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 City of Berlin, New Hampshire

is authorized to discharge from the Pollution Control Facility located at

10 Shelby Street **Berlin, New Hampshire 03570**	**and**	**1 combined sewer overflow (CSO)**

to receiving waters named

Androscoggin River

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 Berlin Pollution Control Facility collection system.

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.

This permit expires at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 10, 2008.

This permit consists of **Part I (**18 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 7th day of May, 2015

/S/SIGNATURE ON FILE

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Ken 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.a. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated domestic and industrial wastewater from outfall serial number 001 to the Androscoggin 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	3.0[1]	---	---	ContinuousRecorder[1]	
Effluent Flow; mgd	Report		Report	ContinuousRecorder[1]	
BOD_5; mg/l (lb/day)	30 (661)	45 (991)	50 (1102)	2/Week[2]	24 Hour Composite
TSS; mg/l (lb/day)	30 (661)	45 (991)	50 (1102)	2/Week[2]	24 Hour Composite
Total Phosphorus; mg/l (lb/d) (Applicable April 1-October 31)	---	---	Report (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	1.0	---	1.0	1/Day	Grab
Escherichia coli[4,5]; Colonies/100 ml	126	---	406	3/Week	Grab
Whole Effluent Toxicity[7,8,9]; Percent	Acute $LC_{50} \geq 50\%$			2/Year	24 Hour Composite
Hardness[10]; mg/l	---	---	Report	2/Year	24 Hour Composite
Ammonia Nitrogen as N[10]; mg/l	---	---	Report	2/Year	24 Hour Composite
Total Recoverable Aluminum[10]; mg/l	---	---	Report	2/Year	24 Hour Composite
Total Recoverable Cadmium[10]; mg/l	---	---	Report	2/Year	24 Hour Composite
Total Recoverable Copper[10] mg/l	---	---	Report	2/Year	24 Hour Composite
Total Recoverable Lead[10]; mg/l	---	---	Report	2/Year	24 Hour Composite
Total Recoverable Nickel[10]; mg/l	---	---	Report	2/Year	24 Hour Composite
Total Recoverable Zinc[10]; mg/l	---	---	Report	2/Year	24 Hour Composite

See pages 4 and 5 for footnotes

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

1.b. During the period beginning on the effective date of the permit and lasting through the expiration date, the permittee is authorized to discharge storm water runoff and wastewater into the Androscoggin River from Combined Sewer Outfall serial number 002. This discharge is authorized only during wet weather. Such discharges shall be monitored by the permittee as specified below. Samples specified below shall be taken at a location that provides a representative analysis of the effluent.

Effluent Characteristic	Discharge Limitation	Monitoring Requirement	
	Wet-Weather Event Maximum	Measurement Frequency	Sample Type
Escherichia coli [11] (Colonies per 100 ml)	1,000	1/Year	Grab

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 3 mgd is an annual average, which shall 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.

2. The influent concentrations of both BOD_5 and TSS shall also be monitored. Influent samples shall be collected twice per month using 24-hour composite samples.

3. State certification requirement.

4. Monitoring for *Escherichia coli* bacteria as described in footnote (5) below shall be conducted concurrently with the daily monitoring for total residual chlorine (TRC) as described in footnote (6) below.

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 methods listed in 40 Code of Federal Regulations (CFR) Part 136 which has a minimum level (ML) at or below the permitted average monthly limit of 1.0 mg/l. Any measured value below the ML shall be reported as zero unless written notice is received by certified mail from EPA-Region 1 indicating some value other than zero is to be reported.

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

8. 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 two times per year during the calendar quarters ending September 30th and December 31st. Toxicity test results are to be postmarked by the 15th day of the month following the end of the quarter sampled.

9. 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).

10. 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.

11. The permittee shall sample the CSO (Outfall 002) once per year. The sampling shall occur during a wet-weather discharge event. One grab sample shall be obtained as closely as possible to one-half hour after the outfall starts discharging. The sampling can be conducted during the POTW's normal business hours; however, sampling could be conducted outside those hours at the discretion of the permittee. If more than one sample is collected per outfall per wet weather event, the maximum value for Escherichia coli shall be determined by calculating the geometric mean [refer to footnote (5)]. Results from the sampling shall be reported with each December DMR, which is due by January 15th. If the CSO does not discharge or does not discharge sufficiently to collect a sample during the calendar year, report the appropriate "no data indicator code" for that outfall on the December DMR.

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 insure 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 3.0 mgd design flow (2.4 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 listed in Part I.A.1.a and the CSO (Outfall 002) listed in Part I.A.1.b 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

The permittee shall prepare and maintain maps of the entire sewer collection system. The collection system maps shall be kept up-to-date and available for review by federal, state, or local agencies. Such maps shall include, but not be limited to the following:

a. All collection system 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

The permittee shall update and submit a Collection System O&M Plan 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 2008 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 properly operate and maintain the collection system;
d. Sufficient funding and the source(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 this 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 an inflow identification 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:

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 3.0 mgd design flow (2.4 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 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"

[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

because it "is … the person who generates sewage sludge during the treatment of 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. COMBINED SEWER OVERFLOWS

1. Effluent Limitations

    a. During wet weather, the permittee is authorized to discharge stormwater/wastewater from combined sewer outfall listed in Part I.A.1.b above, subject to the following effluent limitations.

        (1) The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA has made a Best Professional Judgment (BPJ) determination that BPT, BCT, and BAT for combined sewer overflow (CSO) control include the implementation of Nine Minimum Controls

(NMC) specified below:

(a) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows.

(b) Maximum use of the collection system for storage.

(c) Review and modification of the pretreatment program to assure CSO impacts are minimized.

(d) Maximization of flow to the POTW for treatment.

(e) Prohibition of dry weather overflows from CSO.

(f) Control of solid and floatable materials in CSO.

(g) Pollution prevention programs that focus on contaminant reduction activities.

(h) Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

(i) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

(2) The permittee shall continue implementation of the NMCs listed in Section I.F.1.a.(1) of this permit. These NMCs provided the basis for the permittee's NMC document originally submitted to the EPA on May 8, 1995, and any amendments thereto.

b. The permittee shall submit to NHDES and EPA by January 15th of each year a report that demonstrates the continual implementation of the NMCs for the previous twelve months. This report must include a detailed description and evaluation of specific activities the permittee has undertaken in the past year to continue implementation and maintenance of the NMCs. The report must include the minimum requirements set forth in Part I.F. This report shall detail, if the case arises, why the permittee was unable to monitor the CSO listed in Part I.A.1.b of this permit. The report shall also document planned activities and any additional controls the permittee can feasibly implement.

2. Unauthorized Discharges

a. The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I.A.1.b of this permit. Discharges of wastewater from any other point source are not authorized under this permit.

b. Dry weather overflows are prohibited. All dry weather domestic, commercial or industrial discharges from a CSO must be reported to the EPA and NHDES within 24 hours in accordance with the reporting requirements for a plant bypass (Part II.B.4 Bypass of this permit).

c. The State of New Hampshire and EPA have the right to inspect any CSO related structure or outfall at any time without prior notification to the permittee.

d. The CSO discharges shall not cause violations of Federal or State Water Quality Standards.

3. Monitoring Requirements

a. The permittee shall continue to quantify and record all discharges from combined sewer outfalls. Quantification may be through direct measurement or estimation. When an estimation technique is used, the permittee shall make reasonable efforts (i.e., gaging, measurements, visual observations, tell-tale monitoring, etc.) to verify the validity of the estimation technique. The following information must be recorded for each combined sewer outfall for each discharge event:

(1) Date of discharge
(2) Estimated duration (hours) of discharge;
(3) Estimated volume (gallons) of discharge; and
(4) National Weather Service precipitation data from the nearest gage where precipitation is available at daily (24- hour) intervals and the nearest gage where precipitation is available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

b. The permittee shall submit on January 15th of each year a certification to NHDES and EPA which states that the previous twelve monthly inspections were conducted, results recorded, and records maintained.

The permittee shall maintain all records of discharges for at least six years after the effective date of this permit.

4. The permittee shall install and maintain identification signs for all combined sewer outfall structures. The signs must be located at or near the combined sewer outfall structures and easily readable by the public. These signs shall be a minimum of 12 x 18 inches in size, with white lettering against green background, and shall contain the following information:

CITY OF BERLIN
WET WEATHER
SEWAGE DISCHARGE
OUTFALL 002

5. The permittee shall provide immediate notification to the appropriate NPDES Inspector in the NHDES-WD, Wastewater Engineering Bureau in the event of a CSO discharge. Additionally, this notification shall be made publically available.

6. Reopener/Additional CSO Control Measures

   This permit may be modified or reissued upon the completion of a long-term CSO control plan. Such modification may include performance standards for the selected controls, post construction water quality assessment program, monitoring for compliance with water quality standards, and a reopener clause to be used in the event that the selected CSO controls fail to meet water quality standards. Section 301(b)(1)(C) requires that a permit include limits that may be necessary to protect Federal and State water quality standards.

F. SPECIAL CONDITIONS

pH Limit Adjustment:

The permittee may submit a written request to the EPA-Region 1 requesting a change in the permitted pH limit range to be not less restrictive than 6.0 to 9.0 Standard Units found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 CFR Part 133) for this facility. The permittee's written request must include the State's approval letter containing an original signature (no copies). The State's letter shall state that the permittee has demonstrated to the State's satisfaction that as long as discharges to the receiving water from a specific outfall are within a specific numeric pH range the naturally occurring receiving water pH will be unaltered. That letter must specify for each outfall the associated numeric pH limit range. Until written notice is received by certified mail from the EPA-Region 1 indicating the pH limit range has been changed, the permittee is required to meet the permitted pH limit range in the respective permit.

