AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §1251 et seq.; the "CWA"),

The Town of Hinsdale, New Hampshire

is authorized to discharge from the Wastewater Treatment Plant located at

120 River Road
Hinsdale, New Hampshire 03451

to receiving waters named

Ashuelot River (Hydrologic Basin Code 01080201)

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein including, but not limited to, conditions requiring the proper operation and maintenance of the Hinsdale Wastewater Treatment Plant collection system.

This permit will become effective on the date of signature.

This permit and the authorization to discharge expire at midnight five years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 28, 2007.

This permit consists of **Part I (**16 pages including effluent limitations and monitoring requirements), **Attachment A** (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages) and **Part II (**25 pages including NPDES Part II Standard Conditions).

Signed this 15th day of January, 2016.

_/S/ Signature on File_____
Kenneth Moraff, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
Region I
Boston, Massachusetts

PART I
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated wastewater from outfall serial number 001 to the Ashuelot River. Such discharges shall be limited and monitored by the permittee, as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at a location that provides a representative analysis of the discharge.

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Effluent Flow; mgd	0.3[1]	---	Report	Continuous Recorder[1]	
BOD_5; mg/l (lb/day)	30 (75)	45 (113)	50 (125)	2/Week[2]	24 Hour Composite
TSS; mg/l (lb/day)	30 (75)	45 (113)	50 (125)	2/Week[2]	24 Hour Composite
Total Phosphorus; mg/l (Applicable April 1-October 31)	Report	---	---	1/Month	24 Hour Composite
pH Range[3]; Standard Units	6.5 to 8.0 (See I.H.5., State Permit Conditions)			1/Day	Grab
Total Residual Chlorine[4,6]; mg/l	---	---	0.5	1/Day	Grab
Escherichia coli[4,5]; Colonies/100 ml	126	---	406	3/Week	Grab
Nitrogen Monitoring					
Total Kjeldahl Nitrogen[7] mg/L	Report[7]	---	Report[7]	1/Month	24 Hour Composite
Total Nitrate + Nitrite Nitrogen[7], mg/L	Report[7]	---	Report[7]	1/Month	24 Hour Composite
Total Nitrogen, mg/L[7,8] mg/l (lb/day)	Report[7] (Report)[7]	---	Report (Report)[7]	1/Month	24 Hour Composite

See pages 4 and 5 for footnotes.

PART I
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Whole Effluent Toxicity[9,10,11]; Percent	Acute $LC_{50} \geq 100\%$			1/Year	24 Hour Composite
Hardness[12]; mg/l	---	---	Report	1/Year	24 Hour Composite
Ammonia Nitrogen as N[12]; mg/l	---	---	Report	1/Year	24 Hour Composite
Total Recoverable Aluminum[12]; mg/l	---	---	Report	1/Year	24 Hour Composite
Total Recoverable Cadmium[12]; mg/l	---	---	Report	1/Year	24 Hour Composite
Total Recoverable Copper[12] mg/l	---	---	Report	1/Year	24 Hour Composite
Total Recoverable Nickel[12]; mg/l	---	---	Report	1/Year	24 Hour Composite
Total Recoverable Lead[12]; mg/l	---	---	Report	1/Year	24 Hour Composite
Total Recoverable Zinc[12]; mg/l	---	---	Report	1/Year	24 Hour Composite

See pages 4 and 5 for footnotes.

FOOTNOTES

1. The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.

   The annual average, monthly average, and the maximum daily flows shall be reported. The limit of 0.3 mgd is an annual average, which shall be reported as a twelve-month rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

2. Effluent sampling frequency. The influent shall be sampled twice per month using 24-hour composite samples.

3. State certification requirement.

4. On the days when *Escherichia coli* monitoring is required, it shall be conducted concurrently with the daily monitoring for total residual chlorine (TRC).

5. The average monthly value for *Escherichia coli* shall be calculated as a geometric mean. *Escherichia coli* shall be tested using an approved method as specified in 40 Code of Federal Regulations (CFR) Part 136, List of Approved Biological Methods for Wastewater and Sewage Sludge.

6. Total residual chlorine shall be measured using any one of the methods listed in 40 CFR Part 136.

7. Total Kjeldahl nitrogen and total nitrate + nitrite nitrogen samples shall be collected concurrently. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen (total nitrogen = total Kjeldahl nitrogen + total nitrate/nitrite nitrogen).

   The total nitrogen loading values reported each month shall be calculated as follows: Calculate daily loads of total nitrogen (lb/day) for each day that nitrogen sampling takes place. Loading (lb/day) = total nitrogen concentration (mg/l) * daily flow (millions of gallons (MG)) * 8.34. The average monthly loading shall be the average of the daily loading results.

8. See **Part I.F**. for requirements to evaluate and implement optimization of nitrogen removal.

9. LC50 (lethal concentration 50 percent) is the concentration of wastewater causing mortality to 50 % of the test organisms. Therefore, a 100 % limit means that a sample of 100 % effluent (no dilution) shall cause no greater than a 50 % mortality rate in that effluent sample.

10. The permittee shall conduct 48-hour static acute toxicity tests on effluent samples following the February 2011 USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol (**Attachment A**). The two species for these tests are the Daphnid (*Ceriodaphnia dubia*) and the Fathead Minnow (*Pimephales promelas*). Toxicity test samples shall be collected and tests completed once per year in the third quarter (July, August, September). Toxicity test results are to be postmarked by the 15th day of the month following the end of the quarter sampled (i.e., October 15th).

11. This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limits such as for metals, 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 Section 122.62(a)(2).

12. For each whole effluent toxicity test, the permittee shall report on the appropriate discharge monitoring report (DMR) the concentrations of the hardness, ammonia nitrogen as nitrogen, total recoverable aluminum, cadmium, copper, lead, nickel, and zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the minimum quantification level shown in **Attachment A**. Also, the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

2. The discharge shall not cause a violation of the water quality standards of the receiving water.

3. The discharge shall be adequately treated to ensure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. It shall be adequately treated to ensure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.

4. The permittee's treatment facility shall maintain a minimum monthly average of 85 percent removal of both BOD_5 and TSS. The percent removal shall be calculated using the average monthly influent and effluent concentrations.

5. When the effluent discharged for a period of 3 consecutive months exceeds 80 percent of the 0.3 mgd design flow (0.24 mgd), the permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the permittee may be required to submit plans for facility improvements.

6. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.

7. All POTWs must provide adequate notice to both EPA-Region 1 and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) of the following:

    a. Any new introduction of pollutants into the POTW from an indirect discharger in a primary industry category (see 40 CFR §122 Appendix A as amended) discharging process water; and

    b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

    c. For purposes of this paragraph, adequate notice shall include information on:

        (1) the quantity and quality of effluent introduced into the facility; and

        (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the facility.

8. Limitations for Industrial Users

    a. Pollutants introduced into the POTW by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

    b. The permittee shall submit to EPA and NHDES-WD the name of any Industrial User (IU) subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended) who commences discharge to the POTW after the effective date of this permit.

        This reporting requirement also applies to any other IU who discharges an average of 25,000 gallons per day or more of process wastewater into the POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW; or is designated as such by the Control Authority as defined in 40 CFR § 403.12(a) on the basis that the industrial user has a reasonable potential to adversely affect the wastewater treatment facility's operation, or for violating any pretreatment standard or requirement (in accordance with 40 CFR § 403.8(f)(6)).

    c. In the event that the permittee receives reports (baseline monitoring reports, 90-day compliance reports, periodic reports on continued compliance, etc.) from

industrial users subject to Categorical Pretreatment Standards under 40 CFR § 403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended), the permittee shall forward all copies of these reports within ninety (90) days of their receipt to EPA and NHDES-WD.

B. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall(s) listed in Part I.A.1 in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and NHDES in accordance with Part II, Section D.1.e of the General Requirements of this permit (twenty four hour reporting).

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions. The permittee is required to complete the following activities for the collection system which it owns:

1 Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. This requirement shall be described in the Collection System Operation and Maintenance (O & M) Plan required pursuant to Section C.5. below.

2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. This requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

3. Infiltration/Inflow

The permittee shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

In accordance with the requirements in the 2007 permit, the permittee prepared and

submitted maps of the sewer collection system it owns. The collection system maps shall be kept up to date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

a. All sanitary sewer lines and related manholes;
b. All combined sewer lines, related manholes, and catch basins;
c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combined manholes);
d. All outfalls, including the treatment plant outfall(s), CSOs, combined manholes, and any known or suspected SSOs;
e. All pump stations and force mains;
f. The wastewater treatment facility(ies);
g. All surface waters (labeled);
h. Other major appurtenances such as inverted siphons and air release valves;
i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
j. The scale and a north arrow; and
k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

5. Collection System O&M Plan

In accordance with the requirements in the 2007 permit, the permittee prepared and submitted a Collection System Operation and Maintenance Plan. The permittee shall update this plan and submit it to EPA and NHDES within twelve (12) months from the effective date of the permit. The plan shall include the information listed below. The bolded language is information that has been added to the 2007 permit requirements.

a. **A description of the collection system management goals, staffing, information management, and legal authorities;**
b. A preventative maintenance and monitoring program for the collection system;
c. Sufficient staffing to operate and maintain the sanitary sewer collection system;
d. Sufficient funding and the sources(s) of funding for implementing the plan;
e. Identification of known and suspected overflows **and back-ups**, including combined manholes, a description of the cause of the identified overflows **and back-ups**, and a plan for addressing the overflows **and back-ups** consistent with the requirements of the permit;
f. **A description of the permittee's program for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes** and the ongoing program to identify and remove sources of I/I. The program shall include and inflow indication and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and
g. An educational public outreach program for all aspects of I/I control, particularly private inflow.

6. Annual Reporting Requirement

The permittee shall submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. The report shall be submitted to EPA and NHDES **annually by March 31**. The summary report shall, at a minimum, include the information listed below. The bolded language is information that has been added to the 2007 permit requirements:

a. A description of the staffing levels maintained during the year;
b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;
c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
d. A map with areas identified for investigation/action in the coming year;
e. **If treatment plant flow has reached 80% of the 0.3 mgd design flow (0.24 mgd) based on the daily flow for three consecutive months or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year;** and
f. **A summary of unauthorized discharges during the past year and their causes** and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the permittee shall provide an alternate power source with which to sufficiently operate the wastewater facility, as defined at 40 C.F.R. § 122.2, which references the definition at 40 C.F.R. § 403.3(q). Wastewater facility is defined by RSA 485A:2.XIX as the structures, equipment, and processes required to collect, convey, and treat domestic and industrial wastes, and dispose of the effluent and sludge.

E. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to Section 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state (Env-Wq 800) and federal requirements apply to the permittee's sludge use and/or disposal practices, the permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge use or disposal practices.

a. Land application - the use of sewage sludge to condition or fertilize the soil
b. Surface disposal - the placement of sewage sludge in a sludge only landfill
c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g., lagoons, reed beds), or are otherwise excluded under 40 CFR § 503.6.

5. The 40 CFR. Part 503 requirements including the following elements:

- General requirements
- Pollutant limitations
- Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
- Management practices
- Record keeping
- Monitoring
- Reporting

Which of the 40 C.F.R. Part 503 requirements apply to the permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the permittee to assist it in determining the applicable requirements.[1]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen reduction and vector attraction reduction (land application and surface disposal) at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year.

less than 290	1/ year
290 to less than 1,500	1 /quarter
1,500 to less than 15,000	6 /year
15,000 +	1 /month

Sampling of the sewage sludge shall use the procedures detailed in 40 CFR 503.8.

7. Under 40 CFR § 503.9(r), the permittee is a "person who prepares sewage sludge" because it "is … the person who generates sewage sludge during the treatment of

1 This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

domestic sewage in a treatment works …." If the permittee contracts with *another* "person who prepares sewage sludge" under 40 CFR § 503.9(r) – i.e., with "a person who derives a material from sewage sludge" – for use or disposal of the sludge, then compliance with Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the permittee does not engage a "person who prepares sewage sludge," as defined in 40 CFR § 503.9(r), for use or disposal, then the permittee remains responsible to ensure that the applicable requirements in Part 503 are met. 40 CFR § 503.7. If the ultimate use or disposal method is land application, the permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

   a. Name and address of contractor(s) responsible for sludge preparation, use or disposal
   b. Quantity of sludge (in dry metric tons) from the POTW that is transferred to the sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge

9. Compliance with the requirements of this permit or 40 CFR Part 503 shall not eliminate or modify the need to comply with applicable requirements under RSA 485-A and Env-Wq 800, New Hampshire Sludge Management Rules.

F. SPECIAL CONDITIONS

1. Nitrogen

   Within one year of the effective date of this permit, the permittee shall complete an evaluation of alternative methods of operating the existing water pollution control facility to optimize the removal of nitrogen, and submit a report to EPA and NHDES-WD documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes in order to maintain the mass discharge of total nitrogen less than the existing annual discharge load. The annual average total nitrogen load from this facility (2004-2005) is estimated to be 49.03 lb/day.

