APR 1 6 2007 BY

In Re:

CITY OF PORTSMOUTH, NEW HAMPSHIRE PUBLICLY OWNED TREATMENT WORKS, APPLICATION FOR SECTION 301(h) VARIANCE FROM THE SECONDARY TREATMENT REQUIREMENTS OF THE CLEAN WATER ACT

FINAL DECISION OF THE REGIONAL ADMINISTRATOR PURSUANT TO 40 CFR PART 125, SUBPART G

It is my final decision to deny a Section 301(h) waiver from the secondary treatment provisions of the Clean Water Act, as amended. This office previously had issued a tentative decision to deny the waiver. This tentative decision, and draft permit with fact sheet and other attachments were public-noticed for comment on July 25, 2006. See "Tentative Decision of the Regional Administrator Pursuant to 40 CFR Part 125, Subpart G". EPA received and subsequently responded to many public comments regarding the draft documents. However, EPA did not receive any comment that resulted in changing any of the conclusions and/or findings set forth in the "Tentative Decision" to deny Portsmouth's Section 301(h) application.

Therefore, based on the analysis set forth in the "Tentative Decision" and the lack of comment contesting that decision, it is my final decision that the City of Portsmouth, NH be denied a Section 301(h) waiver. A final permit imposing secondary treatment effluent limits and other pertinent conditions will be issued along with a "Response to Comments" document that sets forth the response to the comments received on the draft permit.

Date: April 10, 2007

~ + W).

Robert W. Varney Regional Administrator Environmental Protection Agency Region I



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

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 12, 2007

John P. Bohenko, City Manager City of Portsmouth City Hall One Junkins Avenue Portsmouth, NH 03801

Re: NPDES Permit No. NH0100234 (for) The Peirce Island Wastewater Treatment Plant

Dear Mr. Bohenko:

Enclosed is your final National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Clean Water Act (the "Federal Act"), as amended, and the State of New Hampshire, Surface Water Quality Regulations, Chapter 1700, as amended. The Environmental Permit Regulations, at 40 C.F.R. §124.15, 48 Fed. Reg. 14271 (April 1, 1983), require this permit to become effective on the date specified in the permit.

Also enclosed is a copy of the New Hampshire State Water Quality Certification for your final permit, the EPA's response to the comments received on the draft permit, Part II General Conditions, and information relative to appeals and stays of NPDES permits. Should you desire to contest any provision of the permit, you must submit a petition to the Environmental Appeals Board as outlined in the enclosure.

We appreciate your cooperation throughout the development of this permit. Should you have any questions concerning the permit, please contact Damien Houlihan at 617-918-1586.

Sincerely,

Roger A. Janson, Chief NPDES Municipal Permits Branch Office of Ecosystem Protection

Enclosures: Final Permit, NH State Water Quality Certification, Response to Comments, Part II General Conditions, Appeals Information

cc: New Hampshire Department of Environmental Services, Water Division

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 Portsmouth

is authorized to discharge from the Wastewater Treatment Plant located at

Peirce Island Portsmouth, New Hampshire

and from Combined Sewer Overflows located at

010A & 010B (Parrot Avenue), 012 (Marcy Street), 013 (Deer Street)

to receiving water(s) named

Piscataqua River and South Mill Pond (to the Piscataqua River)

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on the first day of the calendar month following 60 days after signature.

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

This permit supersedes the permit issued on January 18, 1985.

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements; Whole Effluent Toxicity Protocol in Attachment A (7 pages); 1 page in Attachment B; Sludge Compliance Guidance (48 pages); and 25 pages in Part II including General Conditions and Definitions.

Signed this lot day of APRIL, 2007

Stephen S. Perkins, Director Office of Ecosystem Protection U.S. Environmental Protection Agency (EPA) Boston, Massachusetts

PART I.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number 001 (treated wastewater effluent) to the Piscataqua River. Such discharge 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 is representative of the discharge.