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 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), 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. Request for reduction in WET testing requirement
E. 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

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 form 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:

U.S. Environmental Protection Agency
Office of Environmental Stewardship
617-918-1510

Verbal reports and verbal notifications shall 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-Ws 305.10(d) an "Industrial Wastewater Discharge Request Application."

8. Pursuant to Env-Ws 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. The sewer use ordinance shall include local limits pursuant to Env-Ws 305.04 (a).

   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.

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)

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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.

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.: NH0100013

PUBLIC NOTICE START/FINISH DATE: **March 10, 2015 – April 8, 2015**

NAME AND MAILING ADDRESS OF APPLICANT:

City of Berlin, New Hampshire
City Hall
168 Main Street
Berlin, New Hampshire 03570

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Berlin Pollution Control Facility
10 Shelby Street
Berlin, New Hampshire 03570

RECEIVING WATER: Androscoggin River (Hydrologic Basin Code: 01040001)

CLASSIFICATION: B

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

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge treated effluent from Outfall 001 into the Androscoggin River and for the periodic discharge from 1 combined sewer overflow (Outfall 002) into the Androscoggin River.

The Berlin Pollution Control Facility (BPCF) is a 2.64 million gallons per day (mgd) secondary treatment facility with a conventional activated sludge system. This facility is engaged in the collection and treatment of domestic and commercial wastewaters from the City of Berlin (10,051 served) as well as landfill leachate from the Androscoggin Valley Regional Refuse Disposal District. The collection system serving the facility includes combined sewers, which collect both sewage and storm water runoff. Approximately 5% of the collection system is a combined storm and sanitary sewer.

In this permit reissuance, the permittee has requested an increase in design flow from 2.64 mgd to 3.0 mgd. Accordingly, the New Hampshire Department of Environmental Services – Water Division (NHDES-WD) has conducted an antidegradation study (originally submitted February 28, 2013 and revised on November 7, 2013) and the flow increase has been approved subject to a variety of permit conditions established herein.

According to the City's NPDES Application (submitted May 2013), there are 3 non-categorical significant industrial users (SIUs) discharging to the City's collection system. The total process wastewater flow from industries is about 75,000 gallons per day (gpd). Since that application was submitted, the Burgess BioPower plant (wood chip to energy) came on-line in October 2013, with an average daily flow of 212,500 gpd.

Berlin's existing permit was issued on September 10, 2008, became effective on December 1, 2008 and expired on November 30, 2013. Since the applicant filed a complete application for permit reissuance within the time period prescribed in 40 Code of Federal Regulations (CFR) Section 122.6, the existing permit ("2008 permit") was administratively extended and will be in effect until the new permit becomes effective.

The location of the facility, Outfall 001, CSO Outfall 002 and receiving water are shown in Attachment A.

II. Description of Discharge.

A quantitative description of significant effluent parameters based on Discharge Monitoring Reports (DMRs) is shown in Attachment B. The data are from November 2009 through October 2014.

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 five-day biochemical oxygen

demand (BOD_5), total suspended solids (TSS), pH, total residual chlorine, *E. coli*, and acute whole effluent toxicity. Additional monitoring requirements are required for flow, total phosphorus, total recoverable arsenic, 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 believes that a State water quality standard requires a more stringent permit limitation than that reflected in a state certification, it has an independent duty under CWA §301(b)(1)(C) to include more stringent permit limitations. See 40 C.F.R. §§ 122.44(d)(1) and (5). It should be noted that under CWA § 401, EPA's duty to defer to considerations of State law is intended to prevent EPA from relaxing any requirements, limitations, or conditions imposed by State law. Therefore, "[a] State may not 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 Berlin PCF discharges into the Androscoggin River. If any impaired water quality conditions persist in the Androscoggin River they would result in a listing in the State of New Hampshire's 2010 *Final List of Threatened or Impaired Waters That Require a TMDL*, also referred to as the 303(d) list. The Berlin PCF outfall and CSO outfall (see Section V) both discharge about ½ mile upstream of the Cascade Dam (into segment NHIMP400010606-03) and the next river segment (NHRIV400010606-10) begins immediately downstream of the Cascade Dam. Neither of these segments are listed on the 2010 303(d) list for any impairments.

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 design flow of effluent 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 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 this 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 BPCF has a design flow of 2.64 mgd. During the review period, the average monthly discharge from the treatment facility is approximately 1.8 mgd (see Attachment B). In this permit reissuance, the City has requested an increase in design flow to 3.0 mgd. Accordingly, the NHDES-WD has conducted an antidegradation study (originally submitted February 28, 2013 and revised on November 7, 2013) and the flow increase has been approved subject to a variety of permit conditions established herein. The new flow rate of 3.0 mgd is used to calculate available dilution as discussed below. The permit contains an effluent flow limit of 3.0 mgd. The limit is an annual average, which shall 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 3.0 mgd design flow (2.4 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 2008 permit are based on 40 CFR Section 122.45(f) which requires the Agency to apply these Secondary Treatment Standards (concentration-based) as mass-based limits. The NHDES antidegration study requires that the average monthly, average weekly and maximum daily allowable mass-based (load) limitations for BOD_5 and TSS be held the same as those calculated in the 2008 permit (using design flow of 2.64 mgd). Hence, these loads are carried forward in the draft permit. The equation used in the 2008 permit to calculate these loads is:

Mass-based limit (lb/d) = Concentration-based limit (mg/l) x Flow (mgd) x 8.345

The following table summarizes the limitations that need to be met to hold the loads in the 2008 permit for the upgraded PCF at the new design flow of 3.0 mgd.

Effluent Parameter	Average Monthly	Average Weekly	Maximum Daily
BOD_5; lb/day	661	991	1102
TSS; lb/day	661	991	1102

All the concentration and mass-based effluent limits for BOD_5 and TSS in the draft permit are the same as the 2008 permit and, therefore, are consistent with antibacksliding requirements found in 40 CFR §122.44(1). The permittee has been able to achieve consistent compliance with those limits (see Attachment B).

Percent removal limits for BOD_5 and of TSS, required under 40 CFR Section 133.102 (a) (3) and (b)(3), respectively, are the same as the limits in the 2008 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."

The draft permit includes a provision allowing a relaxation of the pH limits if the permittee performs an in-stream dilution study that demonstrates that the in-stream standards for pH would be protected. If the State approves results from a pH demonstration study, this permit's pH limit range may be relaxed. The notification of the relaxation must be made by certified letter to the permittee from EPA-Region 1. The pH limit range cannot be less restrictive than 6.0 - 9.0 S.U., the limitations included in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 CFR Part 133) for the facility.

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) for non-designated beach area, 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 2008 permit and, therefore, are in accordance with antibacksliding requirements found in 40 CFR §122.44(1).

During the review period (see Attachment B) the facility had 21 daily maximum violations and 2 monthly average violations of its *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 limits for specific toxic pollutants were determined from numeric chemical specific criteria derived from extensive scientific studies. The EPA has summarized and published specific toxic pollutants and their associated toxicity criteria in *Quality Criteria for Water*, 1986, EPA440/5-86-001 as amended, commonly known as the federal "Gold Book". Each pollutant generally includes an acute aquatic life criterion to protect against short term effects, such as death, and a chronic aquatic life criteria to protect against long term effects, such as poor reproduction or impaired growth. New Hampshire adopted these "Gold Book" criteria, with certain exceptions, and included them as part of the State's Surface Water Quality Regulations adopted on December 10, 1999. EPA uses these pollutant specific criteria along with available dilution in the

receiving water to determine a pollutant specific draft permit limit.

1. 7Q10 Flow and Available Dilution

The available dilution of the receiving water is determined by using the facility's design flow of 3.0 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 just above the treatment plant's outfall. 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 streamflow data measured at the nearby U.S. Geological Survey (USGS) gaging station (No. 01054000) in Gorham, New Hampshire. Inflows or discharges between the gaging station and the outfall are also considered.

This gaging station is located about 1.3 river miles downstream from Outfall 001 and the streamflow at this location includes treatment plant discharges from the BPCF and the Fraser Cascade Mill Facility, 4.6 cubic feet per second (cfs) and 13.5 cfs, respectively. Additional inflows are considered to be negligible. The 7Q10 low flow at this gaging station is computed as 1349 cfs using the daily stream flows for the period 1963 – 2006 (see **Attachment C** for a summary of the 7Q10 flows for the Androscoggin River in Berlin). This time period reflects the post log drive period and it is selected for this low flow analysis because it represents the current flow regime in the Androscoggin River. The 7Q10 low flow upstream of Outfall 001 is 1330.9 cfs (1349 – 4.6 – 13.5) and the dilution factor is then calculated using the equation shown below.

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

where:

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

The dilution factor is determined to be **259** based on the updated design flow, revised from 293 in the 2008 permit.

The revised dilution factor at 259 does not change the TRC or WET effluent limits from those limits previously determined for the 2008 permit, as described in their respective sections below.

2. Total Residual Chlorine

The New Hampshire water quality standards specify the chronic and acute aquatic-life criteria for total residual chlorine (TRC) as 0.011 mg/l and 0.019 mg/l, respectively, for freshwater; and 0.0075 mg/l and 0.013 mg/l, respectively, for marine water. Based upon

available dilution, applicable TRC limits would be a monthly average limit of 2.8 mg/l (0.011 mg/l * 259) and a daily maximum limit of 4.9 mg/l (0.019 mg/l * 259).

