lead (mg/l)	0.005 (BDL - 0.005)	—	—
Total Aluminum (mg/l)	0.077 (0.052 - 0.092)	—	—
Total Zinc (mg/l)	0.015 (0.0066 - 0.023)	—	—

Note: The data listed above is from discharge monitoring reports which the facility submits monthly. Except where noted, values are averages of either the daily maximum or monthly average data submitted from January 2003 to June 2005. The frequency of monitoring varies, as some parameters are measured continuously (i.e., flow), once per day (i.e., pH, total residual chlorine), once per week (total phosphorus), twice per week (i.e., fecal), three times per week (i.e., BOD, TSS), once per month (i.e., ammonia-nitrogen, total Kjeldahl nitrogen, total nitrate, total nitrite) and four times per year (i.e., metals) - which are reported as the average of those measurements. The highest daily maximum value during the month is reported in the maximum daily column. Values in parentheses represent the range of data reported. Flow is reported as an annual average flow rate (i.e., 2.65 million gallons per day). “BDL” means below detection level.

Whole Effluent Toxicity (WET) Tests (i.e., results are from March 2004 - June 2006):

LC₅₀ (*Ceriodaphnia dubia*) = all test results were \geq 100 % between March 2004 - June 2006 except for the following test results:

March 2004	\geq 89.1 %
June 2004	\geq 70.7 %

C-NOEC (*Ceriodaphnia dubia*) = all test results were \geq 8.5 % between March 2004 - June 2006 except for the following test results:

March 2005	\geq 6.25 %
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ATTACHMENT B
CALCULATIONS FOR TOTAL
RESIDUAL CHLORINE, BIOCHEMICAL OXYGEN
DEMAND, TOTAL SUSPENDED SOLIDS, PHOSPHORUS,
COPPER, LEAD, ALUMINUM, AND ZINC
NPDES Permit No. MA0101524
Great Barrington, MA

Determination of Dilution Factor:

Plant Design Flow = 3.2 MGD

Instream 7Q10 = 53.55 cfs x 0.646272 MGD/cfs = 34.61 MGD

Dilution Factor = (Instream 7Q10 + Design Flow) / Design Flow
= (34.61 MGD + 3.2 MGD)/(3.2 MGD)
= 11.8 (Medium/High Risk Toxicity - Acute and Chronic testing is required.)

Whole Effluent Toxicity Chronic Limit (C-NOEC) = (1/dilution factor x 100)
= (1 / 11.8 x 100) ≥ 8.5 %

Hardness of the Receiving Water = 115 mg/l

The instream hardness is based on sampling collected for toxicity testing during 2003-2004 for the months of June and September, and interpolating the hardness value for the low flow month of August. The instream hardness values are as follows: June 9, 2003 (112 mg/l), September 8, 2003 (116 mg/l), June 14, 2004 (120 mg/l), and September 20, 2004 (100 mg/l).

Total Residual Chlorine Limits (TRC):

Acute (Maximum Daily) = (acute criteria x dilution factor) = (19 µg/l x 11.8) = 224.2 µg/l = 0.224 mg/l

Chronic (Monthly Average) = (chronic criteria x dilution) = (11 µg/l x 11.8) = 129.8 µg/l = 0.13 mg/l

Biochemical Oxygen Demand (BOD) Limit:

Average Monthly Concentration Limit = 30 mg/l

Average Weekly Concentration Limit = 45 mg/l

Average Monthly Mass Limit = (3.2 MGD x 30 mg/l x 8.345) = 801.12 lbs/day (rounded to) = 800 lbs/day

Average Weekly Mass Limit = (3.2 MGD x 45 mg/l x 8.345) = 1201.68 lbs/day = 1200 lbs/day

Total Suspended Solids (TSS) Limits:

Average Monthly Concentration Limit = 30 mg/l

Average Weekly Concentration Limit = 45 mg/l

Average Monthly Mass Limit = (3.2 MGD x 30 mg/l x 8.345) = 801.12 lbs/day (rounded to) = 800 lbs/day

Average Weekly Mass Limit = (3.2 MGD x 45 mg/l x 8.345) = 1201.68 lbs/day = 1200 lbs/day

References:

1. Stream Statistical Analysis Model, Applet Map, U.S. Geological Survey, 10 Bearfoot Road, Northborough, MA. 2001.

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ATTACHMENT B
CALCULATIONS

Attachment B (continued);

Copper Limitations: (Copper requirements are not proposed for the draft permit.)

Copper is dependent on the hardness of the receiving water.

$$\text{Acute Copper Limit} = e^{(0.9422 * \ln 115) + (-1.7)} \times \text{dilution factor} = (15.96 \mu\text{g/l} \times 11.8) = 188.3 \mu\text{g/l} = 0.188 \text{ mg/l}$$

$$\text{Chronic Copper Limit} = e^{(0.8545 * \ln 115) + (-1.702)} \times \text{dilution factor} = (10.51 \mu\text{g/l} \times 11.8) = 124.0 \mu\text{g/l} = 0.124 \text{ mg/l}$$

Lead Limitations: (Lead requirements are not proposed for the draft permit.)

Lead is dependent on the hardness of the receiving water.

$$\text{Acute Lead Limit} = e^{(1.273 * \ln 115) + (-1.46)} \times \text{dilution factor} = (97.54 \mu\text{g/l} \times 11.8) = 1150.9 \mu\text{g/l} = 1.151 \text{ mg/l}$$

$$\text{Chronic Lead Limit} = e^{(1.273 * \ln 115) + (-4.705)} \times \text{dilution factor} = (3.80 \mu\text{g/l} \times 11.8) = 44.84 \mu\text{g/l} = 0.044 \text{ mg/l}$$

Aluminum Limitations: (Aluminum requirements are not proposed for the draft permit.)

$$\text{Acute Aluminum Limit} = (\text{acute criteria} \times \text{dilution factor}) = (750 \mu\text{g/l} \times 11.8) = 8850 \mu\text{g/l} = 8.85 \text{ mg/l}$$

$$\text{Chronic Aluminum Limit} = (\text{chronic criteria} \times \text{dilution factor}) = (87 \mu\text{g/l} \times 11.8) = 1026.6 \mu\text{g/l} = 1.026 \text{ mg/l}$$

Zinc Limitations: (Zinc requirements are not proposed for the draft permit.)

Zinc is dependent on the hardness of the receiving water.

$$\text{Acute Zinc Limit} = (e^{(0.8473 * \ln 115) + (0.884)} \times \text{dilution factor}) = (134.87 \mu\text{g/l} \times 11.8) = 1591.46 \mu\text{g/l} = 1.59 \text{ mg/l}$$

$$\text{Chronic Zinc Limit} = (e^{(0.8473 * \ln 115) + (0.884)} \times \text{dilution factor}) = (134.87 \mu\text{g/l} \times 11.8) = 1591.46 \mu\text{g/l} = 1.59 \text{ mg/l}$$