	Discharge Limitations			Monitoring Requirements	
Effluent Characteristic	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Flow ¹ , MGD	Report		Report	Continuous	Recorder
BOD ₅ , Effluent ² , mg/l (lbs/day)	30 (1201)	45 (1801)	50 (2002)	2/Week	24-Hour Composite
BOD ₅ , Influent ² , mg/l	Report			2/Month	24-Hour Composite
TSS, Effluent ² , mg/l (lbs/day)	30 (1201)	45 (1801)	50 (2002)	2/Week	24-Hour Composite
TSS, Influent ² , mg/l	Report			2/Month	24-Hour Composite
pH Range ³ , Standard Units	6.0 - 8.0		1/Day	Grab	
Total Residual Chlorine ^{4, 5} , mg/l	0.33		0.57	Continuous	Recorder
Fecal Coliform ^{3, 4, 6} , %			Report ⁶	1/Day	Grab
Fecal Coliform ^{3, 4, 6} , MPN/100 ml	14			1/Day	Grab
Enterococci Bacteria ^{4,7} , Colonies/100 ml	Report		Report	2/Week	Grab

See pages 4 and 5 for explanation of superscripts

Part I.A.1, Continued

		Monitoring Requirements		
Effluent Characteristic	Maximum Daily	Measurement Frequency	Sample Type	
Whole Effluent Toxicity ^{8,9} , LC ₅₀ , % Effluent	100	1/Quarter	24-Hour Composite	
Ammonia Nitrogen as Nitrogen ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Aluminum ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Cadmium ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Chromium ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Copper ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Lead ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Nickel ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	
Total Recoverable Zinc ¹⁰ ; mg/l	Report	1/Quarter	24-Hour Composite	

See pages 4, 5 and 6 for explanation of superscripts

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PART I.

EXPLANATION OF SUPERSCRIPTS TO PART I.A.1:

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

²The influent concentrations of both BOD₅ and TSS shall be monitored at a minimum of two times per month (2/month) for outfall 001 using a 24-Hour composite sample. The influent 24-Hour composite sample should be initiated prior to the 24-Hour composite sample required for effluent monitoring. The effluent concentrations of both BOD₅ and TSS shall be monitored at a minimum of two times per week (2/week) for outfall 001 using a 24-Hour composite sample. The start of the effluent 24-Hour composite sample shall take into account the resident time of the treatment works. A monthly average shall be calculated for both influent and effluent and reported for each.

³State certification requirement.

⁴Samples for Fecal Coliform bacteria, Enterococci bacteria and Total Residual Chlorine shall be collected concurrently.

⁵ Total Residual Chlorine shall be measured using any one of the following three methods listed in 40 Code of Federal Regulations (CFR) Part 136:

a. Amperometric direct.

b. DPD-FAS.

c. Spectrophotometric, DPD.

⁶Fecal Coliform shall be tested using test method 9221 C and E found in <u>Standard</u> <u>Methods for the Examination of Water and Wastewater, 18th or subsequent Edition(s)</u>, as approved in 40 CFR Part 136.

The Average Monthly value for Fecal Coliform shall be determined by calculating the geometric mean using the daily sample results. Not more than 10 percent of the collected samples shall exceed a Most Probable Number (MPN) of 43 per 100 ml for a 5-tube decimal dilution test. Furthermore, all Fecal Coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

The permittee is required to report two (2) statistics each month. One is the geometric mean Fecal Coliform value expressed in terms of "MPN per 100 ml" (reported as average monthly), and the other is the "percentage" of collected samples that exceeds a MPN of 43 per 100 milliliters for the 5-tube decimal dilution test referenced immediately above

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(reported as maximum daily). The latter statistic will be used to judge compliance with that part of the limit that reads "Not more than 10 percent of the collected samples shall exceed a MPN of 43 per 100 milliliters for a 5-tube decimal dilution test." referenced above.

⁷Enterococci shall be tested using an EPA approved test method (see 40 C.F.R. Part 136, Table 1A).

⁸The permittee shall conduct acute survival toxicity testing on effluent samples following the protocol in Attachment A (dated September1996). The two species for these tests are *Menidia beryllina* and *Mysidopsis bahia*. Toxicity test samples shall be collected and tests completed four (4) times per year during the calendar quarters ending March 31st, June 30th, September 30th and December 31st. Toxicity test results are to be reported by the 15th day of the month following the end of that quarter tested.