Chlorine and chlorine compounds, such as "organo-chlorines", produced by the chlorination of wastewater can be extremely toxic to aquatic life. Section 101(a)(3) of the Act, and New Hampshire standards at Env-Wq 1703.21(a) prohibit the discharge of toxic pollutants in toxic amounts. Therefore, to reduce the potential for the formation of chlorinated compounds during the wastewater disinfection process and to be protective of the States' narrative standards, EPA-Region 1 has, historically, established a maximum total residual chlorine limitation of 1.0 mg/l for both the average monthly and the maximum daily limitations. These limitations may be more stringent, after considering the available dilution, than the limits determined using the States' numeric water quality criteria. In this case, the monthly average limit is **1.0 mg/l** and the daily maximum limit is set at **1.0 mg/l**.

The limitations and requirements pertaining to TRC in the draft permit are the same as those in the 2008 permit and are therefore consistent with the antibacksliding requirements of 40 CFR § 122.44(l).

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. Berlin 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, a total phosphorus concentration of 0.050 mg/l is considered by the NHDES as a level of potential concern (NHVRAP & NHDES 2004 Androscoggin Report).

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 (i.e. fishing, swimming). The effects-based approach provides a threshold value above which adverse effects (i.e. water quality impairments) are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. chlorophyll *a*) associated with designated use impairments. Reference-based values are statistically derived from a comparison within a population of rivers in the same 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 BPCF reported 32 total phosphorus samples in its 2013 NPDES permit reapplication. The average of these samples was 0.87 mg/l and the maximum was 1.63 mg/l.

To determine if there is reasonable potential for the BPCF to cause or contribute to an exceedence 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 1.63 mg/l and median background concentration of 0.007 mg/l (based on 4 samples collected in July through October of 2012 as part of the NHDES antidegradation study), the following mass balance equation can be used to show the expected receiving water concentration downstream of the discharge.

$$Q_d C_d + Q_S C_S = Q_r C_r (0.90)$$

where:

Q_d = design flow of facility (3.0 mgd)
C_d = effluent phosphorus concentration (max = 1.63 mg/l)
Q_S = receiving water flow upstream (7Q10 upstream = 1331 cfs = 859.8 mgd)
C_S = background in-stream phosphorus concentration in mg/l (0.007 mg/l)
Q_r = resultant in-stream flow, after discharge in mgd ($Q_S + Q_d$ = 862.8 mgd)
C_r = resultant in-stream pollutant concentration (Gold Book target: 0.100 mg/l)
0.90 = Factor to reserve 10 % assimilative capacity
8.345 = Factor to convert from *mgd * mg/l* to *lb/d*

Based on the above equation, the resultant in-stream pollutant concentration (C_r) is 0.014 mg/l. Since this value is well 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. In fact, the facility would have to discharge above a concentration of 23.9 mg/l to cause or contribute to a violation of water quality standards (based on a calculation of C_d in the equation above and using 0.100 mg/l as C_r).

In addition to the reasonable potential analysis above, phosphorus is also addressed in the NHDES antidegration study submitted on February 28, 2013, as well as a TMDL for the Androscoggin River prepared by the Maine Department of Environmental Protection (MEDEP) and approved by EPA on June 1, 2010.

The NHDES antidegration study established the current load from the facility to be 50.2 lb/day, based on the maximum effluent values from the summers of 2005 through 2007 (58 samples) and the 2012 antidegration study (4 samples). This load translates to a concentration of 2.0 mg/l at the new design flow of 3.0 mgd. The Antidegradation study defers to the MEDEP Androscoggin River TMDL for the recommended TP limitation to be applied in the permit.

The MEDEP Androscoggin River TMDL developed allocations for various municipal and industrial point sources of phosphorus. However, page 25 of the TMDL narrative states:

> *The implementation being recommended for Berlin, Gorham, Bethel, and Rumford-Mexico is as follows. Collectively these discharges are 2.4% of the total-P load and 6.3% of the ortho-P load at the entrance to Gulf Island Pond. They have a de-minimus contribution to algae problems in the pond and for the initial stages of the TMDL should not have a phosphorus limit but should still be required to monitor phosphorus.*

Hence, the most stringent TP requirement in the analyses of EPA, NHDES, and MEDEP described above is a monitoring only requirement, as set forth in the MEDEP TMDL. Hence, the draft permit contains a reporting requirement for total phosphorus to be sampled twice per month as a 24-hour composite sample, applicable April 1st through October 31st.

4. Ammonia Nitrogen as N

The 2008 permit required ammonia nitrogen as N sampling of the treatment plant effluent and the receiving water upstream of the discharge twice per year as part of chemical-specific sampling performed in conjunction with whole effluent toxicity (WET) testing. A summary of the monitoring data from November 2009 through October 2014 is provided in Attachment B (10 samples). The data shows that the ammonia concentration in the receiving water upstream of the discharge is minimal with each sample reported as zero (detection limit 0.1 mg/l). The median of the background data (zero) is used in this analysis.

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 Androscoggin River, the salmonid-present criteria have been used. A pH of 7 has been assumed, resulting in an acute criterion of 24.1 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 10° C, a pH of 7, and early life stages being present, the applicable cold weather criterion is 5.91 mg/l. Assuming a temperature of 25° C, a pH of 7, and early life stages being present, the applicable warm weather criterion is 3.01 mg/l.

Multiplying these criteria by the facility's dilution factor of 259 (since the background concentration is zero) gives the effluent concentration that would cause the water quality criteria to be exceeded in the receiving water. Hence, an effluent concentration of 6,242 mg/l would cause the acute criterion to be exceeded, a concentration of 1,531 mg/l would result in the cold weather chronic criterion to be exceeded and a concentration of 780 mg/l would result in the warm weather chronic criterion to be exceeded.

Attachment B shows that the facility's effluent was significantly below any of these concentrations, with a maximum effluent value of 17 mg/l. Based upon this analysis, EPA has determined there is no reasonable potential for the discharge of ammonia to cause or contribute to an exceedance of the applicable water quality criteria.

Ammonia Nitrogen as N monitoring (both effluent and upstream) will continue to be required in the draft permit twice 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.

For metals with hardness-based water quality criteria, the criteria were determined using the equations in NH standards Env-Wq 1703.24, using the appropriate factors for the individual metals (see table below). The downstream hardness was calculated to be 10 mg/l as $CaCO_3$, using a mass balance equation with the design flow (3.0 mgd), receiving water 7Q10 (859.8 mgd), an upstream median hardness (10 mg/l as $CaCO_3$) and an effluent median hardness (55 mg/l as $CaCO_3$). Since this downstream hardness is below 25 mg/l, the 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 the factors used to

determine the acute and chronic total recoverable criteria for each metal.

Metal	Parameters				Total Recoverable Criteria	
	ma	ba	mc	bc	Acute Criteria (CMC) (ug/L)	Chronic Criteria (CCC) (ug/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.1280	-3.6867	0.7852	-2.7150	0.95	0.83
Copper	0.9422	-1.7000	0.8545	-1.702	3.79	2.85
Lead	1.273	-1.46	1.273	-4.705	13.98	0.54
Nickel	0.846	2.255	0.846	0.0584	145.21	16.14
Zinc	0.8473	0.884	0.8473	0.884	37.02	37.02

* Acute Criteria (CMC) = $\exp\{m_a*\ln(\text{hardness})+b_a\}$

** Chronic Criteria (CCC) = $\exp\{m_c*\ln(\text{hardness})+b_c\}$

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 = 3.0 mgd)
C_d = effluent metals concentration (95th percentile)
Q_S = stream flow upstream (7Q10 = 859.8 mgd)
C_S = median upstream metals concentration (See Attachment B)
Q_r = stream flow downstream, after discharge ($Q_r = Q_s + Q_d$ = 862.8 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	Q_d	C_d [1] (95th Percentile)	Q_s	C_s [2] (Median)	Qr	C_r	Criteria * 0.9		Acute Reasonable Potential	Chronic Reasonable Potential
	mgd	ug/l	mgd	ug/l	mgd	ug/l	Acute (ug/l)	Chronic (ug/l)	Cd & Cr > Criteria	Cd & Cr > Criteria
Aluminum	3	211.5	859.8	77.5	862.8	78.0	675	78.3	N	N
Cadmium		0		0		0.00	0.851	0.746	N	N
Copper		25.2		1		1.08	3.41	2.57	N	N
Lead		1.8		0		0.006	12.58	0.49	N	N
Nickel		7.3		0		0.03	130.69	14.53	N	N
Zinc		85.1		3		3.3	33.31	33.31	N	N

[1] Values represent the 95th percentile concentration from WET testing within the review period (see Attachment D).

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

As indicated in the table above, based on the 95th percentile 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. Monitoring and reporting for all metals will continue to be required as part of the WET tests.

The NHDES antidegration study (revised on November 7, 2013) also does not require a limit for any of the metals described above. However, the study does suggest that a "monitoring only" requirement for arsenic may be necessary. However, since the water quality criteria are too low for standard laboratory detection and all samples in the antidegradation study were non-detects, EPA has evaluated arsenic assuming zero as the background concentration. The maximum effluent concentration in the antidegradation study was 1.8 ug/l and the harmonic mean flow (applicable for human health criteria) was determined to be 2,159 cfs (using same period of record as for 7Q10 flow, 1963-2006). Applying these values to the same mass balance equation from above results in the following:

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

where:

Q_d = effluent flow (design flow = 3.0 mgd = 4.64 cfs)
C_d = effluent metals concentration (maximum = 1.8 ug/l)
Q_S = stream flow upstream (harmonic mean = 2,158.9 cfs)
C_S = median upstream metals concentration (assume zero)
Q_r = stream flow downstream, after discharge ($Q_r = Q_s + Q_d$ = 2,163.5 cfs)
C_r = downstream pollutant concentration

Solving for Cr results in a downstream pollutant concentration of 3.9 ng/l. Comparing this to the arsenic human health criteria for fish consumption of 140 ng/l indicates that there is no

reasonable potential for the discharge to cause or contribute to a violation of water quality standards. Hence, the draft permit does not contain a limit or monitoring requirement for arsenic.