   The permittee shall also submit an annual report to EPA and NHDES, **by February 15th** of each year, that summarizes activities related to optimizing nitrogen removal

efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year.

G. MONITORING AND REPORTING

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The Permittee is obligated to monitor and report sampling results to EPA and the NHDES within the time specified within the permit.

Unless otherwise specified in this permit, the permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

   The permittee shall continue to submit its monthly monitoring data in Discharge Monitoring Reports (DMRs) to EPA and NHDES no later than the 15th day of the month following the completed monitoring period electronically using NetDMR. When the permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to EPA or NHDES.

2. Submittal of Reports as NetDMR Attachments

   Unless otherwise specified in this permit, the permittee shall electronically submit all reports to EPA and NHDES as NetDMR attachments rather than as hard copies. This includes the NHDES Monthly Operating Reports (MORs). (See Part I.G.5. for more information on State reporting.) Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month following the completed monitoring period), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA and NHDES using NetDMR with the next DMR due following the particular report due date specified in this permit.

3. Submittal of Requests and Reports to EPA/OEP

   The following requests, reports, and information described in this permit shall be submitted to the EPA/OEP NPDES Applications Coordinator in the EPA Office Ecosystem Protection (OEP).

   A. Transfer of permit notice
   B. Request for changes in sampling location
   C. Request for reduction in testing frequency
   D. Report on unacceptable dilution water / request for alternative dilution water for WET

testing

These reports, information, and requests shall be submitted to EPA/OEP electronically at R1NPDES.Notices.OEP@epa.gov or by hard copy mail at the following address:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP NPDES Applications Coordinator
5 Post Office Square - Suite 100 (OEP06-03)
Boston, MA 02109-3912

4. Submittal of Reports in Hard Copy Form

The following notifications and reports shall be submitted as hard copy with a cover letter describing the submission. These reports shall be signed and dated originals submitted to EPA.

A. Written notifications required under Part II
B. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting
C. Report on annual activities related to O&M Plan.
D. Sludge monitoring reports

This information shall be submitted to EPA/OES at the following address:

U.S. Environmental Protection Agency
Office of Environmental Stewardship (OES)
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-SMR)
Boston, MA 02109-3912

All sludge monitoring reports required herein shall be submitted only to:

U.S. Environmental Protection Agency, Region 7
Biosolids Center
Water Enforcement Branch
11201 Renner Boulevard
Lenexa, Kansas 66219

5. State Reporting

Unless otherwise specified in this permit, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.G.3 and I.G.4 also shall be submitted to the State electronically via email to the permittee's assigned NPDES inspector at NHDES-WD or in hard copy to the following address:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
P.O. Box 95
Concord, New Hampshire 03302-0095

6. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to both EPA and to NHDES. This includes verbal reports and notifications which require reporting within 24 hours. (As examples, see Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.) Verbal reports and verbal notifications shall be made to EPA's Office of Environmental Stewardship at:

617-918-1510

Verbal reports and verbal notifications shall also be made to the permittee's assigned NPDES inspector at NHDES –WD.

H. STATE PERMIT CONDITIONS

1. The permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).

2. This NPDES discharge permit is issued by EPA under federal and state law. Upon final issuance by EPA, the New Hampshire Department of Environmental Services-Water Division (NHDES-WD) may adopt this permit, including all terms and conditions, as a state permit pursuant to RSA 485-A:13.

3. EPA shall have the right to enforce the terms and conditions of this permit pursuant to federal law and NHDES-WD shall have the right to enforce the permit pursuant to state law, if the permit is adopted. Any modification, suspension, or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of the permit as issued by the other agency.

4. Pursuant to New Hampshire Statute RSA 485-A13,I(c), any person responsible for a bypass or upset at a *wastewater facility* shall give immediate notice of a bypass or upset to all public or privately owned water systems drawing water from the same receiving water and located within 20 miles downstream of the point of discharge regardless of whether or not it is on the same receiving water or on another surface water to which the receiving water is tributary. Wastewater facility is defined at RSA 485-A:2XIX as the structures, equipment, and processes required to collect, convey, and treat domestic and

industrial wastes, and dispose of the effluent and sludge. The permittee shall maintain a list of persons, and their telephone numbers, who are to be notified immediately by telephone. In addition, written notification, which shall be postmarked within 3 days of the bypass or upset, shall be sent to such persons.

5. The pH range of 6.5 to 8.0 Standard Units (S.U.) must be achieved in the final effluent unless the permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside the range of 6.0 – 9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 CFR 133.102(c).

6. Pursuant to New Hampshire Code of Administrative Rules, Env-Wq 703.07(a):

   a. Any person proposing to construct or modify any of the following shall submit an application for a sewer connection permit to the department:

      (1) Any extension of a collector or interceptor, whether public or private, regardless of flow;

      (2) Any wastewater connection or other discharge in excess of 5,000 gpd;

      (3) Any wastewater connection or other discharge to a WWTP operating in excess of 80 percent design flow capacity based on actual average flow for 3 consecutive months;

      (4) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity; and

      (5) Any sewage pumping station greater than 50 gpm or serving more than one building.

7. For each new or increased discharge of industrial waste to the POTW, the permittee shall submit, in accordance with Env-Wq 305.10(a) an "Industrial Wastewater Discharge Request". The "Industrial Wastewater Discharge Request" shall be prepared in accordance with Env-Wq 305.10(c).

8. Pursuant to Env-Wq 305.21, at a frequency no less than every five years, the permittee shall submit to NHDES:

   a. A copy of its current sewer use ordinance if it has been revised without NPDES approval subsequent to any previous submittal to the department or a certification that no changes have been made.

b. A current list of all significant indirect dischargers to the POTW. At a minimum, the list shall include for each significant indirect discharger, its name and address, the name and daytime telephone number of a contact person, products manufactured, industrial processes used, existing pretreatment processes, and discharge permit status.

c. A list of all permitted indirect dischargers; and

d. A certification that the municipality is strictly enforcing its sewer use ordinance and all discharge permits it has issued.

9. In addition to submitting DMRs, monitoring results shall also be summarized for each calendar month and reported on separate Monthly Operations Report Form(s) (MORs) postmarked or submitted electronically using NetDMR no later than the 15th day of the month following the completed reporting period. Signed and dated MORs, which are not submitted electronically using NetDMR shall be submitted to:

New Hampshire Department of Environmental Services (NHDES)
Water Division
Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**
- **Fathead Minnow (Pimephales promelas) definitive 48 hour test.**

Acute toxicity test data shall be reported as outlined in Section VIII.

II. METHODS

The permittee shall use 40 CFR Part 136 methods. Methods and guidance may be found at:

http://water.epa.gov/scitech/methods/cwa/wet/disk2_index.cfm

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. This protocol defines more specific requirements while still being consistent with the Part 136 methods. If, due to modifications of Part 136, there are conflicting requirements between the Part 136 method and this protocol, the permittee shall comply with the requirements of the Part 136 method.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6^{o}C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (OES04-4)
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcement/water/dmr.html *for further important details on alternate dilution water substitution requests.*

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS[1]

1.	Test type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1^{o}C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC
15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution

		series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1 ^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hr light, 8 hr dark
5.	Size of test vessels	250 mL minimum
6.	Volume of test solution	Minimum 200 mL/replicate
7.	Age of fish	1-14 days old and age within 24 hrs of each other
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration	40
11.	Feeding regime	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3]	x		0.02
Alkalinity	x	x	2.0
pH	x	x	--
Specific Conductance	x	x	--
Total Solids	x		--
Total Dissolved Solids	x		--
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 2340B (hardness by calculation)
     - Method 2340C (titration)
2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     - Method 4500-CL E Low Level Amperometric Titration
     - Method 4500-CL G DPD Colorimetric Method
3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See the flow chart in Figure 6 on p. 73 of EPA-821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 87 of EPA-821-R-02-012.

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
FIVE POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

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

NPDES PERMIT NO.: NH0100382

PUBLIC NOTICE START/FINISH DATE: December 7, 2015 – January 5, 2016

NAME AND MAILING ADDRESS OF APPLICANT:

Town of Hinsdale
Hinsdale Wastewater Treatment Plant
P.O. Box 72
Hinsdale, New Hampshire 03451

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Hinsdale Wastewater Treatment Plant
120 River Road
Hinsdale, New Hampshire 03451

RECEIVING WATER: Ashuelot River (Hydrologic Basin Code: 01080201)

CLASSIFICATION: B

TABLE OF CONTENTS

I. Proposed Action, Facility Description, and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge treated effluent from Outfall 001 into the Ashuelot River. The Hinsdale Wastewater Treatment Plant (WWTP) is a publicly owned treatment works (POTW) that collects and treats domestic and commercial wastewater. The facility provides secondary treatment with oxidation ditches and has a design flow of 0.3 million gallons per day (mgd). Wastewater enters the treatment plant headworks where screening and grit removal takes place. Wastewater is then pumped to a distribution box where it mixes with return sludge and then flows to one of the two oxidation ditches for biological treatment. Only one oxidation ditch is used at a time. After the oxidation ditches the wastewater then flows to secondary clarifiers before being chlorinated and then dechlorinated prior to discharge to the Ashuelot River.

Hinsdale's existing permit was issued on September 28, 2007 and became effective on December 1, 2007. The permit expired on November 30, 2012. Since the applicant filed a complete application for permit reissuance within the time permit prescribed in 40 Code of Federal Regulations (CFR) Section 122.6, the existing permit ("2007 permit") has been administratively continued and will be in effect until the new permit becomes effective.

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

II. Description of Discharge.

A quantitative description of significant effluent parameters based on Discharge Monitoring Reports (DMRs) is shown in Attachment C. The data are from January 2010 through January 2015.

III. Limitations and Conditions.

Effluent limitations and monitoring requirements are found in PART I of the draft NPDES permit. The draft permit contains limitations for flow, five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), pH, total residual chlorine, *Escherichia coli* bacteria, and acute whole effluent toxicity. Additional monitoring requirements are included for total phosphorus, total Kjeldahl nitrogen, total nitrate + nitrite nitrogen, total nitrogen and for parameters associated with WET testing including hardness, ammonia nitrogen as N, and various total recoverable metals (i.e., aluminum, cadmium, copper, lead, nickel, and zinc).

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

A. General Regulatory Background

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant into waters of the United States from any point source, except as authorized by specified permitting sections of the CWA, one of which is Section 402. See CWA §§ 301(a) and 402(a). Section 402 establishes one of the CWA's principal permitting programs, the National Pollutant Discharge Elimination System (NPDES). Under this section of the CWA, EPA may "issue a permit for the discharge of any

pollutant or combination of pollutants" in accordance with certain conditions. See CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. See CWA § 402(a)(1)-(2).

Section 301 of the CWA provides for two types of effluent limitations to be included in NPDES permits: "technology-based" limitations and "water quality-based" limitations. See CWA §§ 301, 303, 304(b); 40 C.F.R. Parts 122, 125, 131. Technology-based limitations, generally developed on an industry-by-industry basis, reflect a specified level of pollutant reducing technology available and economically achievable for the type of facility being permitted. See CWA § 301(b). As a class, POTWs must meet performance based requirements dependent on available wastewater treatment technology. CWA § 301(b)(1)(B). The performance level for POTWs is referred to as "secondary treatment". Secondary treatment is comprised of technology-based requirements expressed in terms of BOD_5, TSS, and pH. 40 C.F.R. Part 133.

Water quality-based effluent limits are designed to ensure that state water quality standards are met regardless of the decision made with respect to technology and economics in establishing technology-based limitations. In particular, Section 301(b)(1)(C) requires achievement of, "any more stringent limitation, including those necessary to meet water quality standards…established pursuant to any State law or regulation…" See 40 C.F.R. §§ 122.4(d), 122.44(d)(1) (providing that a permit must contain effluent limits as necessary to protect State water quality standards, "including State narrative criteria for water quality")(emphasis added) and 122.45(d)(5) (providing in part that a permit incorporate any more stringent limits required by Section 301(b)(1)(C) of the CWA).

The CWA requires that States develop water quality standards for all water bodies within the State. CWA § 303. These standards have three parts: (1) one or more "designated uses" for each water body or water body segment in the state; (2) water quality "criteria" consisting of numerical concentration levels and/or narrative statements specifying the amounts of various pollutants that may be present in each water body without impairing the designated uses of that water body; and (3) an antidegradation provision, focused on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. CWA § 303(c)(2)(a); 40 C.F.R. § 131.12. The limits and conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards.