⁹"LC50" is defined as the concentration of wastewater that causes mortality to 50 percent (%) of the test organisms. The "100 %" is defined as a sample which is composed of 100 % effluent (See A.1. on page 3 of Part I and Attachment A of Part I). Therefore, a 100 % limit means that a sample of 100 % effluent (no dilution) shall cause no greater than a 50 % mortality in that effluent sample.

¹⁰For each Whole Effluent Toxicity test the permittee shall report on the appropriate DMR, the concentrations of the Ammonia Nitrogen as Nitrogen, and Total Recoverable Aluminum, Cadmium, Chromium, Copper, Lead, Nickel and Zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the MLs shown in Attachment A on page A-8, or as amended. Also the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report. This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of these toxicity tests indicate that the discharge causes an exceedance of any 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).

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- 2. The discharge shall not cause or contribute to a violation of the water quality standards of the receiving water.
- 3. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both BOD₅ and TSS when discharging thru outfall 001. The percent removal shall be based on a comparison of average monthly influent concentration versus average monthly effluent concentration.

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- 4. The discharge shall be adequately treated to insure 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.
- 5. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.
- 6. All Publicly Owned Treatment Works (POTWs) must provide adequate notice to both EPA and the 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 Part 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 POTW, and;
 - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
 - Limitations for Industrial Users

7.

- a. A user may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference with the operation or performance of the treatment works. The terms "user", "pass through" and "interference" are defined in 40 CFR Section 403.3.
- b. The permittee shall submit to EPA-New England 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) <u>who</u>
 <u>commences discharge to the POTW after the effective date of this permit.</u>
 This reporting requirement also applies to any other IU that discharges an average of 25,000 gallons per day or more of process wastewater into the POTW

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(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 for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR §403.8(f)(6)].

In the event that the permittee receives reports (baseline monitoring reports, 90day 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-New England and NHDES-WD.

8. When the effluent discharged for a period of 3 consecutive months exceeds 80 percent of the 4.8 MGD design flow (3.84 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.

B. SLUDGE CONDITIONS

C.

- 1. The permittee shall comply with all existing federal & state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.
- 2. The permittee shall comply with the more stringent of either the state (Env-Ws 800) or federal (40 CFR Part 503) requirements.
- 3. The requirements and technical standards of 40 CFR Part 503 apply to facilities which perform one or more of the following 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. Placement of sludge in a municipal solid waste landfill (See 40 CFR Section 503.4).

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d. Sewage sludge incineration in a sludge only incinerator.

The 40 CFR Part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions do not apply to facilities which do not dispose of sewage sludge during the life of the permit, but rather treat the sludge (lagoons, reed beds), or are otherwise excluded under 40 CFR Section 503.6.

The permittee shall use and comply with the attached Sludge Compliance Guidance document to determine appropriate conditions. Appropriate conditions contain the following elements.

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

Depending upon the quality of material produced by a facility all conditions may not apply to the facility.

6.

4.

5.

The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction for the permittee's chosen sewage sludge use or disposal practices 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	
290 to less than 1,500	
1,500 to less than 15,000	
15,000 plus	

1/Year 1/Quarter 6/Year 1/Month

- 7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR Section 503.8.
- 8. The permittee shall submit an annual report containing the information specified in the attached Sludge Compliance Guidance document. Reports are due annually by February 19th. Reports shall be submitted to both addresses (EPA-New England and NHDES-WD) contained in the reporting section of the permit.

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C. COMBINED SEWER OVERFLOW CONDITIONS

Effluent Limitations

1.