Additionally, the Berlin PCF reported in their permit application a maximum mercury effluent concentration of 0.0002 mg/l (0.2 ug/l), based on 4 samples. Since this value is well below the mercury criteria of 1.4 ug/l (acute) and 0.77 ug/l (chronic), the facility does not have reasonable potential to cause or contribute to this impairment and a permit limit is not established in the draft permit.

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 such as those in the Gold Book and State regulations address individual chemicals, whereas, whole effluent toxicity (WET) approaches evaluate interactions between pollutants, thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "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 WET testing frequency and limits were carried forward from the 2008 permit. With a dilution factor greater than 100 (based on the 7Q10 and updated plant design flow), the Toxicity Strategy for Municipal Permits requires the testing frequency of two times per year.

This draft permit establishes the LC50 limit at ≥ 50%**,** meaning a sample of at least 50% effluent shall have no greater than a 50% mortality rate in that effluent sample. The permittee is required to collect and test effluent samples twice per year during calendar quarters ending September 30th and December 31st using two species, *Ceriodaphia dubia* (Daphnid) and *Pimephales promelas* (Fathead Minnow). As shown in Attachment B, the permittee has shown consistent compliance with these limits.

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).

Alternately, if a permittee has consistently demonstrated that its discharge, based on data for the most recent one-year period, or four sampling events, whichever yields the greater time period, causes no acute and chronic toxicity, the permitted limits will be considered eligible for a reduced frequency of toxicity testing. This reduction in testing frequency is evaluated on a case-by-case basis. Accordingly, a special condition has been carried forward from the 2008 permit into the draft permit that allows for a reduced frequency of WET testing. This permit provision anticipates the time when the permittee requests a reduction in WET testing that is approvable by both EPA-Region 1 and the NHDES-WD. As previously stated, EPA-Region 1's current policy is that after completion of a minimum of four consecutive WET tests all of which must be valid tests and must demonstrate compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to EPA-Region 1 seeking a review of the toxicity test results. EPA-Region 1's policy is to reduce the frequency of toxicity testing to no less than one (one-species) test per year. The permittee is required to continue testing at the frequency specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA-Region 1 indicating a change in the permit condition. This special condition does not negate the permittee's right to request a permit modification at any time prior to the permit expiration.

This draft permit, as in the 2008 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 to be reported on the appropriate DMR for entry into EPA's data base. EPA-Region 1 does not consider these reporting requirements an unnecessary burden as reporting these constituents is already required with the submission of each toxicity testing report.

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 Berlin Pollution Control Facility disposes of its sewage sludge, in the amount of 274 dry metric tons, at the Mt Carberry Secure solid waste landfill located in Berlin, NH. This landfill unit is regulated under 40 C.F.R. Part 258.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA-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 this section of the Androscoggin River which is classified by the State as a warm water fishery. According to New Hampshire Fish and Game Department (NHFGD), there is presently no Atlantic salmon stocking effort in the New Hampshire waters of the Androscoggin River, and there are no plans for stocking in the near future. The river is heavily managed for hydroelectric power. There are six dams located downstream and one within one mile of the facility. No provisions have been made for upstream or downstream fish passage at any of these dams. Hence, it is highly unlikely that the salmon will succeed in migrating within the vicinity of the Berlin Pollution Control Facility discharge given the lack of viable fish passage.

Additionally, 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 259.
- 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 twice per year on Daphnid (*Ceriodaphnia dubia*) and Fathead minnow *(Pimephales promelas);* current results of the toxicity tests are in compliance with the permit limits.

- The permit contains total residual chlorine limits more stringent than the water quality criteria-based limits and monitoring requirements for total recoverable arsenic.

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 Androscoggin 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.

V. Combined Sewer Overflows

A. Berlin's Combined Sewer System

The City of Berlin owns and operates a wastewater collection system comprised of 95 percent sanitary sewers, which carry domestic, commercial, and industrial wastewater; and 5 percent combined sewers, which carry domestic, industrial, and commercial wastewater plus stormwater runoff. According to the City of Berlin's July 2011 Sewer Collection System Operations and Maintenance Plans, the collection system covers a service area of 61.7 square miles, serves approximately 10,000 people, has 3,460 service connections, consists of seven pumping stations and over 900 sewer manholes. There is one (1) combined sewer overflow (CSO) outfall in the Berlin wastewater collection system and interceptor network (Outfall 002 at the Watson Street

Pump Station). During periods of heavy rainfall or snowmelt, the combined stormwater and sanitary wastewater volume in the sewer line exceeds the pumping capacity at the pump station resulting in discharges from the CSO outfall 002 to the Androscoggin River.

The 2008 permit authorizes this CSO (Outfall 002) subject to technology-based requirements (the nine minimum controls described in Part V.B. of this fact sheet) and to requirements that the discharges may not cause violations of water quality standards.

B. Regulatory Framework

As noted above, Section 301(b)(1)(C) of the CWA of 1977 mandated compliance with water quality standards by July 1, 1977. Technology-based permit limits must be established for CSOs for best conventional pollutant control technology ("BCT") and best available technology economically achievable ("BAT") based on best professional judgment ("BPJ") in accordance with Section 301(b) and Section 402(a) of the Water Quality Act Amendments of 1987 ("WQA"). Additionally, permit conditions must also achieve compliance with applicable state water quality standards.

The framework for compliance with Clean Water Act ("CWA") requirements for CSOs is set forth in EPA's National CSO Control Policy ("CSO Policy"), which was published in the Federal Register on April 19, 1994 (59 Fed. Reg. 18688) and sets forth the following objectives:

1. To ensure that if the CSO discharges occur, they are only as a result of wet weather,

2. To bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable federal and state water quality standards, and

3. To minimize water quality, aquatic biota, and human health impacts from wet weather flows.

Among the elements established to achieve these objectives, the CSO Policy set forth the minimum BCT/BAT controls (i.e., technology-based limits) that represent the BPJ of the Agency on a consistent, national basis. These are the Nine Minimum Controls ("NMCs") defined in the CSO Policy and set forth in Part I.B. of the draft permit: (1) proper operation and regular maintenance programs for the sewer system and the combined sewer overflows; (2) maximum use of the collection system for storage; (3) review and modification of the pretreatment programs to assure CSO impacts are minimized; (4) maximization of flow to the POTW for treatment; (5) prohibition of dry weather overflows; (6) control of solid and floatable materials in CSOs; (7) pollution prevention programs which focus on contaminant reduction activities; (8) public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and (9) monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

The CSO Policy recommends that each combined sewer system develop and implement a long-term CSO control plan ("LTCP") that will ultimately result in compliance with the requirements of the CWA. In June 1998, the City of Berlin submitted a report (dated June 8, 1998) documenting implementation of the Nine Minimum Controls for their one CSO discharge. Subsequently, EPA issued an Administrative Compliance Order by Consent (Docket No. 11-

004) in 2011 which required the City to submit a Scope of Work and Schedule for preparing a Long-Term CSO Control Plan ("LTCP SOW"), the submittal of a Collection System O&M Plan, and the submittal of quarterly progress reports. On September 30, 2014, Berlin submitted to EPA and NHDES a final draft CSO LTCP which is currently under review.

C. Permit Requirements

In accordance with the National CSO Policy, the draft permit contains the following conditions for the CSO discharges:

(i) Dry weather discharges from CSO outfalls are prohibited. Dry weather discharges must be immediately reported to EPA and NHDES.

(ii) During wet weather, the discharges must not cause any exceedance of water quality standards.

(iii) The permittee shall meet the technology-based Nine Minimum Controls described above and shall comply with the implementation levels as set forth in Part I.F. of the draft permit.

(iv) Discharges from CSO outfalls to non-tidal waters shall not exceed 1,000 colonies per 100 ml of *Escherichia coli* bacteria in accordance with the New Hampshire Surface Water Quality Regulations (See Env-Wq 1703.06(c)).

(v) The permittee shall review its entire NMC program and revise it as necessary. Documentation of this review and any resultant revisions made to the NMC program shall be submitted to EPA and NHDES **within 6 months of the effective date of the permit.** An annual report shall be provided by January 15th of each year which describes any subsequent revisions made to the NMC program and shall also include monitoring results from CSO discharges, and the status of CSO abatement projects.

D. Additional CSO Control Measures

The draft permit requires an annual certification no later than January 15th of each year that states that all discharges from the combined sewer outfall (Outfall 002) were recorded, and other appropriate records and reports maintained for the previous calendar year.

VI. Antidegradation

This draft permit is being reissued with limitations that are at least as stringent as those in the 2008 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) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure and, among other things, that the discharge will not cause the receiving water to violate NH standards or waives its right to certify as set forth in 40 C.F.R. §124.53.

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

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

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the CWA, Sections 208(e), 301, 302, 303, 306, and 307 and with 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:

Mr. Michael Cobb, 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:

Mr. Michael Cobb, 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) 918-1369
FAX No.: (617) 918-0369

February 2, 2015

_____

Date:

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

ATTACHMENT A – BPCF & CSO LOCATIONS

Aerial Photo (May 15, 1999) from www.terraserver.microsoft.com .