The applicable New Hampshire water quality standards can be found in Surface Water Quality Regulations, Chapter Env-Wq 1700 et seq. See generally, Title 50, Water Management and Protection, Chapter 485A, Water Pollution and Waste Disposal Section 485-A. Hereinafter, New Hampshire's Surface Water Quality Regulations are referred to as the NH standards.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from a State's water quality standards to develop permit limits, both the acute and chronic aquatic life criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. Acute aquatic life criteria are generally implemented through maximum daily limits and chronic aquatic life criteria are generally implemented through average monthly limits. When a State has not established a numeric water quality criterion for a specific pollutant that is present in the effluent in a concentration that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: based on a "calculated numeric criterion for the

pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use"; on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or in certain circumstances, based on an "indicator parameter". 40 C.F.R. § 122.44(d)(1)(vi)(A-C).

All statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the CWA have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is from the date the issued permit becomes effective. See 40 C.F.R. § 125.3(a)(1). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by an NPDES permit. The regulations governing EPA's NPDES permit program are generally found in 40 C.F.R. Parts 122, 124, and 136.

B. Introduction

The 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 standard, including narrative water quality criteria. See 40 C.F.R. 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

1. Reasonable Potential

In determining reasonable potential, EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permit applications, monthly discharge monitoring reports, 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 Controls*, March 1991, EPA/505/2-90-001 in Section 3; and where appropriate, (5) dilution of the effluent in the receiving water. In accordance with New Hampshire Standards (RSA 485-A:8VI, Env-Wq 1705.02), available dilution for rivers and streams is based on a known or estimated value of the lowest average flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life and human health criteria for non-carcinogens, or the long-term harmonic mean flow for human health (carcinogens only) in the receiving water at the point just upstream of the outfall. Furthermore, 10 percent of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Wq 1705.01.

2. Anti-backsliding

Section 402(o) of the CWA generally provides that the effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the previous permit. Unless certain limited exceptions are met, "backsliding" from effluent limitations contained in previously issued permits is prohibited. EPA has also promulgated anti-backsliding regulations which are found at 40 C.F.R. § 122.44(l). Unless applicable anti-backsliding requirements are met, the limits and conditions in the reissued permit must be at least as stringent as those in the previous permit.

3. State Certification

Section 401(a)(1) of the CWA requires all NPDES permit applicants to obtain a certification from the appropriate state agency stating that the permit will comply with all applicable federal effluent limitation and state water quality standards. See CWA § 401(a)(1). The regulatory provisions pertaining to state certification provide that EPA may not issue a permit until a certification is granted or waived by the state in which the discharge originates. 40 C.F.R. § 124.53(a). The regulations further provide that, "when certification is required…no final permit shall be issued…unless the final permit incorporated the requirements specified in the certification under § 124.53(e)." 40 C.F.R. § 124.55(a)(2). Section 124.53(e) in turn provides that the State certification shall include "any conditions more stringent than those in the draft permit which the State finds necessary" to assure compliance with, among other things, State water quality standards, see 40 C.F.R. 124.53(e)(2), and shall also include "[a] statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law, including water quality standards," see 40 C.F.R. 124.53(e)(3).

However, when EPA reasonably finds that a State water quality standard requires a more stringent permit limitation than that reflected in a state certification, it has an independent duty under CWA §301(b)(1)(C) to include more stringent permit limitations. See 40 C.F.R. §§ 122.44(d)(1) and (5). It should be noted that under CWA § 401, EPA's duty to defer to considerations of State law is intended to prevent EPA from relaxing any requirements, limitations, or conditions imposed by State law. Therefore, "[a] State may not condition or deny a certification on the grounds that State law allows a less stringent permit condition." 40 C.F.R. § 124.55(c). In such an instance, the regulations provide that, "The Regional Administrator shall disregard any such certification conditions or denials as waivers of certification." Id. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. § 122.4(d) and 40 C.F.R. § 122.44(d).

4. Receiving Water Description

The Hinsdale WWTP discharges into the Ashuelot River which is a Class B water. Pursuant to State of New Hampshire statute found in Chapter 485-A:8.II Class B water shall be considered as being acceptable for fishing, swimming and other recreational purposes and, after adequate treatment, for use as water supplies.

If any impaired water quality conditions persist in the Ashuelot River, it would result in a listing in the State of New Hampshire's 2012 *Final List of Threatened or Impaired Waters That Require a TMDL*, also referred to as the 303(d) list. The segment of the Ashuelot River where the discharge occurs is assessment unit NHRIV80201043-20. This assessment unit begins 300 feet above Hinsdale's discharge and ends at the confluence of the Ashuelot and Connecticut Rivers. As shown in the table below this assessment unit is on the 303(d) list for impairments to aquatic life and primary contact recreation.

Assessment Unit	Waterbody Name	Primary Town	Designated Use	Impairment	Source
NHRIV802010403-20	Ashuelot River	Hinsdale	Aquatic Life	pH	Unknown

C. Effluent Flow

Sewage treatment plant discharge is encompassed within the definition of "pollutant" and is subject to regulation under the CWA. The CWA defines "pollutant" to mean, *inter alia*, "municipal . . . waste" and "sewage…discharged into water." 33 U.S.C. § 1362(6).

EPA may use the POTW design flow both to determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. EPA practice is to use design flow as a reasonable and important worst-case condition in EPA's reasonable potential and water quality-based effluent limitations (WQBEL) calculations to ensure compliance with water quality standards under Section 301(b)(1)(C). Should the effluent discharge flow exceed the flow assumed in these calculations, the instream dilution would decrease and the calculated effluent limits may not be protective of WQS. Further, pollutants that do not have the reasonable potential to exceed WQS at the lower discharge flow may have reasonable potential at a higher flow due to the decreased dilution. In order to ensure that the assumptions underlying the Region's reasonable potential analyses and derivation of permit effluent limitations remain sound for the duration of the permit, the Region may ensure its "worst-case" effluent wastewater flow assumption through imposition of permit conditions for effluent flow. Thus, the effluent flow limit is a component of WQBELs because the WQBELs are premised on a maximum level of flow. In addition, the effluent flow limit is necessary to ensure that other pollutants remain at levels that do not have a reasonable potential to exceed WQS.

Using a facility's design flow in the derivation of pollutant effluent limitations, including conditions to limit wastewater effluent flow, is consistent with, and anticipated by NPDES permit regulations. Regarding the calculation of effluent limitations for POTWs, 40 C.F.R. § 122.45(b)(1) provides, "permit effluent limitations…shall be calculated based on design flow." POTW permit applications are required to include the design flow of the treatment facility. *Id.* § 122.21(j)(1)(vi).

Similarly, EPA's reasonable potential regulations require EPA to consider "where appropriate, the dilution of the effluent in the receiving water," 40 C.F.R. § 122.44(d)(1)(ii), which is a function of *both* the wastewater effluent flow and receiving water flow. EPA guidance directs that this "reasonable potential" analysis be based on "worst-case" conditions. EPA accordingly is authorized to carry out its reasonable potential calculations by presuming that a plant is operating at its design flow when assessing reasonable potential.

The limitation on sewage effluent flow is within EPA's authority to condition a permit in order to carry out the objectives of the Act. *See* CWA §§ Sections 402(a)(2) and 301(b)(1)(C); 40 C.F.R. §§ 122.4(a) and (d); 122.43 and 122.44(d). A condition on the discharge designed to protect EPA's WQBEL and reasonable potential calculations is encompassed by the references to "condition" and "limitations" in 402 and 301 and implementing regulations, as they are designed to assure compliance with applicable water quality regulations, including antidegradation. Regulating the quantity of pollutants in the discharge through a restriction on the quantity of wastewater effluent is consistent with the overall structure and purposes of the CWA.

In addition, as provided in Part II.B.1 of the draft permit and 40 C.F.R. § 122.41(e), the permittee

is required to properly operate and maintain all facilities and systems of treatment and control. Operating the facilities wastewater treatment systems as designed includes operating within the facility's design effluent flow. Thus, the permit's effluent flow limitation is necessary to ensure proper facility operation, which in turn is a requirement applicable to all NPDES permits. *See* 40 C.F.R. § 122.41.

The Hinsdale WWTP has a design flow of 0.3 mgd. During the review period, the average monthly discharge from the treatment facility was approximately 0.23 mgd (see Attachment C). The permit contains an effluent flow limit of 0.3 mgd. The limit is an annual average, to be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months. Additionally, if the effluent flow rate exceeds 80 percent of the 0.3 mgd design flow (0.24 mgd) for a period of three (3) consecutive months then the permittee must notify EPA and the NHDES-WD and implement a program to maintain satisfactory treatment levels.

D. Conventional Pollutants

1. BOD_5 and TSS

The average monthly and average weekly concentration-based limits of 30 mg/l and 45 mg/l, respectively, for both five-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are based on requirements under Section 301(b)(1)(B) of the CWA as defined in the Secondary Treatment Standards in 40 CFR Section 133.102(a) and (b).

The average monthly and average weekly mass-based limits for BOD_5 and TSS corresponding to the respective concentration-based limits in the 2007 permit are based on 40 CFR Section 122.45(f). The BOD_5 and TSS limits contained in the draft permit are the same as those in the 2007 permit and are therefore consistent with antibacksliding requirements found in 40 CFR Section 122.44. A summary of the BOD_5 and TSS limits is provided in the table below.

Effluent Parameter	Average Monthly		Average Weekly		Maximum Daily	
	mg/l	lb/d	mg/l	lb/d	mg/l	lb/d
BOD_5	30	75	45	113	50	125
TSS	30	75	45	113	50	125

For the period January 2010 through January 2015 the permittee has exceeded the monthly average concentration limit for BOD_5 five times and the monthly average mass limit three times. The maximum daily concentration limit was exceeded twice and the maximum daily mass limit was exceeded three times. There were no violations of the TSS limits. (See Attachment C)

Percent removal limits for BOD_5 and of TSS, required under 40 CFR Section 133.102 (a) (3) and (b)(3), respectively, are also contained in the draft permit and are the same as the limits in the 2007 permit and in accordance with the antibacksliding requirements found in 40 CFR Section 122.44.

The monitoring frequency for BOD_5 and TSS in the draft permit is twice per week.

2. pH

The limit for pH is based upon State Certification Requirements and RSA 485-A:8, which states that "The pH range for said (Class B) waters shall be 6.5 to 8.0 except when due to natural causes."

During the review period (see Attachment C) the facility did not violate the pH permit limits.

3. Escherichia coli

The average monthly and maximum daily limitations for *Escherichia coli* bacteria (*E. coli*) of 126 and 406 colony forming units per 100 ml, respectively, are based on requirements in the State's statutes (N.H. RSA 485-A:8.II) for non-designated beach areas, and Env-Wq 1703.06 (b), which requires that the bacteria criteria shall be applied at the end of a wastewater treatment facility's discharge pipe. The average monthly discharge of *E. coli* is determined by calculating the geometric mean. Effluent limitations for *E. coli* in the draft permit are the same as the limits in the 2007 permit and, therefore, are in accordance with antibacksliding requirements found in 40 CFR §122.44(1).

During the review period (see Attachment C) the facility did not exceed the *E. coli* permit limits.

The compliance monitoring frequencies for *E. coli* in the draft permit is 3/week. Samples for *E. coli* compliance monitoring must be taken concurrently with samples for total residual chlorine.

E. Non-Conventional and Toxic Pollutants

Water quality based effluent limits for specific toxic pollutants were determined from numeric chemical specific criteria adopted by New Hampshire (refer to Env-Wq 1700) and approved by EPA. EPA uses these pollutant specific criteria along with available dilution in the receiving water to determine a pollutant specific draft permit limit.

1. 7Q10 Flow and Available Dilution

The available dilution of the receiving water is determined by using the facility's design flow of 0.3 mgd (see Section IV.C above) and the annual 7-day mean low flow at the 10 year recurrence interval (7Q10) in the receiving water. The available dilution is reduced by 10 percent to account for the State's assimilative capacity reserve rule pursuant to NH Surface Water Quality Regulations Env-Wq 1705.01. The 7Q10 low flow value is determined using the daily stream flow data measured at the nearby U.S. Geological Survey (USGS) gaging station (No. 01161000) located about 0.5 miles upstream of the discharge.

For the period of record 1959 to 2014 the 7Q10 at the gage is 40.2 cfs, compared to 40.48 cfs in the 2007 permit (using a period of record of 1959 to 2006). EPA and NHDES determined that using gage data prior to 1959 was not appropriate because it did not represent the current regulated flow regime in the Ashuelot River basin. Using the equation shown below with the updated 7Q10 value, the dilution factor was calculated to be 78.9.

$$Dilution\ Factor\ = \frac{(Q_{001}) + (Q_{PDF} * 1.547)}{Q_{PDF} * 1.547} * 0.9$$

where:

Q_{001} = 7Q10 flow upstream of outfall 001, 40.2 cfs.
Q_{PDF} = Treatment plant's design flow, 0.3 mgd.
1.547 = Factor to convert mgd to cfs.
0.9 = Factor to reserve 10% of the river's assimilative capacity

The dilution factor of 78.9 is slightly different than the dilution factor of 79.3 from the 2007 permit due to the updated 7Q10 value.