- a. During wet-weather periods, the permittee is authorized to discharge storm water/wastewater from combined sewer overflows (CSOs) to receiving waters (see Attachment B), subject to the following effluent limitations.
 - (1) The discharges may not cause or contribute to violations of Federal or State water-quality standards.
 - (2) 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-New England has made a Best Professional Judgement (BPJ) determination that BPT, BCT and BAT for CSOs include the implementation of the nine Minimum Technology-Based Limitations (MTBLs) specified below otherwise know as Nine Minimum Controls (NMC):
 - (a) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflow points;
 - (b) Maximum use of the collection system for storage;
 - (c) Review and modification of industrial pretreatment program requirements to assure CSO impacts are minimized;
 - (d) Maximization of flow to the POTW for treatment;
 - (e) Prohibition of dry-weather overflows from CSOs;
 - (f) Control of solid and floatable materials in CSO discharges;
 - (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; and

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- (i) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.
- (3) The Permittee must implement the activities identified in its nine minimum controls documentation titled "Report on Nine Minimum Control Measures" dated May 1995, submitted on May 8, 1995, and any amendments thereto.

2. Unauthorized Discharges

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from those outfalls listed in **Attachment B** of this permit. Discharges of wastewater from any other point source not described elsewhere in this permit are not authorized under this permit. Dry-weather overflows are prohibited (NMC at **Part C.1.a.(2)(e)**). All dry-weather sanitary and/or industrial discharges from any CSO must be reported to EPA-New England and the State within 24 hours in accordance with the reporting requirements for plant bypass (See Paragraph D.1.e of Part II of this permit).

3. Records and Reporting

The permittee shall quantify and record all CSO discharges from outfalls listed in **Attachment B** of this permit. Quantification may be performed either through direct measurement or through an estimation technique. When an estimation technique is used, such as an updated version of the SWMM model already developed for the City's Long-Term Control Plan (LTCP), the permittee shall make reasonable efforts (e.g., gaging, measurements, visual observations, tell-tale monitorings, etc.) to verify the validity of the estimation technique. If the SWMM model is used, it must be updated to reflect current conditions in the City's collection and treatment systems used for CSO abatement. The following information must be recorded for each combined sewer outfall for each discharge event:

- Estimated date of discharge;
- Estimated duration (hours) of discharge;
- Estimated volume (gallons) of discharge; and
- Precipitation data from the City of Portsmouth gage (daily (24-hour) intervals and one-hour intervals). Cumulative precipitation per discharge event shall be calculated.

The permittee shall maintain all records of discharges for at least five (5) years after the effective date of this permit.

Annually, no later than January 15th, the permittee shall submit a written certification to

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EPA-New England and the State which states that all the discharges from combined sewer outfalls were recorded, and all other appropriate reports and records maintained for the previous calendar year. A summary of modifications (if any) to the approved NMC program which have been evaluated, and a description of those which will be implemented during the upcoming year shall be included with the annual certification.

4. 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.

D. SPECIAL CONDITIONS

1. Whole Effluent Toxicity Test Frequency Adjustment

The permittee may submit a written request to the EPA requesting a reduction in the frequency (to not less than twice per year) of the toxicity testing requirements contained in Part I.A.1 of this permit, after completion of a minimum of four (4) successive toxicity tests as required in Part I.A.1. All toxicity tests must be valid tests and must demonstrate compliance with the whole effluent toxicity limits as specified in Part I.A.1 of this permit. Until written notice is received by certified mail from the EPA indicating that a reduction in the Whole Effluent Testing requirement has been allowed, the permittee is required to continue testing at the frequency specified in the permit.

The permittee shall also provide a copy of any such request for a frequency adjustment to the Conservation Law Foundation, 27 North Main Street, Concord, NH 03301-4930.

EPA reserves the right to return to the original toxicity testing schedule if subsequent testing results warrant it. Notification of any such requirement will be provided to the permittee by certified mail.

2. pH Limit Adjustment

The permittee may submit a written request to the EPA requesting a change in the permitted pH limit range to be not less restrictive than 6.0 to 9.0 Standard Units. 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

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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 indicating the pH limit range has been changed, the permittee is required to meet the permitted pH limit range in the respective permit.

E. MONITORING AND REPORTING CONDITIONS

Monitoring results shall be summarized for each calendar month and reported on separate Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period.

Signed and Dated original DMRs and <u>all</u> other reports or notifications required herein or in **Part II**, shall be submitted to the Director at the following address:

> U.S. Environmental Protection Agency Water Technical Unit (SEW) P.O. Box 8127 Boston, Massachusetts 02114-8127

Duplicate signed copies of all reports required above shall be submitted to the State at:

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

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA-New England and to NHDES-WD.