ATTACHMENT B – DMR SUMMARY

Outfall 001 – Effluent

Outfall 001	BOD	BOD	BOD	BOD	BOD	BOD	BOD
	661 lb/d	30 mg/L	991 lb/d	45 mg/L	1102 lb/d	50 mg/L	85 %
MP Date	MO AVG	MO AVG	WKLY AVG	WKLY AVG	DAILY MX	DAILY MX	MO AV MN
11/30/2009	113.	7.8	178.7	11.4	245.7	16.1	93.9
12/31/2009	143.9	7.3	313.2	9.6	442.3	12.8	93.6
01/31/2010	84.4	4.9	169.6	6.9	217.	8.8	96.2
02/28/2010	71.5	6.4	108.1	7.9	122.7	9.1	95.7
03/31/2010	389.2	11.6	**1380.8**	36.3	**2291.**	**67.**	**80.6**
04/30/2010	70.4	3.9	185.1	5.	109.1	7.4	95.6
05/31/2010	56.1	3.9	97.3	6.8	87.8	4.7	96.7
06/30/2010	57.1	4.6	81.4	5.6	84.4	6.5	96.5
07/31/2010	39.4	3.8	53.9	5.4	64.3	6.9	97.4
08/31/2010	84.1	6.3	146.6	7.7	252.5	11.8	94.4
09/30/2010	72.6	7.4	101.8	11.2	130.5	14.	95.3
10/31/2010	62.	4.3	87.5	7.6	119.4	9.3	96.1
11/30/2010	235.9	15.	328.6	22.4	372.5	31.	85.8
12/31/2010	330.7	16.1	576.5	33.4	723.1	35.8	**81.2**
01/31/2011	208.5	18.9	251.8	27.	261.8	27.7	85.3
02/28/2011	218.4	22.	347.2	33.7	382.2	37.3	85.4
03/31/2011	227.4	16.4	232.6	22.2	288.2	29.	85.2
04/30/2011	203.7	4.7	508.9	8.1	643.8	9.7	88.9
05/31/2011	68.8	3.4	101.9	5.	120.6	7.9	95.6
06/30/2011	43.8	3.2	76.1	3.1	77.1	4.5	97.5
07/31/2011	72.1	6.3	95.6	7.5	109.7	8.3	95.2
08/31/2011	38.04	3.54	45.2	4.8	60.6	5.	97.7
09/30/2011	61.4	5.12	59.5	5.5	123.3	13.44	95.7
10/31/2011	39.2	2.2	109.6	11.4	61.9	4.3	97.6
11/30/2011	99.	6.4	79.3	7.5	291.9	15.4	94.1
12/31/2011	212.7	14.4	289.1	20.4	293.6	20.9	**84.9**
01/31/2012	34.3	2.81	47.4	4.5	62.1	6.05	97.8
02/29/2012	27.	2.7	46.1	4.3	49.2	4.3	98.5
03/31/2012	42.7	2.5	76.4	3.1	79.3	3.2	97.8
04/30/2012	63.2	4.4	98.4	5.9	108.3	6.5	96.5
05/31/2012	105.	5.6	118.9	7.9	292.3	8.6	93.8
06/30/2012	148.72	9.47	203.4	17.9	271.6	24.1	89.4
07/31/2012	91.	8.62	130.13	11.67	168.	15.2	94.1
08/31/2012	98.28	8.97	110.	10.93	159.	15.8	92.9
09/30/2012	117.83	10.18	151.9	14.1	197.38	17.62	91.5
10/31/2012	142.8	10.7	255.6	21.6	273.3	22.9	90.2
11/30/2012	96.2	8.5	178.7	11.7	193.2	14.7	93.4
12/31/2012	95.	5.9	135.2	6.9	164.6	7.8	93.8
01/31/2013	96.3	7.89	191.9	11.6	311.8	19.47	93.1
02/28/2013	123.2	12.7	171.6	18.7	265.7	28.8	90.6
03/31/2013	224.	12.4	676.7	28.1	914.6	31.5	88.
04/30/2013	68.8	2.7	114.7	3.9	158.1	4.9	96.5

05/31/2013	231.7	15.3	741.	**51.4**	759.4	**61.**	86.1
06/30/2013	196.84	12.34	276.9	13.7	358.9	16.7	88.3
07/31/2013	510.91	**30.06**	799.2	36.5	996.4	48.4	**78.6**
08/31/2013	272.91	24.94	394.7	34.3	386.4	37.7	**84.4**
09/30/2013	187.38	14.	291.1	22.	375.3	27.6	89.1
10/31/2013	147.4	14.5	299.6	21.2	405.4	29.3	88.8
11/30/2013	326.8	**31.3**	539.9	**48.6**	852.2	**78.6**	**75.9**
12/31/2013	301.6	22.5	553.3	29.	703.3	32.7	**84.2**
01/31/2014	132.7	10.26	173.4	19.5	202.3	19.61	92.
02/28/2014	133.1	12.8	197.1	19.5	201.2	19.6	91.9
03/31/2014	91.7	7.9	138.2	12.	148.1	12.2	95.
04/30/2014	651.6	13.5	**2085.4**	34.9	**3168.**	**51.5**	**79.8**
05/31/2014	185.4	8.1	273.2	10.2	393.3	13.1	90.2
06/30/2014	79.9	5.82	90.1	6.5	93.	6.8	95.9
07/31/2014	118.9	7.97	186.8	13.9	189.2	14.4	93.4
08/31/2014	98.78	7.35	155.	13.4	180.3	16.	94.5
09/30/2014	110.27	10.25	149.8	13.1	159.1	15.3	95.6
10/31/2014	85.1	6.	113.2	9.8	125.3	10.6	96.6
Minimum	27.0	2.2	45.2	3.1	49.2	3.2	75.9
Maximum	651.6	31.3	2085.4	51.4	3168.0	78.6	98.5
Average	145.7	9.7	269.5	15.4	355.7	19.5	91.7
No. of Samples	60	60	60	60	60	60	60
No. of Violations	0	2	2	2	2	4	8

Outfall 001 – Effluent

Outfall 001	TSS	TSS	TSS	TSS	TSS	TSS	TSS
	661 lb/d	30 mg/L	991 lb/d	45 mg/L	1102 lb/d	50 mg/L	85 %
MP Date	MO AVG	MO AVG	WKLY AVG	WKLY AVG	DAILY MX	DAILY MX	MO AV MN
11/30/2009	48.6	3.5	75.4	4.6	88.	5.2	97.2
12/31/2009	76.8	3.7	198.3	6.2	221.	6.4	96.1
01/31/2010	51.4	2.6	125.9	3.4	185.5	4.4	97.7
02/28/2010	24.7	2.3	32.7	3.2	34.4	3.2	98.1
03/31/2010	392.6	11.6	1443.2	38.	2407.3	70.4	79.8
04/30/2010	65.9	3.4	169.8	4.6	119.6	5.6	96.7
05/31/2010	45.2	3.2	72.	4.8	81.8	4.8	97.4
06/30/2010	39.2	3.2	47.3	4.4	53.	4.8	97.7
07/31/2010	40.	3.8	46.	4.6	53.6	5.2	97.8
08/31/2010	28.8	2.3	43.7	2.8	51.4	4.	98.2
09/30/2010	29.18	3.	32.7	3.2	41.03	4.	98.1
10/31/2010	35.4	2.4	45.2	3.8	55.5	3.6	97.9
11/30/2010	43.4	2.9	65.3	3.4	88.1	3.6	97.2
12/31/2010	99.9	3.7	274.7	4.8	402.8	6.	95.7
01/31/2011	49.4	4.5	56.	6.	62.7	6.4	95.9
02/28/2011	51.3	5.3	61.	6.6	65.5	7.2	96.1
03/31/2011	60.3	3.1	92.4	4.4	116.3	5.6	96.4
04/30/2011	158.3	3.5	381.9	6.	556.9	8.4	91.5
05/31/2011	69.4	3.1	117.2	4.2	127.	7.2	96.2
06/30/2011	50.3	3.3	130.9	4.4	143.1	5.2	97.4
07/31/2011	53.3	4.45	90.8	5.8	103.2	6.8	96.8
08/31/2011	33.92	2.98	39.3	3.8	72.9	4.8	98.
09/30/2011	44.65	2.62	122.8	5.	134.61	6.	98.
10/31/2011	38.	2.2	56.7	3.2	77.1	3.6	98.1
11/30/2011	34.	2.2	24.4	2.	115.7	4.8	98.
12/31/2011	45.8	2.6	99.7	4.6	126.5	5.6	97.7
01/31/2012	33.4	2.6	43.8	2.8	46.5	2.8	97.8
02/29/2012	25.1	2.5	27.8	2.6	35.1	3.6	98.4
03/31/2012	48.4	2.8	92.6	3.8	104.6	4.4	97.
04/30/2012	65.4	3.9	152.5	5.6	196.4	6.4	97.
05/31/2012	58.9	3.	62.6	3.8	190.1	5.6	97.
06/30/2012	52.53	3.	104.2	3.2	70.9	4.	97.
07/31/2012	38.07	3.64	52.94	5.	57.2	5.2	97.9
08/31/2012	52.86	4.62	89.25	6.6	120.5	9.2	96.8
09/30/2012	57.68	5.05	63.	5.6	67.65	6.	96.6
10/31/2012	71.7	4.7	75.8	6.4	158.8	8.	96.3
11/30/2012	20.4	1.9	157.8	5.8	29.8	2.8	98.7
12/31/2012	62.2	3.9	100.6	5.2	109.7	5.2	97.3
01/31/2013	40.1	3.3	65.	6.2	116.8	11.2	97.5
02/28/2013	28.9	2.9	45.9	5.	58.7	6.4	98.
03/31/2013	52.1	3.1	150.2	6.8	177.7	8.8	97.8
04/30/2013	42.3	1.6	65.1	2.6	130.1	4.	97.8
05/31/2013	273.9	17.4	1042.2	69.	1290.9	71.	85.2
06/30/2013	106.26	6.6	175.5	9.	193.4	9.6	94.1