2. Total Residual Chlorine

The maximum daily total residual chlorine (TRC) effluent limitation of 0.5 in the draft permit is continued from the limit in the existing permit. This TRC limit is based on the existing TRC limit in accordance with antibacksliding provisions found in 40 CFR 122.44(l) since the permittee has been able to achieve consistent compliance with this limit. The TRC effluent limit was first imposed in Hindale's 1987 NPDES permit to protect aquatic life. According to the 1987 permit, this limit was based on state certification requirements for POTWs.

TRC shall be samples once per day using a grab sample.

3. Phosphorus

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

EPA had produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The 1986 Quality Criteria of Water (Gold Book) recommends instream phosphorus concentrations of 0.050 mg/l in any stream entering a lake or reservoir, 0.100 mg/l for any stream not discharged directly to lakes or impoundments, and 0.025 mg/l within a lake or reservoir.

In December 2000, EPA released "Ecoregional Nutrient Criteria" (USEPA 2000), which was established as part of an effort to reduce problems associated with excess nutrients in water bodies located within specific areas of the country. The published criteria represent conditions in waters within each specific ecoregion which are minimally impacted by human activities, and thus are representative of waters without cultural eutrophication. Hinsdale is within Ecoregion VIII, *Nutrient Poor Largely Glaciated Upper Midwest and Northeast.* Recommended criteria for this ecoregion is a total phosphorus criterion of 10 ug/l (0.010 mg/l) and chlorophyll *a* criterion of 0.63 ug/l (0.00063 mg/l). These recommended criteria are found in the *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion VIII* (USEPA 2001).

More recently, Mitchell, Liebman, Ramseyer, and Card (in draft 2004), in conjunction with the New England states, developed potential nutrient criteria for rivers and streams in New England.

Using several river examples representative of typical conditions for New England streams and rivers, they investigated several approaches for the development of river and stream nutrient criteria that would be dually protective of designated uses in both upstream reaches and downstream impoundments. Based on this investigation an instream total phosphorus concentration of 0.020 – 0.022 mg/l was identified as protective of designated uses for New England rivers and streams. The development of the New England-wide total phosphorus concentration was based on more recent data than the National Ecoregional nutrient criteria, and has been subject to quality assurance measures. Additionally, the development of the New England-wide concentration included reference conditions for waters presumed to be protective of designated uses.

The New Hampshire Surface Water Quality Regulations contain a narrative criterion which states that phosphorus contained in effluent shall not impair a water body's designated use. Specifically, Env-Wq 1703.14(b) states that, "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring." Env-Wq 1703.14 further states that, "Existing discharges containing either phosphorus or nitrogen which encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards." Cultural eutrophication is defined in Env-Wq 1702.15 as, "…the human-induced addition of wastes containing nutrients which results in excessive plant growth and/or decrease in dissolved oxygen." Although numeric nutrient criteria have not yet been developed in New Hampshire, draft numeric nutrient criteria developed for Vermont and Maine surface waters indicate a maximum allowable summer mean phosphorus level of approximately 0.035 mg/l (NHVRAP, 2010 Ashuelot River)

EPA has decided to use the Gold Book criterion (0.100 mg/l) rather than the more stringent ecoregional criteria, given that it was developed from an effects-based approach versus the ecoregional criteria that were developed on the basis of reference conditions. The effects-based approach is taken because it is more directly associated with an impairment to a designated use (e.g., fishing, swimming). The effects-based approach provides a threshold value above which adverse effects (e.g., water quality impairments) are likely to occur. It applies empirical observations of a causal variable (e.g., phosphorus) and a response variable (e.g., chlorophyll *a*) associated with designated use impairments. Reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

EPA's regulation at 40 CFR 122.44(d)(1) establishes the basis for determining if there is an excursion of numeric or narrative water quality criteria. Section (ii) of that regulation states: "*When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.*"

The 2007 permit required the permittee to sample the effluent for total phosphorus on a monthly basis from April 1 through October 31 of each year. For the period analyzed the average total phosphorus concentration was 1.41 mg/l with a maximum concentration of 4.7 mg/l.

To determine if there is reasonable potential for the Hinsdale WWTP to cause or contribute to an exceedance of the Gold Book criterion (0.100 mg/l), a mass balance must be done solving for the projected downstream concentration. Using the maximum effluent concentration of 4.7 mg/l and median background concentration of 0.0225 mg/l[1], the following mass balance equation can be used to show the expected receiving water concentration downstream of the discharge.

$$Q_d C_d + Q_S C_S = Q_r C_r$$

where:

Q_d = design flow of facility (0.3 mgd)
C_d = effluent phosphorus concentration (max = 4.7 mg/l)
Q_S = receiving water flow upstream (7Q10 upstream = 40.2 cfs = 26 mgd)
C_S = background in-stream phosphorus concentration in mg/l (0.0225 mg/l)
Q_r = resultant in-stream flow, after discharge in mgd ($Q_S + Q_d$ = 26.3 mgd)
C_r = resultant in-stream pollutant concentration

Based on the above equation, the resultant in-stream pollutant concentration (C_r) is 0.076 mg/l. Since this value is below the Gold Book target value of 0.100 mg/l, the facility does not have the reasonable potential to cause or contribute to a water quality violation. The monitoring requirement for total phosphorus remains in the draft permit at a frequency of once per month from April 1 through October 31 of each year.

4. Ammonia Nitrogen as N

The previous permit required ammonia nitrogen as N sampling of the treatment plant effluent and the receiving water upstream of the discharge once per year as part of chemical-specific sampling performed in conjunction with whole effluent toxicity (WET) testing. A summary of the monitoring data from July 2010 through July 2014 is provided in the table below (5 samples). The maximum effluent concentration (13 mg/l) and a median of the upstream data (0.08 mg/l) is used in this analysis.

1 The background concentration is based upon VRAP sampling performed from 2010 to 2014. Sampling station 01-ASH which is located just upstream of the outfall was used. A total 16 values were used which yielded a median upstream total phosphorus value of 0.0225 mg/l

Ammonia Data from WET Tests			
	Effluent	**Upstream**	**Upstream**
	NH3-N	**NH3-N**	**pH**
	mg/l	**mg/l**	**s.u.**
Jul-14	1.02	0.08	6.96
Jul-13	0.46	0.15	7.08
Aug-12	21	0.06	7.28
Jul-11	13	0.07	7.15
Jul-10	0.22	0.1	7.14
Average	7.14	---	---
Maximum	21	0.15	7.3
Minimum	0.22	0.06	7.0
Median	---	0.08	7.1

The New Hampshire Standards includes acute and chronic criteria for ammonia nitrogen as N. The acute criteria are pH dependent and also dependent on the presence or absence of salmonids. Since salmonids are present in the Ashuelot River, the salmonid-present criteria have been used. A pH of 7.1 has been used, resulting in an acute criterion of 22.0 mg/l. The chronic criterion is both pH and temperature dependent, and is also dependent on whether early aquatic life stages are present. Assuming a winter temperature of 5° C, a pH of 7.1, and early life stages being present, the applicable cold weather chronic criterion is 5.67 mg/l. Assuming a temperature of 25° C, a pH of 7.1, and early life stages being present, the applicable warm weather criterion is 2.88 mg/l.

To determine whether or not reasonable potential exists the following mass balance equation is used:

$$(Q_{up})(C_{up}) + (Q_{Eff})(C_{Eff}) = (Q_{Down})(C_{Down})$$

Where:

Q_{up} = Upstream 7Q10 flow of 40.2 cfs (26 mgd)
C_{up} = Median upstream ammonia concentration of 0.08 mg/l
Q_{Eff} = Design flow of the Hinsdale WWTP of 0.3 mgd (0.4641 cfs)
C_{Eff} = Maximum effluent ammonia concentration of 21 mg/l
Q_{Down} = Downstream flow 26.3 mgd (26+0.3)
C_{Down} = Downstream ammonia concentration

Solving for C_{Down} *gives an instream ammonia concentration of 0.32 mg/l.*

Pursuant to Env-Wq 1705.01 each of the ammonia criteria are multiplied by 0.9 to protect 10% of the assimilative capacity of the Ashuelot River. This yields acute, summer chronic, and winter chronic criteria of 19.8, 2.6, and 5.1 mg/l, respectively. The resulting instream ammonia concentration of 0.32 mg/l is below each of these criteria. Therefore, EPA has determined that there is no reasonable potential for the discharge of ammonia to cause or contribute to an exceedance of applicable water quality criteria and no limit has been included in the draft permit. However, ammonia nitrogen as N monitoring (both effluent and upstream) will continue to be required in the draft once per year as part of the WET testing requirements.

5. Metals

Dissolved fractions of certain metals in water can be toxic to aquatic life. Therefore, there is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation of the concentration of metals in the facility's effluent was used to determine reasonable potential for effluent discharges to cause exceedances of the water quality criteria for aluminum, cadmium, copper, lead, nickel and zinc. Sampling data within the draft permit review period was taken from Whole Effluent Toxicity test reports for this analysis.

Metals may be present in both dissolved and particulate forms in the water column with extensive studies suggesting that it is the dissolved fraction that is biologically available and therefore presents the greatest risk of toxicity to aquatic life inhabiting the water column. This conclusion is widely accepted by the scientific community both within and outside of EPA, and as a result, water quality criteria are established in terms of dissolved metals. *See* Water Quality Standards Handbook: Second Edition, Chapter 3.6 and Appendix J, EPA 1994 [EPA 823-B-94-05a], updated March 2012 [EPA 823-B-12-002], at http://water.epa.gov/scitech/swguidance/standards/handbook/chapter03.cfm#section6

However, many inorganic components of wastewater, including metals, are in the particulate form, and differences in the chemical composition between the effluent and the receiving water affects the partitioning of metals. As the effluent mixes with the receiving water the partitioning between the particulate and dissolved fractions, often results in a transition from the particulate to dissolved form. *See The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, EPA 1996 (EPA-823-B96-007). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically available portion of metals in the receiving water. Regulations at 40 CFR 122.45(c) require, with limited exceptions, that metals limits in NPDES permits be expressed as total recoverable metals.

Although the water quality criteria for most metals is presented as either dissolved or total recoverable, in a letter from NHDES to EPA (dated July 1, 2014), NHDES stated that the aluminum criteria presented in the New Hampshire water quality regulations (Env-Wq-1700) should be applied in terms of acid-soluble aluminum. The letter goes on to say

> *New Hampshire's aluminum criteria are based on EPA's 1988 ambient water quality criteria document for aluminum[2]. According to this document, acid-soluble aluminum is operationally defined as "[a]luminum that passes through a 0.45 um membrane filter after the sample has been acidified to a pH at between 1.5 and 2.0 with nitric acid" [3]. For the many reasons listed in the "Implementation" section of the EPA document, acid-soluble aluminum is considered a better measurement of the forms that are toxic to aquatic life or that can be readily converted to toxic forms under natural conditions.*

To express these criteria in terms of total recoverable aluminum, the fraction of acid-soluble to total recoverable aluminum in the receiving water must be determined. Any permittee wanting a

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2 Ambient Water Quality Criteria for Aluminum - 1988. United Stated Environmental Protection Agency. EPA 440/5-86-008. August 1988.

3 DES protocols require the sample to be acidified to this low pH and allowed to stand for l6 hours before analysis.

limit based on the acid-soluble aluminum fraction will need to provide documentation of the instream ratio of acid soluble aluminum to total recoverable aluminum. EPA and NHDES are available to provide guidance concerning the information that would be needed to perform this study. Since no information is currently available regarding the ratio of acid soluble to total recoverable aluminum in the receiving water, EPA assumes that the ratio is 1.

Reasonable Potential Analysis:

For metals with hardness-based water quality criteria, the criteria are determined using the equations in NH standards Env-Wq 1703.24, using the appropriate factors for the individual metals. The downstream hardness was calculated to be 24.1 mg/l as $CaCO_3$, using a mass balance equation with the design flow (0.3 mgd), receiving water 7Q10 (26 mgd), an upstream median hardness (24 mg/l as $CaCO_3$) and an effluent median hardness (37 mg/l as $CaCO_3$). Since this downstream hardness is below 25 mg/l (24.1 mg/l), a default value of 25 mg/l is used to determine the total recoverable metals criteria. *See* Env-Wq 1703.22(f). The following table presents dissolved criteria for each metal taken from Env-Wq 1703.1. The conversion factors to obtain total recoverable criteria are found in Env-Wq 1703.21.