F. STATE PERMIT CONDITIONS

- 1. The permittee shall comply with the following conditions which are included as State Certification requirements.
 - a. The pH range of 6.0-8.0 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

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prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside of the range of 6.0 to 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).

b.

Pursuant to State Law NH RSA 485-A:13 and the New Hampshire Code of Administrative Rules, Env-Wq 703.07(a) and Env-Ws 904.10 the following submissions shall be made to the NHDES-WD by a municipality proposing to accept into its POTW (including sewers and interceptors):

- (1)An "Application for Sewer Connection Permit" for any proposal to construct or modify any of the following:
 - (a) Any extension of a collector or interceptor, whether public or private, regardless of flow;
 - (b) Any wastewater connection or other discharge in excess of 5,000 gpd;
 - (c) Any wastewater connection or other discharge to a wastewater treatment facility operating in excess of 80 percent design flow capacity for 3 consecutive months;
 - (d) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity; and
 - (e) Any sewage pumping station greater than 50 gpm or serving more than one building.
- (2)An "Industrial Wastewater Discharge Request Application" for new or increased loadings of industrial waste, in accordance with Env-Ws 904.10.
- The permittee shall not at any time, either alone or in conjunction with any person C. or persons, cause directly or indirectly the discharge of waste into 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).
- d. Any modifications of the Permittee's Sewer Use Ordinance, including local limitations on pollutant concentrations, shall be submitted to the NHDES-WD for approval prior to adoption by the permittee.

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Within 90 days of the effective date of this permit, the permittee shall submit to NHDES-WD a copy of its current sewer use ordinance if it has been revised since any previously approved submittal.

e.

f.

Within 120 days of the effective date of this permit, the permittee shall submit to NHDES-WD a current list of all industries discharging industrial waste to the municipal wastewater treatment plant. As a minimum, the list shall indicate the name and address of each industry, along with the following information: telephone number, contact person, products manufactured, industrial processes used, existing level of pretreatment, and list of existing industrial discharge permits with effective dates.

2. This NPDES Discharge Permit is issued by the EPA-New England under Federal and State law. Upon final issuance by the EPA-New England, the NHDES-WD may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13.

Each Agency shall have the independent right to enforce the terms and conditions of this Permit. 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, unless and until each Agency has concurred in writing with such modification, suspension or revocation.

3. If chlorine is used for disinfection, a recorder which shall continuously record the chlorine residual prior to dechlorination shall be provided. The minimum, maximum and average daily residual chlorine values, measured prior to dechlorination, shall be submitted with monthly Discharge Monitoring Reports. Charts from the recorder, showing the continuous chlorine residual shall be maintained by the permittee for a period no less than (5) years.

4. The Portsmouth Wastewater Treatment Facility is responsible for immediately notifying the New Hampshire Department of Environmental Services, Watershed Management Bureau, Shellfish Section of possible high bacteria/virus loading events from the facility or its sewage collection infrastructure. Such events include:

a. Any lapse or interruption of normal operation of the WWTF disinfection system, or other event that results in discharge of sewage from the WWTF or sewer infrastructure (pump stations, sewer lines, manholes, combined sewer overflows, etc.) that has not undergone full treatment as specified in the NPDES permit, or

b. Daily flows in excess of the facility's average daily design flow of 4.8 MGD, or

c. Daily post-disinfection effluent sample result of 43 fecal coliform/100ml or greater.

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Notification shall also be made for instances where NPDES-required bacteria sampling is not completed, or where the results of such sampling are invalid.

Notification to the NHDES Shellfish Program shall be made using the program's 24-hour pager. Upon initial notification of a possible high bacteria/virus loading event, NHDES Shellfish Program staff will determine the most suitable interval for continued notification and updates on an event-by-event basis.

G. REOPENER CLAUSE

1. This permit may be modified in the event that a Total Maximum Daily Load (TMDL) is developed for the receiving water resulting in the need for new permit limits for this discharge.