07/31/2013	314.3	14.94	895.7	29.	938.3	33.	92.8
08/31/2013	115.55	11.15	126.83	12.8	164.1	16.	94.6
09/30/2013	89.13	6.5	131.5	10.	141.4	10.4	95.6
10/31/2013	50.8	5.1	95.	6.6	106.9	9.2	97.2
11/30/2013	169.2	16.3	323.6	28.	365.3	32.	89.4
12/31/2013	75.	5.2	150.9	7.	232.6	8.4	97.
01/31/2014	80.9	5.7	135.8	10.8	180.1	10.8	95.7
02/28/2014	79.3	7.7	157.1	15.6	165.3	16.8	96.1
03/31/2014	50.1	4.2	86.3	7.6	92.5	8.8	97.7
04/30/2014	**1306.7**	24.8	**4226.4**	**71.**	**6154.9**	**100.**	**70.4**
05/31/2014	184.8	7.8	297.5	9.6	468.4	15.6	93.2
06/30/2014	61.14	4.35	85.2	5.4	115.1	7.6	97.4
07/31/2014	82.25	5.32	88.8	6.8	106.	9.6	96.3
08/31/2014	79.32	5.91	143.7	12.4	157.6	14.	96.
09/30/2014	68.49	6.4	97.9	8.6	108.4	10.4	97.9
10/31/2014	60.2	4.2	77.9	6.8	78.9	5.6	98.2
Minimum	20.4	1.6	24.4	2.0	29.8	2.8	70.4
Maximum	1306.7	24.8	4226.4	71.0	6154.9	100.0	98.7
Average	95.1	5.1	227.2	9.2	305.3	11.4	95.8
No. of Samples	60	60	60	60	60	60	60
No. of Violations	1	0	3	2	3	3	2

Outfall 001 – Effluent

Outfall 001	TRC	TRC	E. coli	E. coli	Flow	Flow	pH	pH
	1 mg/L	1 mg/L	126 #/100mL	406 #/100mL	MGD	MGD	6.5 SU	8 SU
MP Date	MO AVG	DAILY MX	MO GEO	DAILY MX	MO AVG	DAILY MX	MINIMUM	MAXIMUM
11/30/2009	0.47	0.85	21.9	488.4	1.98	5.3	6.5	7.19
12/31/2009	0.44	0.75	6.3	154.1	2.1	4.33	6.54	7.2
01/31/2010	0.34	0.69	1.2	4.1	1.61	5.56	6.56	6.95
02/28/2010	0.24	0.45	1.	1.	1.45	3.62	6.51	6.83
03/31/2010	0.41	0.79	4.	157.6	3.58	10.26	6.52	7.09
04/30/2010	0.44	0.64	5.6	980.4	2.76	6.13	6.53	6.96
05/31/2010	0.36	0.78	4.14	33.6	1.73	2.85	6.5	6.86
06/30/2010	0.34	0.86	4.76	209.8	1.47	2.98	6.53	6.91
07/31/2010	0.42	0.8	1.41	7.5	1.39	2.4	6.5	7.11
08/31/2010	0.55	0.92	20.1	1732.9	1.4	2.57	6.6	7.17
09/30/2010	0.59	0.91	16.46	307.6	1.19	1.55	6.58	7.23
10/31/2010	0.37	0.59	4.5	24.3	2.05	4.41	6.57	6.99
11/30/2010	0.48	0.91	2.2	86.	2.03	4.4	6.5	7.02
12/31/2010	0.35	0.86	8.4	275.5	2.58	8.05	6.65	7.16
01/31/2011	0.38	0.79	1.6	14.6	1.35	2.17	6.52	7.17
02/28/2011	0.4	0.73	1.1	3.1	1.18	1.69	6.58	7.08
03/31/2011	0.45	0.88	1.2	4.1	2.58	6.94	6.5	7.06
04/30/2011	0.42	0.83	3.05	12.1	3.99	7.96	6.5	6.82
05/31/2011	0.53	0.94	2.15	10.8	2.68	4.65	6.57	6.98
06/30/2011	0.52	0.93	4.2	59.4	1.75	3.3	6.51	6.93
07/31/2011	0.43	0.89	12.9	1732.9	1.28	2.21	6.52	6.98
08/31/2011	0.57	0.93	5.2	53.7	1.58	7.94	6.78	7.16
09/30/2011	0.47	0.91	2.1	18.5	1.64	3.33	6.65	7.26
10/31/2011	0.46	0.97	1.7	36.7	2.2	6.28	6.62	7.07
11/30/2011	0.47	0.77	1.99	77.6	1.58	2.89	6.5	7.
12/31/2011	0.49	0.98	1.6	112.5	2.	3.65	6.65	7.42
01/31/2012	0.58	0.96	4.	84.2	1.41	1.99	7.06	7.48
02/29/2012	0.44	0.68	1.1	2.5	1.19	1.42	7.05	7.43
03/31/2012	0.46	0.94	3.	78.8	2.03	3.68	6.6	7.37
04/30/2012	0.46	0.96	1.87	165.8	1.83	6.05	6.67	7.4
05/31/2012	0.57	0.96	11.06	131.4	1.89	4.07	6.79	7.33
06/30/2012	0.41	0.94	10.48	1986.3	2.12	5.02	6.61	7.48
07/31/2012	0.47	0.93	3.61	36.8	1.16	1.51	6.91	7.63
08/31/2012	0.418	0.93	9.66	275.5	1.53	3.5	7.04	7.66
09/30/2012	0.38	0.9	11.5	183.5	1.43	2.22	7.12	7.44
10/31/2012	0.59	0.92	13.3	365.4	1.48	5.29	6.62	7.41
11/30/2012	0.63	0.94	8.29	79.4	1.53	4.4	6.57	7.08
12/31/2012	0.48	0.83	25.7	686.7	1.91	6.45	6.58	7.24
01/31/2013	0.58	0.91	2.3	547.5	1.39	2.26	6.81	7.21
02/28/2013	0.45	1.19	1.1	2.	1.41	4.73	6.72	7.27
03/31/2013	0.46	0.96	17.4	920.8	1.76	4.44	6.82	7.24
04/30/2013	0.45	0.9	39.77	2419.6	2.53	3.9	6.77	7.16
05/31/2013	0.45	0.96	65.42	2419.6	2.05	7.72	6.92	7.33
06/30/2013	0.46	0.89	13.61	461.1	1.81	2.76	7.02	7.43

07/31/2013	0.39	0.94	75.76	**2419.6**	1.87	4.5	6.5	7.39
08/31/2013	0.49	0.94	69.4	**2419.9**	1.34	2.67	6.51	7.14
09/30/2013	0.55	0.89	43.67	**2419.6**	1.77	3.29	6.52	7.09
10/31/2013	0.58	0.94	**201.2**	**2419.6**	1.32	2.91	6.71	7.43
11/30/2013	0.55	0.98	44.7	**980.4**	1.46	2.77	6.76	7.52
12/31/2013	0.56	0.97	71.3	**2419.6**	1.37	3.32	7.06	7.54
01/31/2014	0.59	0.99	**163.1**	**2419.6**	1.58	2.98	7.09	7.54
02/28/2014	0.32	0.92	4.8	185.	1.28	1.56	7.21	7.54
03/31/2014	.11	.9	1.2	7.4	1.42	2.62	7.13	7.62
04/30/2014	.168	.96	8.43	**2419.6**	3.97	8.38	6.94	7.46
05/31/2014	.082	.88	1.46	10.9	2.7	4.22	6.62	7.17
06/30/2014	.27	.89	1.23	3.1	1.74	2.66	6.65	6.9
07/31/2014	.56	.71	2.91	292.4	1.82	2.99	6.57	7.27
08/31/2014	.58	.91	13.75	**2419.8**	1.73	3.79	6.58	7.09
09/30/2014	.57	.89	16.22	**1732.9**	1.29	1.54	6.62	7.
10/31/2014	.67	.97	3.6	14.5	1.8	3.68	6.59	7.06
Minimum	0.1	0.5	1.0	1.0	1.2	1.4	6.5	--
Maximum	0.7	1.2	201.2	2419.9	4.0	10.3	--	7.7
Average	0.5	0.9	18.4	667.2	1.8	4.	6.7	7.2
No. of Samples	60	60	60	60	60	60	60	60
No. of Violations	0	1	2	21	N/A	N/A	0	0

Outfall 001 – Effluent

WET Test	Al	Cd	Cr	Cu	Pb	Ni	Zn	Hardness	Ammonia N as N	LC50 Acute Ceriodaphnia	LC50 Acute Pimephales
Effluent	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	**50 %**	**50 %**
MP Date	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MX**	**DAILY MN**	**DAILY MN**
12/31/2009	0.09	0.	0.	0.012	0.	0.	0.016	55.	5.2	100.	100.
09/30/2010	0.03	0.	0.	0.011	0.	0.	0.017	41.	7.5	100.	100.
12/31/2010	0.066	0.	0.	0.017	0.001	0.	0.021	44.	6.	100.	100.
09/30/2011	0.036	0.	0.	0.007	0.	0.	0.0014	45.	3.9	100.	100.
12/31/2011	0.062	0.	0.	0.015	0.0009	0.	0.018	44.	3.5	100.	100.
09/30/2012	0.069	0.	0.002	0.011	0.	0.006	0.016	68.	17.	100.	100.
12/31/2012	0.05	0.	0.002	0.019	0.	0.007	0.019	60.	10.	100.	100.
09/30/2013	0.12	0.	0.002	0.017	0.0007	0.007	0.022	62.	7.8	100.	100.
12/31/2013	0.32	0.	0.003	0.024	0.002	0.007	0.037	68.	15.	100.	100.
09/30/2014	0.061	0.	0.002	0.016	0.	0.006	0.06	72.	3.8	100.	100.
Minimum	0.0300	0.0000	0.0000	0.0070	0.0000	0.0000	0.0014	41.0	3.5	100.0	100.0
Maximum	0.3200	0.0000	0.0030	0.0240	0.0020	0.0070	0.0600	72.0	17.0	100.0	100.0
Average	0.0904	0.	0.0011	0.0149	0.0005	0.0033	0.0227	55.9	8.	100.	100.
No. of Samples	10	10	10	10	10	10	10	10	10	10	10
95th Percentile	0.2115	0	0.0027	0.0252	0.0018	0.0073	0.0851	--	--	--	--