	Dissolved Criteria (ug/l)		**Conversion Factor**		**Total Recoverable Criteria (ug/l)**	
	Acute	**Chronic**	**Acute**	**Chronic**	**Acute**	**Chronic**
Aluminum	750	87	NA	NA	750	87
Cadmium	0.95	0.8	1.136672 – [(Ln Hardness)(0.041838)]	1.101672 – [(Ln Hardness)(0.041838)]	0.95	0.83
Copper	3.6	2.7	0.96	0.96	3.75	2.81
Lead	14	0.54	1.46203 – [(Ln Hardness)(0.145712)]	1.46203 – [(Ln Hardness)(0.145712)]	14.10	0.54
Nickel	144.9	16.1	0.998	0.997	145.19	16.15
Zinc	36.2	36.5	0.978	0.986	37.01	37.02

In order to determine whether the effluent has the reasonable potential to cause or contribute to an exceedance above the in-stream water quality criteria for each metal, the following mass balance is used to project in-stream metal concentrations downstream from the discharge.

$$Q_d C_d + Q_S C_S = Q_r C_r$$

rewritten as:

$$C_r = \frac{Q_d C_d + Q_S C_S}{Q_r}$$

where:

Q_d = effluent flow (design flow = 0.3 mgd)
C_d = effluent metals concentration (maximum values)
Q_S = stream flow upstream (7Q10 = 26 mgd)
C_S = median upstream metals concentration (See Attachment C)
Q_r = stream flow downstream, after discharge ($Q_r = Q_s + Q_d$ = 26.3 mgd)
C_r = downstream pollutant concentration

Reasonable potential is then determined by comparing this resultant in-stream concentration (for both acute and chronic conditions) with the criteria for each metal multiplied by the factor 0.9 to reserve 10% assimilative capacity (*See* Env-Wq 1705.01). If both the downstream concentration (C_r) and the effluent concentration (C_d) exceed the relevant criterion times 0.9, there is reasonable potential for the facility to cause or contribute to an exceedance of that water quality standard and a permit limit is required. If there is reasonable potential (for either acute or chronic conditions), the appropriate limit is then calculated by rearranging the above mass balance to solve for the effluent concentration (C_d) using the criterion times 0.9 as the resultant in-stream concentration (C_r). Note that if a limit is calculated to be lower than the criterion times 0.9, then the limit is set at the criterion. See the table below for the results of this analysis with respect to aluminum, cadmium, copper, lead, nickel and zinc.

Metal	Qd	Cd (Max)[1]	Qs	Cs (Median)[2]	Qr	Cr	Criteria * 0.9		Acute Reasonable Potential	Chronic Reasonable Potential
	cfs	ug/l	cfs	ug/l	cfs	ug/l	Acute (ug/l)	Chronic (ug/l)	Cd & Cr > Criteria	Cd & Cr > Criteria
Aluminum	0.46	40	40.2	60	40.66	59.8	675	78.3	N	N
Cadmium		0		0		0.00	0.86	0.75	N	N
Copper		19		0		0.22	3.38	2.53	N	N
Lead		0.8		0		0.01	12.69	0.49	N	N
Nickel		2		1		1.01	130.67	14.53	N	N
Zinc		46		4		4.5	33.31	33.32	N	N

[1] Values represent the maximum concentration from WET testing within the review period (see Attachment C).

[2] Median upstream data taken from WET testing results for the receiving water just upstream of the facility's discharge (see Attachment C).

As indicated in the table above, based on the maximum effluent concentrations and median upstream concentrations there is no reasonable potential (for either acute or chronic conditions) that the discharge of aluminum, cadmium, copper, lead, nickel or zinc will cause or contribute to an exceedance of the applicable water quality criteria.

Because of the small sample size, EPA performed additional statistical analyses of the effluent metals data to determine whether an increased frequency of sampling should be included for any metal to ensure a more robust data set for the next permit issuance. Using a methodology from the *Technical Support Document for Water Quality-based Toxics Control* ("the TSD"), EPA calculated a projected "upper bound" of effluent concentrations based on a statistical analysis of the facility's effluent data from its whole effluent toxicity tests and used this value to estimate a downstream concentration for each metal analyzed. The statistical analysis used on the effluent data accounts for the fact that maximum measured concentration may not correspond to the true upper bound of effluent concentrations, particularly for small samples sizes ($n<10$) as are available here. This analysis accounts for the uncertainty that arises from small sample sizes by characterizing the maximum measured concentration as a percentile of the underlying distribution at a particular confidence level, then scaling that number upward by a "multiplying factor" in order to project an "upper bound" (95^{th} percentile) concentration at that confidence level. EPA uses a 95 percent confidence level for this characterization. *See* Attachment C for

the details of this statistical derivation. The resulting effluent concentration for each metal was put into the same mass balance described above and compared to the respective criteria. This is summarized in the table below.

Metal	Qd	Cd (95th Percentile)	Qs	Cs (Median)	Qr	Cr	Criteria * 0.9		Acute Reasonable Potential	Chronic Reasonable Potential
	cfs	ug/l	cfs	ug/l	cfs	ug/l	Acute (ug/l)	Chronic (ug/l)	Cr > Criteria	Cr > Criteria
Aluminum	0.46	92	40.2	60	40.66	60.4	675	78.3	N	N
Cadmium		0		0		0.00	0.86	0.75	N	N
Copper		43.7		0		0.50	3.38	2.53	N	N
Lead		1.84		0		0.02	12.69	0.49	N	N
Nickel		4.6		1		1.04	130.67	14.53	N	N
Zinc		105.8		4		5.2	33.31	33.32	N	N

[1] Values calculated using the WET testing results within the review period (see Attachment C).

[2] The 95th percentile derived using the procedure outlined in see Attachment D.

As shown above the upper bound of the effluent data (i.e. the 95th percentile) does not show the need for increased monitoring for total recoverable aluminum, cadmium, copper, lead, nickel or zinc. Monitoring and reporting of these metals will continue to be required at part of the facility's WET testing requirements.

6. Nitrogen

The 2007 permit requires monitoring of ammonia nitrogen at a frequency of once per year associated with WET testing, but does not require reporting of total nitrogen and its compounds. The draft permit proposes monitoring of once per month with reporting of average monthly and maximum daily effluent concentrations and masses of total nitrogen. The average monthly and maximum daily concentrations for total Kjeldahl nitrogen and total nitrate + nitrite nitrogen shall also be reported. This is consistent with other permits that discharge to the Long Island Sound watershed. These changes are further explained below.

Excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Energy and Environmental Protection (CT DEEP) completed a total maximum daily Load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a waste load allocation (WLA) for point sources and a load allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

Please note, the aggregate 25% reduction has already been achieved through nitrogen optimization efforts; therefore no reductions below the 2005 baseline levels are needed at this time. The intent of nitrogen monitoring and optimization is to ensure that the 25% reduction is

maintained.

The baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lbs/day, 3,286 lbs/day, and 1,253 lbs/day respectively (see table below). The estimated point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lbs/day, 2,151 lbs/day, and 1,015 lbs/day, based on recent information and including all POTWs in the watershed. The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings.

Basin	Baseline Loading[4] (lbs/day)	TMDL Target[5] (lbs/day)	Loading[6] (lbs/day)
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Total	26,211	19,657	17,002

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met.

The estimated current loading for the Hinsdale WWTP used in the above analysis was 49.03 lb/day, based upon a total nitrogen concentration of 19.6 mg/l and the average flow of 0.3 mgd (19.6 mg/l *0.3 mgd * 8.34). The effluent total nitrogen concentration of 19.6 mg/l is the average of concentration of secondary treatment facilities in MA, NH, and VT discharging into the Connecticut River basin. Because there is no total nitrogen data available the effluent from the Hinsdale WWTP, the average concentration of 19.6 was used.

To ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25% reduction over baseline loadings, EPA intends to include a permit condition for all existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic, and Thames River watersheds, requiring the permittees to evaluate alternative methods of operating their treatment plants to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Facilities not currently engaged in optimization efforts will also be required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase, and that their aggregate 25% reduction target loading is maintained. Such a requirement has been included in this permit. EPA has worked with the State of Vermont to ensure that similar requirements are included in its discharge permits.

Specifically, the permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year-round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and NHDES within one year of the

4 Estimated loading from TMDL (see Appendix 3 to CT DEEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
5 Reduction of 25% from baseline loading.
6 Estimated current loading from 2004 – 2005 DMR data.

effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods sufficient to ensure that there is no increase in total nitrogen compared to the average daily load (i.e., 49.03 lbs/day). The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years. To better monitor the nitrogen removal in this optimization level, the draft permit requires total nitrogen monitoring once per month. The annual average target loading for the Hinsdale WWTP is 49.03 lb/day as an annual average from January through December of each year.

The agencies will regularly update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits. There have been significant efforts by the New England Water Pollution Control Commission (NEIWPCC) work group and others since completion of the 2000 TMDL, which are anticipated to result in revised wasteload allocations for in-basin and out-of-basin facilities. Although not a permit requirement, EPA strongly recommends that permittees consider alternatives for further enhancing nitrogen reduction in their facility planning.

F. Whole Effluent Toxicity

EPA's **Technical Support Document for Water Quality-based Toxics Control**, **EPA/505/2-90-001, March 1991**, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. These approaches are designed to protect aquatic life and human health. Pollutant-specific approaches address individual chemicals, whereas, whole effluent toxicity (WET) approaches evaluate interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the “additivity" and/or "antagonistic" effects of individual chemical pollutants which pollutant specific approaches do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

New Hampshire law states that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life...." (N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Wq 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-Region 1 requires toxicity testing in 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.

The draft permit carries forward the WET limit of an LC50 of 100% from the previous permit. An LC50 of 100% means that a sample of 100% effluent shall have no greater than a 50% mortality rate. The permittee is required to perform WET testing during the third quarter (July, August, September) of each year using two species, *Ceriodaphnia dubia* (Daphnid) and *Pimephales promelas* (Fathead Minnow).

The WET limits in the draft permit include conditions to allow EPA-Region 1 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).

This draft permit, as in the 2007 permit, requires the permittee to continue reporting selected parameters from the chemical analysis of the WET tests' 100 percent effluent sample. Specifically, hardness, total ammonia nitrogen as nitrogen, aluminum, cadmium, copper, lead, nickel and zinc are required to be reported on the appropriate DMR for entry into EPA's data base.

G. Pretreatment

The permittee is not required to administer a pretreatment program pursuant to 40 CFR § 403.8. However, the draft permit contains conditions that are necessary to allow EPA and NHDES-WD to ensure that pollutants from industrial users will not pass through the facility and cause water quality standards violations and/or sludge use and disposal difficulties or cause interference with the operation of the treatment facility. The permittee is required to notify EPA and NHDES-WD whenever a process wastewater discharge to the facility from a primary industrial category (see 40 CFR § 122 Appendix A for list) is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of issuance of the permit. The permit also contains the requirements to: 1) report to EPA and NHDES-WD the name(s) of all Industrial Users subject to Categorical Pretreatment Standards (see 40 CFR §403 Appendix C for list) who commence discharge to the POTW after the effective date of the finally issued permit, and 2) submit copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users to EPA and NHDES-WD.

H. Operation and Maintenance

Regulations regarding proper operation and maintenance are found at 40 C.F.R. § 122.41(e). These regulations require, "that the permittee shall at all times operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit." The treatment plant and the collection system are included in the definition "facilities and systems of treatment and control" and are therefore subject to proper operation and maintenance requirements.

Similarly, a permittee has a "duty to mitigate" pursuant to 40 C.F.R. § 122.41(d), which requires the permittee to "take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment."

General requirements for proper operation and maintenance and mitigation have been included in

Part II of the permit. Specific permit conditions have also been included in Part I.B., I.C., and I.D. of the draft permit. These requirements include mapping of the wastewater collection system, reporting of unauthorized discharges including SSOs, maintaining an adequate maintenance staff, performing preventative maintenance, controlling inflow and infiltration to the extent necessary to prevent SSOs and I/I related effluent violations at the wastewater treatment plant, and maintaining alternate power where necessary.

I. Sludge

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

The Hinsdale Wastewater Treatment Plant generated 9.3 dry metric tons of sludge per year. Sludge from the facility is hauled by Casella Waste Management to Erving Paper Mill in Erving, MA for ultimate disposal.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA-Region 1 has prepared 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. This guidance document is available upon request from EPA Region 1 and may be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf. The permittee is required to submit an annual report to EPA and NHDES, 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.

J. Essential Fish Habitat and Endangered Species

1. Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104267), established a new requirement to describe and identify (designate) "essential fish habitat" (EFH) in each federal fishery management plan. Only species managed under a federal fishery management plan are covered. Fishery Management Councils determine which area will be designated as EFH. The Councils have prepared written descriptions and maps of EFH, and include them in fishery management plans or their amendments. EFH designations for New England were approved by the Secretary of Commerce on March 3, 1999.