ATTACHMENT A

MARINE 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:

- Mysid Shrimp (Mysidopsis bahia) definitive 48 hour test.
- Inland Silverside (Menidia beryllina) definitive 48 hour test.

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

II. METHODS

Methods to follow are those recommended by EPA in:

Weber, C.I. et al. <u>Methods for Measuring the Acute Toxicity of Effluents to Freshwater and</u> <u>Marine Organisms</u>, Fourth Edition. Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH. August 1993, EPA/600/4-90/027F.

Any exceptions are stated herein.

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 the chemical and physical analyses. The remaining sample shall be 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 oxidants (as per 40 CFR Part 122.21).

<u>Standard Methods for the Examination of Water and Wastewater</u> 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. A thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) should also be run.

All samples held overnight shall be refrigerated at 4°C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected at a point away from the discharge which is free from toxicity or other sources of contamination. Avoid collecting near areas of obvious road or agricultural runoff, storm sewers or other point source discharges. An additional control (0% effluent) of a standard laboratory water of known quality shall 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 conductivity, salinity, total suspended solids, and pH 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 alternative dilution water should be mailed with supporting documentation to the following address:

Director Office of Ecosystem Protection U.S. Environmental Protection Agency, Region 1 One Congress Street Suite 1100 (CAA) Boston, MA 02114-2023

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 AND TEST ACCEPTABILITY CRITERIA

EPA New England requires tests be performed using <u>four</u> replicates of each control and effluent concentration because the non-parametric statistical tests cannot be used with data from fewer replicates. The following tables summarize the accepted <u>Mysid</u> and <u>Menidia</u> toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND RECOMMENDED EFFLUENT TOXICITY TEST CONDITIONS FOR THE MYSID, <u>MYSIDOPSIS BAHIA</u> 48 HOUR TEST¹

1. Test type

2. Salinity

Static, non-renewal

 $25ppt \pm 10$ percent for all dilutions by adding dry ocean salts

3. Temperature (°C)

 $20^{\circ}C + 1^{\circ}C \text{ or } 25^{\circ}C + 1^{\circ}C$

(September 1996)

4. Light quality

5. Photoperiod

6. Test chamber size

7. Test solution volume

8. Age of test organisms

9. No. Mysids per test chamber

10. No. of replicate test chambers per treatment

11. Total no. Mysids per test concentration

12. Feeding regime

13. Aeration²

14. Dilution water

15. Dilution factor

16. Number of dilutions³

17. Effect measured

18. Test acceptability

19. Sampling requirements

Ambient laboratory illumination 16 hour light, 8 hour dark 250 ml 200 ml 1-5 days 10 4

40

Light feeding using concentrated <u>Artemia</u> nauplii while holding prior to initiating the test

None

Natural seawater, or deionized water mixed with artificial sea salts

 ≥ 0.5

5 plus a control. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.

Mortality - no movement of body appendages on gentle prodding

90% or greater survival of test organisms in control solution

For on-site tests, samples are used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must be first used within 36 hours of collection.

(September 1996)

20. Sample volume required

Minimum 1 liter for effluents and 2 liters for receiving waters

Footnotes:

(September 1996)

- Adapted from EPA/600/4-90/027F.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks are recommended.
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

EPA NEW ENGLAND RECOMMENDED TOXICITY TEST CONDITIONS FOR THE INLAND SILVERSIDE, <u>MENIDIA BERYLLINA</u> 48 HOUR TEST¹

1. Test Type Static, non-renewal 2. Salinity 25 ppt \pm 2 ppt by adding dry ocean salts $20^{\circ}C + 1^{\circ}C \text{ or } 25^{\circ}C + 1^{\circ}C$ 3. Temperature 4. Light Quality Ambient laboratory illumination 16 hr light, 8 hr dark 5. Photoperiod 6. Size of test vessel 250 mL (minimum) 7. Volume of test solution 200 mL/replicate (minimum) 9-14 days; 24 hr age range 8. Age of fish 10 (not to exceed loading limits) 9. No. fish per chamber 10. No. of replicate test vessels per treatment 4 11. Total no. organisms per concentration 40 Light feeding using concentrated Artemia 12. Feeding regime nauplii while holding prior to initiating the test 13. Aeration² None 14. Dilution water Natural seawater, or deionized water mixed with artificial sea salts.