Upstream Receiving Water (Androscoggin River)

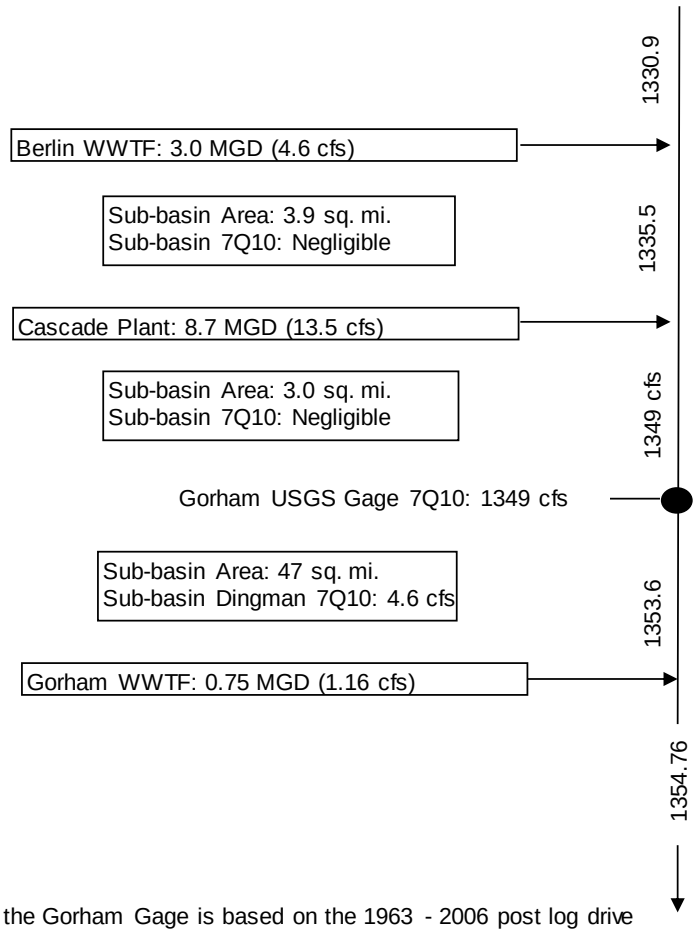
WET Test	Al	Cd	Cr	Cu	Pb	Ni	Zn	Hardness	Ammonia N as N
Upstream	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MP Date	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX	DAILY MX
12/31/2009	0.39	0.	--	0.005	0.0006	0.	0.01	8.9	0.
09/30/2010	0.082	0.	0.	0.003	0.	0.	0.002	11.	0.
12/31/2010	0.073	0.	0.	0.	0.	0.	0.003	9.9	0.
09/30/2011	0.056	0.	0.	0.	0.	0.	0.	10.	0.
12/31/2011	0.24	0.	0.	0.006	0.0007	0.	0.007	10.	0.
09/30/2012	0.054	0.	0.	0.	0.	0.	0.	10.	0.
12/31/2012	0.058	0.	0.	0.005	0.	0.	0.003	10.	0.
09/30/2013	0.061	0.	0.	0.002	0.	0.	0.003	10.	0.
12/31/2013	0.099	0.	0.	0.	0.	0.	0.003	11.	0.
09/30/2014	0.091	0.	0.	0.	0.	0.	0.	10.	0.
Median	0.0775	0.	0.	0.001	0.	0.	0.003	10.	0.
No. of Samples	10	10	9	10	10	10	10	10	10

Outfall 002 – CSO Discharge

CSO	E. coli
Outfall 002	1000 #/100mL
MP Date	DAILY MX
12/31/2009	Analysis Not Conducted
12/31/2010	122830.
12/31/2011	167445.
12/31/2012	No discharge events recorded
12/31/2013	No discharge events recorded
Minimum	0.0
Maximum	167445.0
Average	96758.3
No. of Samples	3
No. of Violations	3

ATTACHMENT C – SUMMARY OF 7Q10 FLOWS

7Q10 Estimate Summary
Berlin and Gorham NPDES Discharges



Notes:
The 7Q10 at the Gorham Gage is based on the 1963 - 2006 post log drive period of record.

The 7Q10 flows from the sub-basin areas upstream of the Gorham Gage are assumed to be negligible (see above), and the 7Q10 values shown are not adjusted to correct for drainage area differences.

The 7Q10 flow from the sub-basin between the Gorham Gage and the Gorham POTW is estimated to be 4.6 cfs. Other than Gorham's water supply withdrawals, there are no consumptive withdrawals in this sub-basin.

ATTACHMENT D – STATISTICAL APPROACH FOR METALS (N ≥ 10)

EPA bases its determination of "reasonable potential" on a characterization of the upper bound of expected effluent concentrations based on a statistical analysis of the available monitoring data. As noted in the *Technical Support Document for Water Quality Based Toxics Control* (EPA 1991) ("TSD"), "[a]ll monitoring data, including results for concentrations of individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty." Thus with a limited data set, the maximum concentration that has been found in the samples may not reflect the full range of effluent concentration.

To account for this, EPA has developed a statistical approach to characterizing effluent variability when the monitoring dataset includes 10 or more samples.1 As "experience has shown that daily pollutant discharges are generally lognormally distributed," *TSD* at App. E, EPA uses a lognormal distribution to model the shape of the observed data, unless analysis indicates a different distributional model provides a better fit to the data. The model parameters (mean and variance) are derived from the monitoring data. The model parameter μ is the mean of the natural logs of the monitoring data values, while σ is the standard deviation of the natural logs of the monitoring data values.

The lognormal distribution generally provides a good fit to environmental data because it is bounded on the lower end (i.e. you cannot have pollutant concentrations less than zero) and is positively skewed. It also has the practical benefit that if an original lognormal data set X is logarithmically transformed (i.e. Y = ln[X]) the resulting variable Y will be normally distributed. Then the upper percentile expected values of X can be calculated using the z-score of the standardized normal distribution (i.e. the normal distribution with mean = 0 and variance = 1), a common and relatively simple statistical calculation. The p^{th} percentile of X is estimated by

$$X_p = \exp(\mu_y + z_p \times \sigma_y),$$

where μ_y = mean of Y
σ_y = standard deviation of Y
Y = ln[X]
z_p = the z-score for percentile "p"

For the 95^{th} percentile, $z_{95} = 1.645$, so that

$$X_{95} = \exp(\mu_y + 1.645 \times \sigma_y)$$

The 95th percentile value is used to determine whether a discharge has a reasonable potential to cause or contribute to an exceedance of a water quality standard. The combination of the upper bound effluent concentration with dilution in the receiving water is calculated to determine whether the water quality criteria will be exceeded.

Datasets including non-detect values

1 A different statistical approach is applied where the monitoring data set includes less than 10 samples.

The *TSD* also includes a procedure for determining such percentiles when the dataset includes non-detect results, based on a delta-lognormal distribution. In the delta-lognormal procedures, nondetect values are weighted in proportion to their occurrence in the data. The values above the detection limit are assumed to be lognormally distributed values.

The statistical derivation of the delta-lognormal upper bounds is quite complex and is set forth in the TSD at Appendix E. Calculation of the 95th percentile of the distribution, however, involves a relatively straightforward adjustment of the equations given above for the lognormal distribution, as follows.

For the deltalognormal, the pth percentile of X, referred to here as X_p*, is given by

$$X_p^* = \exp(\mu_y^* + z_p^* \times \sigma_y^*),$$

where μ_y*= mean of Y values for data points above the detection limit;
σ_y*= standard deviation of Y for data points above the detection limit;
Y = ln[X*];
X*= monitoring data above detection limit; and
z_p* = an adjusted z score that is given by the equation:

$$z_p^* = \text{z-score}[(p - \delta)/(1 - \delta)]$$

where δ is the proportion of nondetects in the monitoring dataset.

k = total number of dataset
r = number of nondetect values in the dataset
δ = r/k

For the 95th percentile, this takes the form of z_p* = z-score[(.95 – δ)/(1 - δ)]. The resulting values of z_p* for various values of δ is set forth in the table below; the calculation is easily performed in excel or other spreadsheet programs.

Example calculations of z_p* for 95th percentile

δ	(0.95 - δ)/ (1 - δ)	z_p*
0	0.95	1.645
0.1	0.94	1.593
0.3	0.93	1.465
0.5	0.90	1.282
0.7	0.83	0.967

RESPONSE TO COMMENTS
REISSUANCE OF NPDES PERMIT NO. NH0100013
CITY OF BERLIN
BERLIN POLLUTION CONTROL FACILITY
BERLIN, NEW HAMPSHIRE

From March 10, 2015 through April 8, 2015, Region 1 of the U.S. Environmental Protection Agency (EPA or Region 1) and the New Hampshire Department of Environmental Services, Water Division (NHDES) solicited public comments on the draft National Pollutant Discharge Elimination System (NPDES) permit to be reissued to the City of Berlin, New Hampshire (the "Permittee").