The 1996 Sustainable Fisheries Act broadly defined EFH as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Waters include aquatic areas and

their associated physical, chemical, and biological properties. Substrate includes sediment, hard bottom, and structures underlying the waters. Necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. Spawning, breeding, feeding, or growth to maturity covers all habitat types utilized by a species throughout its life cycle. Adversely affect means any impact which reduces the quality and/or quantity of EFH. Adverse impacts may include direct (i.e. contamination, physical disruption), indirect (i.e. loss of prey), site specific or habitat wide impacts including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat 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.

Anadromous Atlantic salmon (*Salmo salar*) is the only managed species with designated EFH within the Ashuelot River. EPA has concluded that the limits and conditions contained in this draft permit minimize adverse effects to Atlantic salmon EFH for the following reasons:

- The WWTF has a large dilution factor of 78.9.
- The permit prohibits the discharge to cause a violation of state water quality standards.
- The permit prohibits the discharge of pollutants or combinations of pollutants in toxic amounts.
- Acute whole effluent toxicity tests will be conducted once per year on Daphnid (*Ceriodaphnia dubia*) and Fathead minnow (*Pimephales promelas*); current results of the toxicity tests are in compliance with the permit limits.

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

2. Endangered Species

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NOAA Fisheries) administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish and wildlife to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit. Based on the normal distribution of these species, it is highly unlikely that they would be present in the vicinity of this discharge. Furthermore, effluent limitations and other permit conditions

which are in place in this draft permit should preclude any adverse effects should there be any incidental contact with listed species in the Ashuelot River.

EPA believes the proposed limits are sufficiently stringent to assure that water quality standards will be met and to ensure protection of aquatic life and maintenance of the receiving water as an aquatic habitat. The Region finds that adoption of the proposed permit is unlikely to adversely affect any threatened or endangered species or its critical habitat. If adverse effects do occur as a result of this permit action, or if new information becomes available that changes the basis for this conclusion, then EPA will notify and initiate consultation with both the USFWS and the NOAA Fisheries. A copy of the draft permit has been provided to both USFWS and NOAA Fisheries for review and comment.

VI. Antidegradation

This draft permit is being reissued with limitations that are at least as stringent as those in the previous permit and there is no change in the outfall location. Since the State of New Hampshire has indicated that there will be no lowering of water quality and no loss of existing uses, no additional antidegradation review is needed.

VII. Monitoring and Reporting

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA in accordance with 40 CFR §§ 122.41 (j), 122.44 (l), and 122.48.

The draft permit requires that the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR. NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

The draft permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR.

VIII. State Certification Requirements

EPA may not issue a permit unless the state water pollution control agency with jurisdiction over the receiving water(s) in which the discharge originates either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate state water quality standards or it is deemed that the agency waives its right to certify as set forth in 40 CFR § 124.53. The NHDES is the certifying authority within the State of New Hampshire.

The staff of the NHDES-WD, Surface Water Quality Bureau, has reviewed the draft permit and advised EPA-Region I that the limitations are adequate to protect water quality. EPA-Region I

has requested permit certification by the state 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 CWA, Sections 208(e), 301, 302, 303, 306, and 307 and with the appropriate requirements of State law. In addition, the State should provide a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition. These less stringent conditions may be established by EPA during the permit issuance process based on information received following the public notice of the draft permit. If the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the CWA or State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition.

Reviews and appeals of limitations and conditions attributable to State Certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures set forth in 40 C.F.R. Part 124.

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to:

Dan Arsenault, Environmental Engineer
U.S. Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square
Suite 100, Mail Code: OEP06-1
Boston, Massachusetts 02109-3912

Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA-Region 1 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 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-Region 1'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.

X. EPA – Region 1 Contact

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:

Dan Arsenault, Environmental Engineer
U.S. Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square
Suite 100, Mail Code: OEP06-1
Boston, Massachusetts 02109-3912
Telephone No.: (617) 918-1562
FAX No.: (617) 918-00562

May 29, 2015

_____

Date:

Ken Moraff, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

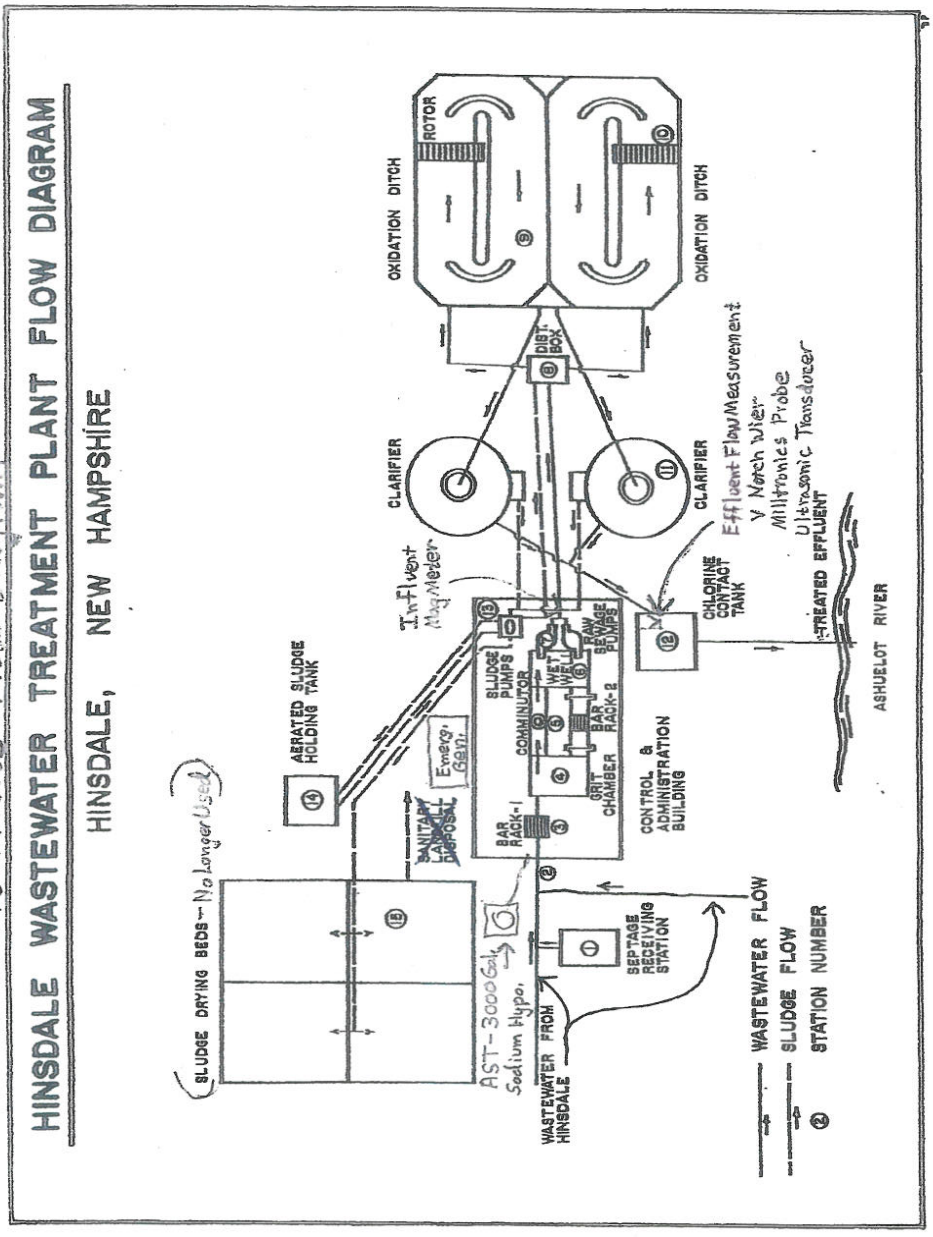
ATTACHMENT A – HINSDALE WWTP LOCATION

*Aerial photo obtained from Google maps.

ATTACHMENT B – HINSDALE WWTP PROCESS FLOW DIAGRAM

Form 2A
Part B.
Hinsdale WWTP (NH0100382)

Unit Process Flow Diagram



This flow diagram shows the various stages of processing that the raw wastes pass through before discharging into the Ashuelot River with pollutants removed

(Additional Page 4 of 5)

ATTACHMENT C – DMR SUMMARY

Date	BOD				TSS				TRC
	Mon/Ave	Mon/Ave	Max Day	Max Day	Mon/Ave	Mon/Ave	Max Day	Max Day	Max Day
	mg/l	lb/day	mg/l	lb/day	mg/l	lb/day	mg/l	lb/day	mg/l
01/31/2010	10.8	24.8	12.9	30.2	3.22	7.57	4.56	10.6	.1
02/28/2010	12.1	30.7	13.4	73.3	5.4	14.5	7.56	41.3	.04
03/31/2010	14.	53.	19.6	80.6	6.73	25.6	7.94	43.1	.4
04/30/2010	12.1	41.2	14.2	62.3	5.87	19.6	8.11	31.8	.42
05/31/2010	26.1	47.6	38.9	63.7	4.36	8.32	6.17	13.	.39
06/30/2010	23.7	34.8	43.8	64.3	3.31	4.8	4.94	7.75	.04
07/31/2010	8.88	9.96	10.9	12.8	3.07	3.34	5.72	5.87	.47
08/31/2010	14.6	12.4	19.8	15.9	7.07	5.94	10.2	8.85	.48
09/30/2010	20.5	16.5	42.2	43.9	3.6	2.75	5.	3.68	.49
10/31/2010	10.5	12.3	12.9	14.9	5.05	5.85	7.06	8.3	.39
11/30/2010	18.6	26.9	27.7	41.3	8.15	11.7	9.	13.4	.4
12/31/2010	31.6	62.8	61.6	145.7	13.5	26.7	25.3	59.8	.45
01/31/2011	28.	42.8	34.7	59.2	9.77	15.	10.8	18.3	.02
02/28/2011	39.9	57.8	47.	67.8	10.2	14.7	15.7	24.	.48
03/31/2011	36.6	135.5	61.3	186.7	8.12	27.4	19.4	60.6	.49
04/30/2011	40.3	128.4	46.	154.3	6.68	21.7	7.67	25.8	.48
05/31/2011	37.5	103.4	43.2	117.	3.27	9.6	5.72	17.4	.45
06/30/2011	27.1	58.	47.3	92.1	4.44	9.94	7.39	15.3	.3
07/31/2011	6.21	9.14	7.94	11.	3.02	4.81	4.06	6.74	.09
08/31/2011	8.96	13.7	15.3	20.2	4.32	6.29	10.3	11.8	.08
09/30/2011	5.12	17.5	6.24	39.3	2.91	10.9	5.77	30.8	.42
10/31/2011	5.89	18.2	7.2	31.3	2.38	7.18	3.28	12.	.44
11/30/2011	6.78	18.	10.5	27.3	2.56	6.66	4.78	12.4	.09
12/31/2011	6.92	22.2	11.5	40.9	3.75	11.6	6.11	18.9	.37
01/31/2012	6.47	15.6	7.95	19.4	4.25	10.5	7.11	16.6	.47
02/29/2012	7.42	14.4	13.6	23.9	5.32	10.8	11.8	20.8	.44
03/31/2012	8.45	16.6	10.5	22.2	7.25	14.3	9.44	18.4	.46
04/30/2012	6.14	10.2	6.68	12.1	5.11	7.95	8.44	11.7	.48
05/31/2012	6.1	11.3	9.66	17.	3.84	7.06	7.61	13.4	.02
06/30/2012	5.82	11.7	7.82	16.4	2.69	5.38	5.22	10.9	.03
07/31/2012	5.84	5.27	6.48	5.78	5.14	6.06	11.1	12.6	.44
08/31/2012	4.17	3.92	6.52	5.68	2.06	1.9	2.94	2.65	.46
09/30/2012	8.28	8.26	15.2	13.9	2.95	3.15	6.67	6.12	.47
10/31/2012	10.9	15.5	14.9	21.5	6.18	8.39	13.7	17.3	.41
11/30/2012	8.29	10.3	9.24	12.2	5.45	7.09	8.5	12.2	.45
12/31/2012	4.25	5.69	6.61	9.87	4.92	6.45	8.	12.	.46
01/31/2013	4.68	6.31	6.67	8.37	4.23	5.84	8.06	10.7	.48
02/28/2013	7.36	10.9	7.36	10.9	6.89	10.3	9.44	17.7	.43
03/31/2013	---	---	---	---	4.62	10.8	8.61	23.2	.45
04/30/2013	6.05	12.7	6.92	15.7	3.73	7.99	6.33	14.4	.34
05/31/2013	4.91	9.3	6.43	12.2	3.68	6.89	5.17	8.93	.47
06/30/2013	4.81	15.	6.97	22.4	4.99	15.2	7.22	26.4	.46
07/31/2013	4.34	12.3	6.17	19.8	2.71	7.84	5.67	21.2	.45
08/31/2013	3.4	4.62	4.47	5.77	2.86	3.75	4.94	5.65	.45
09/30/2013	3.77	4.48	4.97	6.16	3.06	3.63	6.11	7.28	.4
10/31/2013	5.84	6.6	7.68	8.4	4.69	5.17	8.67	9.2	.25
11/30/2013	7.04	7.25	12.1	13.	6.1	5.91	8.67	7.57	.48
12/31/2013	8.59	12.3	12.5	20.	7.92	10.3	13.2	21.2	.44
01/31/2014	10.1	17.4	13.6	21.	8.59	14.8	13.	18.5	.45
02/28/2014	14.6	21.1	19.6	30.4	11.4	17.1	16.2	25.1	.38