15. Dilution factor

16. Number of dilutions³

17. Effect measured

18. Test acceptability

19. Sampling requirements

20. Sample volume required

 ≥ 0.5

5 plus a control. An additional dilution at the permitted concentration (% effluent) is required if it is not included in the dilution series.

Mortality-no movement on gentle prodding.

90% or greater survival of test organisms in control solution.

For on-site tests, samples must be used within 24 hours of the time they are removed from the sampling device. Off-site test samples must be used within 36 hours of collection.

Minimum 1 liter for effluents and 2 liters for receiving waters.

Footnotes:

- Adapted from EPA/600/4-90/027F.
- ² If dissolved oxygen falls below 4.0 mg/L, aerate at rate of less than 100 bubbles/min. Routine D.O. checks recommended.
 ³ When the second second
- ³ When receiving water is used for dilution, an additional control made up of standard laboratory dilution water (0% effluent) is required.

VI. CHEMICAL ANALYSIS

At the beginning of the static acute test, pH, salinity, and temperature must be measured at the beginning and end of each 24 hour period in each dilution and in the controls. The following chemical analyses shall be performed for each sampling event.

			<u>Minimum</u> Quantification	
Parameter	Effluent	Diluent	Level (mg/L)	
pH	х	х		
Salinity	x	х	PPT(o/oo)	
Total Residual Oxidants 1*	x	х	0.05	
Total Solids and Suspended Solids	X	х		
Ammonia	х	х	0.1	
Total Organic Carbon	x	x	0.5	
· · · · ·				
Total Metals				
Cd	х	х	0.001	
Cr	х	х	0.005	
Pb	х	х	0.005	
Cu	X	х	0.0025	
Zn	х	x	0.0025	
Ni	х	х	0.004	
Al	х	х	0.02	

Superscript:

Total Residual Oxidants

Either of the following methods from the 18th Edition of the APHA <u>Standard Methods</u> for the Examination of Water and Wastewater must be used for these analyses:

-Method 4500-Cl E Low Level Amperometric Titration (the preferred method); -Method 4500-CL G DPD Photometric Method.

or use USEPA Manual of Methods Analysis of Water or Wastes, Method 330.5.

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration

An estimate of the concentration of effluent or toxicant that is lethal to 50% of the test organisms during the time prescribed by the test method.

Methods of Estimation:

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

See flow chart in Figure 6 on page 77 of EPA 600/4-90/027F for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See flow chart in Figure 13 on page 94 of EPA 600/4-90/027F.

VIII. TOXICITY TEST REPORTING

The following must be reported:

- 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; and
- 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 toxicity test data must be included.
- Raw data and bench sheets.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.
- Statistical tests used to calculate endpoints.

(September 1996)

ATTACHMENT B

CSO OUTFALLS UNDER THE JURISDICTION OF THE CITY OF PORTSMOUTH

DISCHARGE SERIAL NO.	LOCATION	TYPE OF DISCHARGE	COMPOSITION OF DISCHARGE	RECEIVING WATER
010A	Parrot Avenue	Combined Overflow	Untreated Sanitary/Storm Water	South Mill Pond to Piscataqua River
010B	Parrot Avenue	Combined Overflow	Untreated Sanitary/Storm Water	South Mill Pond to Piscataqua River
012	Marcy Street	Combined Overflow	Untreated Sanitary/Storm Water	Piscataqua River
013	Deer Street	Combined Overflow	Untreated Sanitary/Storm Water	Piscataqua River

Response to Comments Document National Pollutant Discharge Elimination System (NPDES) Permit No. NH0100234, City of Portsmouth

Introduction:

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit (NH0100234) for the City of Portsmouth. The responses to comments (RTC) explain and support the EPA determinations that form the basis of the Final Permit. The City of Portsmouth draft permit public comment period began July 25, 2006 and ended on September 22, 2006. A public hearing was held at the City of Portsmouth's City Council Chamber on September 7, 2006. During that hearing, EPA received oral comments from several individuals. A transcript of the hearing is part of the administrative record for this permit¹. The public hearing was also broadcast via cable TV (public access) to the residents of Portsmouth. A video copy of the public hearing is also contained in the administrative record.