Region 1 and NHDES received comments from the Permittee, the City of Berlin, which were submitted April 6, 2015. Below are the comments received and EPA's responses to those comments.

A copy of the final permit may be obtained by writing or calling Michael Cobb, United States Environmental Protection Agency, 5 Post Office Square, Suite 100 (Mail Code: OEP06-1), Boston, Massachusetts 02109-3912; Telephone (617) 918-1369. Copies may also be obtained from the EPA Region 1 web site at http://www.epa.gov/region1/npdes/index.html.

COMMENTS FROM THE CITY OF BERLIN

Comment 1:

> **Applicant Name:** The current City Manager is James Wheeler – correct the Public Notice.

EPA's Response 1:

Although the Public Notice cannot be modified at this time, EPA's records have been updated to list James Wheeler as the Berlin City Manager and permittee. Please excuse the use of outdated contact information in the Public Notice and EPA appreciates receiving the updated contact information for future use.

Comment 2:

> **PART I, Section A – EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, Item 1.a.**: Add note below the discharge limits table, **"See pages 4 and 5 for footnotes"**.

EPA's Response 2:

This note has been added to the final permit for clarity. Footnotes for requirements in Sections I.A.1.a and I.A.1.b are both found on pages 4 and 5 of the final permit.

Comment 3:

> **Total Phosphorus Monitoring Requirements:** The draft permit includes a requirement to monitor effluent total phosphorus levels 2/month during the period April 1 – October 31. The Fact Sheet indicates that the requirement to monitor phosphorus is in response to the MEDEP Androscoggin River TMDL report recommendations. We request that the frequency be reduced to 1/month. The basis of this request is comparison to the Hooksett, NH permit (**NH0100129**) which is also required to monitor effluent total phosphorus, but at a frequency of only 1/month.

EPA's Response 3:

The MEDEP Androscoggin River TMDL does not specify a recommended monitoring frequency for total phosphorus. The Rumford-Mexico Sewerage District POTW, which was also recommended for monitoring only in the TMDL, has a monitoring frequency for phosphorus of once per month. EPA believes once per month frequency is adequate and consistent with the TMDL as well as the comparable downstream dischargers. Hence, this request has been granted and the final permit has been updated to require once per month monitoring for total phosphorus.

Comment 4:

> **Design Flow:** Throughout the Fact Sheet there are numerous references to the Berlin Pollution Control Facility (BPCF) design flow being 2.64 million gallons per day (mgd). As a result of the recent upgrade to the facility the design flow is actually 3.0 mgd. All applicable references to 2.64 mgd design flow should be changed to 3.0 mgd.

EPA's Response 4:

In the fact sheet, the design flow from the 2008 permit of 2.64 mgd is mentioned in three sections (I, IV.C, and IV.D.1). In each of these sections it is clearly indicated that the 2.64 mgd design flow is being replaced with a new design flow of 3.0 mgd in this permit reissuance. In one of those sections (IV.D.1), the 2.64 mgd design flow is used in the limit calculation because the permittee is required to hold the existing mass loads for BOD_5 and TSS and these loads were based on the 2.64 mgd design flow. Hence, EPA believes the fact sheet is accurate in representing the design flow and the corresponding limits in the draft permit.

Comment 5:

> **Flow:** The draft permit includes a new discharge limitation for Effluent Flow of 3.0 mgd on an annual average basis to be reported on a 12-month rolling average. The imposition of a flow limit appears to be a new EPA permit writing development with no precedent in the State of New Hampshire. We do not understand the necessity of a flow limit because we see no direct correlation between the volume of water discharged and the resulting pollutant levels in the receiving water. Receiving water quality is adequately protected by the imposition of actual pollutant mass limits, and therefore an additional limit on

effluent flow is unnecessary. We do not agree with the Fact Sheet justification for imposing the limit, and we think that EPA is unnecessarily exceeding its regulatory responsibility to protect water quality. The imposition of a flow limit is essentially regulating the discharge of water to the river and in effect reclassifying water as a pollutant.

The Fact Sheet on Page 8 of 39, fourth full paragraph, states that imposition of a flow limitation is necessary to ensure proper facility operation by making sure it operates within its design flow. The EPA may define the "design flow" as an annual average flow; however, the unit treatment processes in a wastewater treatment facility are actually designed for flows much higher than the average flow. It should also be noted that factors other than flow also factor in to the design of a wastewater treatment facility. These factors include organic and nutrient loading and temperature. It is incorrect for EPA to assert that any wastewater treatment facility has a distinct 12-month annual average design flow capacity rating and it is misguided to impose a 12-month rolling average flow limit as a means to ensure the facility operates within its design flow.

Further, in Section A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued), Item 5, the City must submit to EPA 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 when the effluent discharged for a period of 3 consecutive months exceeds 80 percent of the 3.0 mgd design flow (2.4 mgd).

The City of Berlin understands and appreciates the value of protecting water quality and we fully support regulatory measures that are necessary to maintain the quality of our waters at the highest level achievable. We support many of EPA's efforts to impose certain requirements that go beyond strictly effluent performance based discharge standards, such as operator licensing and backup power system requirements. The necessity of these requirements is obvious. EPA asserts in the Fact Sheet that imposition of a flow limit is similarly necessary to ensure proper facility operation. However, as we have explained above, imposition of an annual average flow limit will have no direct impact on facility operations, and will add another level of potential non-compliance. Therefore, we request that EPA reconsider imposition of an annual average flow limit in this permit.

EPA's Response 5:

The Town mistakenly contends that the Region sought to limit flow from the Berlin Pollution Control Facility (PCF) on the basis that the "discharge of water to the river," in and of itself, was a "pollutant" whose discharge could be regulated under the Clean Water Act (the Act). Contrary to the commenter's rendition, conditions imposed by the Region to limit wastewater effluent flows from the Berlin PCF for the permit term are designed to assure that the facility's pollutant discharges do not result in excursions above in-stream water quality criteria, in accordance with section 301(b)(1)(C) of the Act and implementing regulations. See Section I.A.1, supra; 40 C.F.R. §§ 122.4(d), 122.44(d)(1), 122.44(d)(1)(vii)(A), 122.44(d)(5). The Region nowhere

suggested that it was attempting to regulate the flow of water *per se*. Rather, the flow limit was related to ensuring that WQS would be met. More specifically, EPA based its reasonable potential calculations on a presumed maximum effluent discharge of 3.0 mgd, or the design flow of the Berlin facility, and critical receiving water flow, or 7Q10.[1] See fact sheet at 9, 11, 14, 17-19. From the standpoint of EPA's section 301(b)(1)(C) analyses, the use of design flow as a worst-case condition was an integral "constant." Should the discharge flow exceed the flow assumed in these calculations, the instream dilution would decrease and the pollutants that did not have the reasonable potential to exceed water quality standards (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 remain sound for the duration of the permit, the Region backstopped its "worst-case" effluent wastewater flow assumption through imposition of a permit condition. The flow limit is thus a component of water quality quality-based effluent limitations ("WQBELs"), because WQBELs are premised on a maximum level of flow.

The Region is prohibited from issuing a permit "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements." 40 C.F.R. § 122.4(d). Establishing a flow limit in the permit provides certainty that the assumptions underlying permit determinations remain accurate and protective, which in turn, effectuates the Region's obligations under NPDES regulations to 'assure' compliance with WQS under Section 301(b)(1)(C) of the Act. The Region's approach is consistent with Congress's grant to EPA of "broad discretion to establish conditions for NPDES permits" in order to achieve the statutory mandate of establishing effluent limitations to attain and maintain WQS. Arkansas v. Oklahoma, 503 U.S. 91, 105-06 (1992); see also Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369, 1380 (D.C. Cir. 1977) (recognizing the "considerable flexibility" afforded EPA under section 402 of the Act "in framing the permit to achieve a desired reduction in pollutant discharges").

Furthermore, EPA agrees with the commenter that "factors other than flow also factor in to the design of a wastewater treatment facility…includ[ing] organic and nutrient loading and temperature." EPA believes that the variability of all of these design factors are taken into account by establishing the flow limit as a 12-month rolling average.

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[1] As described in Section IV.C (pages 7-8) of the fact sheet, EPA may use design flow to both determine the necessity for effluent limitations in the permit that comply with the Act, and to calculate the limits themselves. 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

Comment 6:

> **Collection of Annual CSO Sample (**PART I, Section A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued), Item 1 FOOTNOTE 11)**:** The City would like some flexibility on the timing of collecting a sample from CSO (Outfall 002). The CSO frequency is small and it takes time to recognize a CSO event, mobilize to the CSO and be ready to grab a sample at exactly "one-half hour" after it starts discharging. The City would like to request some flexibility in this requirement. We would suggest substituting "between 30 and 60 minutes after the outfall starts discharging" for "one-half hour after the outfall starts discharging." The City will endeavor to sample as close to one-half hour after the discharge starts, but does not want to be in violation of the permit if the sample is taken after the 30 minutes has expired.

EPA's Response 6:

EPA recognizes that the CSO is small and it may be difficult for the permittee to recognize a CSO discharge event and mobilize to collect a sample immediately after discharge in some cases. Therefore, the language in the footnote 11 has been adjusted in the final permit to say "One grab sample shall be obtained ***as closely as possible to*** one-half hour after the outfall starts discharging." [Emphasis added] EPA believes this will provide the permittee with enough flexibility to collect the sample adequately and not be in violation of the permit.