Date	BOD				TSS				TRC
	Mon/Ave	Mon/Ave	Max Day	Max Day	Mon/Ave	Mon/Ave	Max Day	Max Day	Max Day
	mg/l	lb/day	mg/l	lb/day	mg/l	lb/day	mg/l	lb/day	mg/l
03/31/2014	8.87	15.7	11.2	21.5	8.64	15.9	11.6	22.	.41
04/30/2014	5.14	15.5	7.59	24.5	5.41	16.5	9.22	33.5	.43
05/31/2014	5.46	12.3	8.11	17.1	4.02	9.1	6.94	15.5	.44
06/30/2014	4.72	7.88	5.1	9.63	4.52	7.85	6.11	12.1	.24
07/31/2014	3.33	7.08	5.92	13.	2.56	5.66	4.27	10.4	.15
08/31/2014	2.63	5.65	3.54	9.44	1.88	3.46	2.94	4.79	.07
09/30/2014	2.71	3.3	3.11	3.93	2.51	2.96	3.22	3.75	.45
10/31/2014	5.02	6.31	6.95	8.82	6.44	7.8	11.8	13.4	.3
11/30/2014	7.52	10.6	10.2	14.4	8.6	11.6	11.4	14.5	.09
12/31/2014	7.01	16.7	9.41	24.1	9.18	21.5	12.5	35.	.39
01/31/2015	8.34	16.5	9.3	19.1	9.49	19.3	11.7	25.	.38
Limit	30 mg/l	75 lb/day	50 mg/l	125 lb/day	30 mg/l	75 lb/day	50 mg/l	125 lb/day	0.5 mg/l
Average	11.4	23.1	16.1	33.9	5.3	10.1	8.5	17.4	0.4
Maximum	40.3	135.5	61.6	186.7	13.5	27.4	25.3	60.6	.49
Minimum	2.63	3.3	3.11	3.93	1.88	1.9	2.94	2.65	.02
# Values	60	60	60	60	61	61	61	61	61

Date	Flow		pH		Total P	BOD	TSS	E. Coli	
	Mon/Ave	Max Day	Minimum	Maximum	Mon/Ave	% Removal	% Removal	Mon/Ave	Max Day
	mgd	mgd	s.u.	s.u.	mg/l	%	%	#/100 ml	#/100 ml
01/31/2010	0.2786	0.4263	6.51	6.81	---	90.6	96.2	2.65	6.2
02/28/2010	0.2815	0.6555	6.56	6.89	---	90.2	94.9	3.64	9.8
03/31/2010	0.4291	0.7269	6.52	6.92	---	82.6	84.7	24.6	365.4
04/30/2010	0.3986	0.6610	6.59	6.90	1.10	83.2	88.4	2.66	73.8
05/31/2010	0.2296	0.3218	6.69	7.49	0.88	83.1	96.7	1.7	7.5
06/30/2010	0.1753	0.2503	6.84	7.37	0.56	88.0	97.7	2.22	8.6
07/31/2010	0.1301	0.1651	6.94	7.21	2.60	96.4	98.4	3.34	24.9
08/31/2010	0.0991	0.1264	6.89	7.72	2.90	95.7	98.4	24.3	298.1
09/30/2010	0.0896	0.1269	7.06	7.90	2.90	95.5	98.6	44.3	260.3
10/31/2010	0.1460	0.1993	6.71	7.21	2.90	97.2	97.5	2.55	10.9
11/30/2010	0.1748	0.2227	6.80	7.20	---	94.0	95.0	3.99	20.1
12/31/2010	0.2265	0.3249	6.51	7.22	---	88.3	89.2	7.26	387.3
01/31/2011	0.1814	0.2113	6.64	7.21	---	90.8	95.4	2.97	45.
02/28/2011	0.1763	0.2117	6.71	7.32	---	84.5	90.4	1.48	11.
03/31/2011	0.5070	0.7710	6.62	7.75	---	68.2	82.7	18.9	387.7
04/30/2011	0.3959	0.4968	6.69	7.10	0.61	61.5	88.9	7.95	24.6
05/31/2011	0.3500	0.5373	6.66	7.33	0.28	68.6	95.8	2.59	36.4
06/30/2011	0.2899	0.4453	6.71	7.71	0.70	73.2	95.8	3.63	307.6
07/31/2011	0.2022	0.3437	6.72	7.47	0.81	95.5	98.6	2.21	13.4
08/31/2011	0.1894	0.4116	6.64	7.53	0.73	92.2	97.3	10.6	57.3
09/30/2011	0.4091	0.7550	6.58	7.18	0.94	93.5	97.1	11.	365.4
10/31/2011	0.3780	0.6342	6.74	7.28	0.41	94.8	98.1	3.09	32.3
11/30/2011	0.3105	0.3902	6.56	7.22	---	96.5	99.2	3.88	38.3
12/31/2011	0.3849	0.6213	6.56	7.12	---	95.5	98.6	3.	24.1
01/31/2012	0.3048	0.4624	6.51	7.30	---	97.7	99.3	8.1	62.4
02/29/2012	0.2535	0.3512	6.60	7.23	---	97.6	99.0	3.	111.2
03/31/2012	0.2367	0.2971	6.75	7.47	---	93.9	96.3	3.53	15.8
04/30/2012	0.1920	0.2552	6.90	7.78	0.56	95.4	96.7	2.51	34.1
05/31/2012	0.2194	0.2836	6.67	7.28	0.71	94.8	97.2	3.93	184.2

Date	Flow		pH		TP	BOD	TSS	E. coli	
	Mon/Ave	Max Day	Minimum	Maximum	Mon/Ave	% Removal	% Removal	Mon/Ave	Max Day
	mgd	mgd	s.u.	s.u.	mg/l	%	%	#/100 m	#/100 m
06/30/2012	0.2291	0.3590	6.71	7.20	0.52	94.2	97.7	4.26	38.3
07/31/2012	0.1276	0.1707	6.82	7.41	1.90	97.3	97.8	122.2	396.8
08/31/2012	0.1149	0.1687	6.99	7.50	3.50	97.7	99.4	83.3	394.5
09/30/2012	0.1271	0.2257	6.83	7.33	1.20	96.2	98.8	15.5	344.8
10/31/2012	0.1623	0.2331	6.78	7.18	1.70	94.0	96.8	1.85	309.4
11/30/2012	0.1607	0.2271	6.51	7.19	---	95.2	96.9	6.74	248.9
12/31/2012	0.1613	0.2666	6.53	7.24	---	97.7	97.8	1.31	4.1
01/31/2013	0.1707	0.2275	6.55	7.24	---	97.0	97.7	1.26	3.1
02/28/2013	0.1769	0.2388	6.85	7.26	---	95.3	94.9	3.13	231.
03/31/2013	0.2567	0.3230	6.55	7.22	---	---	95.7	3.46	250.4
04/30/2013	0.2596	0.3784	6.51	7.20	1.60	92.9	96.5	2.22	47.9
05/31/2013	0.2271	0.3306	6.54	7.13	4.70	94.4	96.5	1.33	40.8
06/30/2013	0.3700	0.6931	6.52	7.07	0.45	92.1	93.3	3.04	8.6
07/31/2013	0.3049	0.4584	6.52	7.21	1.30	93.9	97.1	4.99	16.1
08/31/2013	0.1683	0.2514	6.78	7.60	0.45	97.0	98.1	6.87	21.3
09/30/2013	0.1452	0.2303	6.80	7.85	1.60	97.2	98.1	2.74	23.5
10/31/2013	0.1371	0.1719	6.51	7.85	1.40	96.4	97.3	3.76	13.5
11/30/2013	0.1289	0.2346	6.54	7.62	---	96.5	96.8	17.9	307.6
12/31/2013	0.1574	0.2598	6.80	7.62	---	93.4	94.1	4.34	214.1
01/31/2014	0.2247	0.3221	6.85	7.52	---	89.7	90.5	6.09	231.
02/28/2014	0.1876	0.2819	7.12	7.54	---	85.0	87.9	9.36	222.4
03/31/2014	0.2469	0.4778	6.99	7.52	---	89.3	90.3	4.19	224.7
04/30/2014	0.3474	0.4359	6.86	7.43	1.10	91.1	91.1	5.42	50.4
05/31/2014	0.2920	0.4095	6.76	7.48	1.20	93.8	96.9	2.37	34.5
06/30/2014	0.2112	0.3608	6.61	7.02	0.88	95.7	96.6	2.36	260.3
07/31/2014	0.2652	0.3732	6.54	7.20	0.84	95.8	97.2	3.6	15.8
08/31/2014	0.2280	0.3560	6.73	7.30	1.30	97.0	98.3	2.99	17.3
09/30/2014	0.1416	0.1858	6.70	7.52	1.40	98.0	98.4	4.03	42.2
10/31/2014	0.1516	0.2558	6.53	7.29	2.70	96.5	95.8	5.35	46.4
11/30/2014	0.1622	0.2106	6.66	7.82	---	94.4	92.9	7.15	18.3
12/31/2014	0.2795	0.3853	6.53	7.23	---	92.9	91.0	5.27	31.5
01/31/2015	0.2446	0.3353	6.60	7.58	---	91.9	91.4	7.54	56.5
Limit	Monitor	Monitor	6.5 s.u.	8.0 s.u.	Monitor	85%	85%	126/100 ml	406/100 ml
Average	0.2329	0.3529	6.69	7.35	1.41	91.8	95.4	9.4	121.1
Maximum	0.5070	0.7710	7.12	7.90	4.70	98.0	99.4	122.2	396.8
Minimum	0.0896	0.1264	6.51	6.81	0.28	61.5	82.7	1.26	3.1
# Values	61	61	61	61	35	60	61	61	61

Date	Whole Effluent Toxicity	
	LC50	LC50
	Ceriodaphnia	Fathead Minnow
	% Effluent	% Effluent
09/30/2010	100	100
09/30/2011	100	100
09/30/2012	100	100
09/30/2013	100	100
09/30/2014	100	100
Limit	100%	100%
Average	100	100
Maximum	100	100
Minimum	100	100
# Values	5	5

Effluent data taken from toxicity test reports

Date	Al	Cd	Cu	Pb	Ni	Zn	NH3-N	Hardness
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Jul-14	0.04	0	0.008	0	0.002	0.038	1.02	44.4
Jul-13	0.033	0	0.009	0.0008	0.0005	0.0262	0.46	37
Aug-12	0.026	0	0.01	0	0.002	0.025	21	33.8
Jul-11	0.012	0	0.019	0	0.001	0.021	13	35.8
Jul-10	0.012	0	0.013	0	0	0.046	0.22	41.2
Average	0.0246	0	0.0118	0.00016	0.0011	0.03124	7.14	38.44
Maximum	0.04	0	0.019	0.0008	0.002	0.046	21	44.4
Minimum	0.012	0	0.008	0	0	0.021	0.22	33.8
# Values	5	5	5	5	5	5	5	5

Upstream data taken from toxicity test reports

Date	Al	Cd	Cu	Pb	Ni	Zn	NH3-N	Hardness	pH
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	s.u.
Jul-14	0.136	---	0	0	0.001	0.004	0.08	15.2	6.96
Jul-13	0.288	---	0.0014	0.001	0.0011	0.0045	0.15	10.9	7.08
Aug-12	0	---	0	0	0.001	0.002	0.06	24.5	7.28
Jul-11	0.06	---	0	0	0.001	0.003	0.07	24	7.15
Jul-10	0.049	---	0.002	0	0.001	0.021	0.1	31.9	7.14
Median	0.06	---	0	0	0.001	0.004	0.08	24	7.14
Maximum	0.288	---	0.002	0.001	0.0011	0.021	0.15	31.9	7.28
Minimum	0	---	0	0	0.001	0.002	0.06	10.9	6.96
# Values	5	5	5	5	5	5	5	5	5

ATTACHMENT D – STATISTICAL ANALYSIS FOR METALS EFFLUENT DATA

In order to account for the uncertainty that arises from small sample sizes (n<10), EPA uses a methodology from the *Technical Support Document for Water Quality-based Toxics Control* ("the TSD") to calculate a projected upper bound of effluent concentrations based on a statistical analysis of the facility's effluent data. As the statistical parameters of the sample distribution may differ from the underlying population, this approach determines a projection of the possible upper bound effluent concentration at the 95th percentile with a 95 percent confidence level, assuming a lognormal distribution of the underlying sample population. This 95th percentile projected upper bound represents a conservative estimate of the possible upper bound concentration based on a limited dataset. Where this upper bound concentration would not result in an exceedance of water quality criteria in the receiving water, EPA can say with certainty (95 percent confidence) that the data excludes the potential for an exceedance. Where that is not the case, EPA requires additional monitoring to better characterize the effluent.

The statistical analysis characterizes the maximum measured concentration as a percentile of the underlying distribution at a particular confidence level, then scaling that number upward by a "multiplying factor" in order to project an upper bound concentration at that confidence level. For sample datasets with less than 10 data points, EPA uses the 95th percentile with a 95 percent confidence level to characterize the upper bound concentration.

The formula for characterizing a maximum measured concentration as a percentile is:

$$p_n = (1 - \text{confidence level})^{1/n}$$

This formula gives the lowest percentile that a maximum measurement may correspond to, given a specific confidence level (EPA uses the 95 percent confidence level). For example, where n=4, we can be 95 percent confident that the maximum measurement represents at least the 47th percentile of the underlying distribution, since:

$$p_n = (1 - 0.95)^{1/4} = 0.473.$$

TSD at 52. It should be noted that this represents the lower end of the 95 percent confidence interval. Because of the uncertainty due to the small sample size there is a significant range in interpretation of the maximum; where n=4 we can be 95 percent confident that the maximum value represents somewhere between the 47th and 99th percentile of the underlying distribution.

The calculated percentile is then scaled up to a projected upper bound based on a selected probability basis (here the 95th percentile). The scaling factor (or "multiplying factor") is the ratio between the 95th percentile and the calculated percentile in a lognormal distribution with a particular coefficient of variation. These are calculated as follows:

Multiplying factor = C_{95}/ C_{pn}; where

$$C_{95} = \exp(1.645\sigma - 0.5\sigma^2);$$

$C_{pn} = \exp(z_{pn} \times \sigma - 0.5\sigma^2)$;
z_{pn} = z-score of the calculated percentile
σ^2 = variance of the log-transformed data = $\ln (CV^2 + 1)$
CV = coefficient of variation

The *TSD* recommends use of a coefficient of variation of 0.6 where sample size is less than 10. Thus for n=4 the multiplying factor (for 95-percent confidence level and 95th percentile probability basis) is:

$p_n = 0.473$
$z_{pn} = -0.068$
$C_{95} = 2.135$
$C_{47} = 0.826$

Multiplying factor = 2.6

In practice this process is implemented using tables set forth in *TSD*, chapter 3 and box 3-2, as follows:

Step 1) The maximum effluent value of the samples is determined.
Step 2) Coefficient of variation (CV) = 0.6, for less than 10 samples
Step 3) The multiplying factor (MF) is determined using table 3-2 in the TSD, based on the number of samples in the data set and a CV of 0.6.
Step 4) The 95th percentile projected upper bound is the maximum effluent value multiplied by the MF.

ATTACHMENT E – NITROGEN LOADS

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
NEW HAMPSHIRE					
Bethlehem Village District	NH0100501	0.340	0.220	19.600	35.962
Charlestown WWTF	NH0100765	1.100	0.360	19.600	58.847
Claremont WWTF	NH0101257	3.890	1.610	14.060	188.789
Colebrook WWTF	NH0100315	0.450	0.230	19.600	37.597
Groveton WWTF	NH0100226	0.370	0.290	19.600	47.405
Hanover WWTF	NH0100099	2.300	1.440	30.000	360.288
Hinsdale WWTF	NH0100382	0.300	0.300	19.600	49.039
Keene WWTF	NH0100790	6.000	3.910	12.700	414.139
Lancaster POTW	NH0100145	1.200	1.080	8.860	79.804
Lebanon WWTF	NH0100366	3.180	1.980	19.060	314.742
Lisbon WWTF	NH0100421	0.320	0.146	19.600	23.866
Littleton WWTF	NH0100153	1.500	0.880	10.060	73.832
Newport WWTF	NH0100200	1.300	0.700	19.600	114.425
Northumberland Village WPCF	NH0101206	0.060	0.060	19.600	9.808
Sunapee WPCF	NH0100544	0.640	0.380	15.500	49.123
Swanzey WWTP	NH0101150	0.167	0.090	19.600	14.712
Troy WWTF	NH0101052	0.265	0.060	19.600	9.808
Wasau Paper (industrial facility)	NH0001562		5.300	4.400	194.489
Whitefield WWTF	NH0100510	0.185	0.140	19.600	22.885
Winchester WWTP	NH0100404	0.280	0.240	19.600	39.231
Woodsville Fire District	NH0100978	0.330	0.230	16.060	30.806
New Hampshire Total		**24.177**	**19.646**		**2169.596**

VERMONT					
Bellows Falls	VT0100013	1.405	0.610	21.060	107.141
Bethel	VT0100048	0.125	0.120	19.600	19.616
Bradford	VT0100803	0.145	0.140	19.600	22.885
Brattleboro	VT0100064	3.005	1.640	20.060	274.373
Bridgewater	VT0100846	0.045	0.040	19.600	6.539
Canaan	VT0100625	0.185	0.180	19.600	29.424

Cavendish	VT0100862	0.155	0.150	19.600	24.520
Chelsea	VT0100943	0.065	0.060	19.600	9.808
Chester	VT0100081	0.185	0.180	19.600	29.424
Danville	VT0100633	0.065	0.060	19.600	9.808
Lunenberg	VT0101061	0.085	0.080	19.600	13.077
Hartford	VT0100978	0.305	0.300	19.600	49.039
Ludlow	VT0100145	0.705	0.360	15.500	46.537
Lyndon	VT0100595	0.755	0.750	19.600	122.598
Putney	VT0100277	0.085	0.080	19.600	13.077
Randolph	VT0100285	0.405	0.400	19.600	65.386
Readsboro	VT0100731	0.755	0.750	19.600	122.598
Royalton	VT0100854	0.075	0.070	19.600	11.442
St. Johnsbury	VT0100579	1.600	1.140	12.060	114.662

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	**PERMIT NUMBER**	**DESIGN FLOW (MGD)[1]**	**AVERAGE FLOW (MGD)[2]**	**TOTAL NITROGEN (mg/l)[3]**	**TOTAL NITROGEN - Existing Flow(lbs/day)[4]**
Saxtons River	VT0100609	0.105	0.100	19.600	16.346
Sherburne Fire Dist.	VT0101141	0.305	0.300	19.600	49.039
Woodstock WWTP	VT0100749	0.055	0.050	19.600	8.173
Springfield	VT0100374	2.200	1.250	12.060	125.726
Hartford	VT0101010	1.225	0.970	30.060	243.179
Whitingham	VT0101109	0.015	0.010	19.600	1.635
Whitingham Jacksonville	VT0101044	0.055	0.050	19.600	8.173
Cold Brook Fire Dist.	VT0101214	0.055	0.050	19.600	8.173
Wilmington	VT0100706	0.145	0.140	19.600	22.885
Windsor	VT0100919	1.135	0.450	19.600	73.559
Windsor-Weston	VT0100447	0.025	0.020	19.600	3.269
Woodstock WTP	VT0100757	0.455	0.450	19.600	73.559
Woodstock-Taftsville	VT0100765	0.015	0.010	19.600	1.635
Vermont Totals		**15.940**	**10.960**		**1727.302**

MASSACHUSETTS					
Amherst	MA0100218	7.100	4.280	14.100	503.302
Athol	MA0100005	1.750	1.390	17.200	199.393
Barre	MA0103152	0.300	0.290	26.400	63.851
Belchertown	MA0102148	1.000	0.410	12.700	43.426
Charlemont	MA0103101	0.050	0.030	19.600	4.904
Chicopee	MA0101508	15.500	10.000	19.400	1617.960
Easthampton	MA0101478	3.800	3.020	19.600	493.661
Erving #1	MA0101516	1.020	0.320	29.300	78.196
Erving #2	MA0101052	2.700	1.800	3.200	48.038
Erving #3	MA0102776	0.010	0.010	19.600	1.635
Gardner	MA0100994	5.000	3.700	14.600	450.527
Greenfield	MA0101214	3.200	3.770	13.600	427.608
Hadley	MA0100099	0.540	0.320	25.900	69.122

Hardwick G	MA0100102	0.230	0.140	14.600	17.047
Hardwick W	MA0102431	0.040	0.010	12.300	1.026
Hatfield	MA0101290	0.500	0.220	15.600	28.623
Holyoke	MA0101630	17.500	9.700	8.600	695.723
Huntington	MA0101265	0.200	0.120	19.600	19.616
Monroe	MA0100188	0.020	0.010	19.600	1.635
Montague	MA0100137	1.830	1.600	12.900	172.138
N Brookfield	MA0101061	0.760	0.620	23.100	119.445
Northampton	MA0101818	8.600	4.400	22.100	810.982
Northfield	MA0100200	0.280	0.240	16.800	33.627
Northfield School	MA0032573	0.450	0.100	19.600	16.346
Old Deerfield	MA0101940	0.250	0.180	9.200	13.811
Orange	MA0101257	1.100	1.200	8.600	86.069
Palmer	MA0101168	5.600	2.400	18.800	376.301
Royalston	MA0100161	0.040	0.070	19.600	11.442
Russell	MA0100960	0.240	0.160	19.600	26.154
Shelburne Falls	MA0101044	0.250	0.220	16.900	31.008
South Deerfield	MA0101648	0.850	0.700	7.900	46.120
South Hadley	MA0100455	4.200	3.300	28.800	792.634
Spencer	MA0100919	1.080	0.560	13.600	63.517
Springfield	MA0103331	67.000	45.400	4.300	1628.135
Sunderland	MA0101079	0.500	0.190	8.700	13.786
Templeton	MA0100340	2.800	0.400	26.400	88.070

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
Ware	MA0100889	1.000	0.740	9.400	58.013
Warren	MA0101567	1.500	0.530	14.100	62.325
Westfield	MA0101800	6.100	3.780	20.400	643.114
Winchendon	MA0100862	1.100	0.610	15.500	78.855
Woronoco Village	MA0103233	0.020	0.010	19.600	1.635
Massachusetts Totals		**166.010**	**106.950**		**9938.820**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 13,836 lbs/day
MA (41 facilities) = 9,939 lbs/day (72%)
VT (32 facilities) = 1,727 lbs/day (12%)
NH (21 facilities) = 2170 lbs/day (16%)
TMDL Baseline Load = 21,672 lbs/day

TMDL Allocation = 16,254 lbs/day (25% reduction)

MA Discharges to Housatonic River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
MASSACHUSETTS					
Crane	MA0000671		3.100	8.200	212.003
Great Barrington	MA0101524	3.200	2.600	17.000	368.628
Lee	MA0100153	1.000	0.870	14.500	105.209
Lenox	MA0100935	1.190	0.790	11.800	77.745
Mead Laurel Mill	MA0001716		1.500	6.400	80.064
Mead Willow Mill	MA0001848		1.100	4.600	42.200
Pittsfield	MA0101681	17.000	12.000	12.400	1240.992
Stockbridge	MA0101087	0.300	0.240	11.100	22.218
West Stockbridge	MA0103110	0.076	0.018	15.500	2.327
Massachusetts Totals			**22.218**		**2151.386**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 2151.386 lbs/day

TMDL Baseline Load = 3,286 lbs/day
TMDL Allocation = 2,464 lbs/day (25% reduction)

MA Discharges to Thames River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]

MASSACHUSETTS					
Charlton	MA0101141	0.450	0.200	12.700	21.184
Leicester	MA0101796	0.350	0.290	15.500	37.488
Oxford	MA0100170	0.500	0.230	15.500	29.732
Southbridge	MA0100901	3.770	2.900	15.500	374.883
Sturbridge	MA0100421	0.750	0.600	10.400	52.042
Webster	MA0100439	6.000	3.440	17.400	499.199
Massachusetts Totals		**11.820**	**7.660**		**1014.528**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 1014.528 lbs/day

TMDL Baseline Load = 1,253 lbs/day

TMDL Allocation = 939 lbs/day (25% reduction)

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(4) The permittee complied with any remedial measures required under B.3. above.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. Twenty-four hour reporting.

(1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in "approved States", including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source", or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See "Point Source" definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States", the waters of the "contiguous zone", or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise "effluent limitations".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program".

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants";

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source"; and

(d) Which has never received a finally effective NPDES permit for discharges at that "site".

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants", the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System".

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a "POTW".

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a "primary industry category".

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of "sludge use or disposal practices" any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.