EPA received written comments from the following individuals:

- 1. Steve Marchand², Mayor of Portsmouth
- 2. John Bohenko, City Manager of Portsmouth²;
- 3. David Allen, Deputy Director of Public Works for City of Portsmouth²;
- 4. Peter Rice, City Engineer for the City of Portsmouth;
- 5. Jameson French, Lea Aeschliman, and Eileen Foley, Trustees of Trust Funds, City of Portsmouth²;
- 6. Jeffrey Meyers of Nelson, Kinder, Mosseau and Saturley, PC, Attorney at Law for the City of Portsmouth; and,
- 7. Thomas Irwin, Attorney at Law for the Conservation Law Foundation.

The Final Permit is substantially identical to the Draft Permit that was available for public comment. EPA's decision-making process has benefited from the various comments and additional information submitted; the information and arguments presented resulted in several minor changes to the final permit. A summary of the changes made in the Final Permit are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow.

¹ The transcript correctly records that the hearing was put in recess from 8:55 until 9:15 pm. The hearing officer reopened the hearing at 9:15, and upon seeing and hearing no one from the audience wishing to comment, the hearing officer again recessed the hearing until 9:45 pm. This is also accurately recorded in the transcript. However, the transcript states that the hearing was closed at 9:45 pm and does not record any testimony beyond that which was recorded prior to the two recesses. This is incorrect. Upon reopening of the hearing at 9:45, one commenter (Richard Smith, resident of Portsmouth) did come forward and provide testimony for the record. His comments are reflected in notes taken at the hearing by EPA permit writer Damien Houlihan and are also recorded in the video of the public hearing. EPA's response to Mr. Smith's comments is included in this response to comments.

² These comments were also read into the record at the September 7, 2006 public hearing. Therefore, responses to these comments are contained in the responses found in Section I, "Public Hearing Comments" found below.

1. The language in Part I.A.1, footnote 7 of the draft permit has been replaced. The footnote now reads: "Enterococci shall be tested using an EPA approved test method (see 40 C.F.R. Part 136, Table 1A)." See response <u>II.C.3.a</u> below.

2. Bullet 4 of Part I.C.3 has been changed from "National Weather Service precipitation data from the nearest gage where precipitation data are available at daily (24-hour) intervals and the nearest gage where precipitation data are available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated...." to "Precipitation data from the City of Portsmouth gage (daily (24-hour) intervals and one-hour intervals). Cumulative precipitation per discharge event shall be calculated..." See response <u>II.F.I</u> below.

3. Part I.A.2 has been changed from "The discharge shall not cause a violation of the water quality standards ..." to "The discharge shall not cause or contribute to a violation of water quality standards ..." See response <u>IV.A</u> below.

4. EPA reformatted the general conditions in Part II and it now consists of 25 pages, not 27 as stated in the draft permit. Therefore, the language in the last paragraph on page 1 has also been changed from "...27 pages in Part II ..." to "...25 pages in Part II ..." There are no substantive changes to Part II.

5. Whole Effluent Toxicity testing frequency reduction. The provision found at Part I.D.1 has been changed from "The permittee may submit a written request to the EPA requesting a reduction in the frequency (to not less than once per year) ... to "The permittee may submit a written request to the EPA requesting a reduction in the frequency (to not less than twice per year) ..." A requirement to provide a copy of any such request to the Conservation Law Foundation in Concord, NH also has been added to Part I.D.1 of the permit. Part I.D.1 has been further modified by addition of the following language: "EPA reserves the right to return to the original toxicity testing schedule if subsequent testing results warrant it. Notification of any such requirement will be provided to the permittee by certified mail."

6. Table at Part I.A.1, the TSS influent measurement frequency has been changed from "2/week" to "2/month" to match the BOD influent measurement frequency. This change corrects an inadvertent typographical error contained in the draft permit.

7. Table at Part I.A.1, the Total Residual Chlorine measurement frequency has been changed from "continuous" to "2/Day" and the sample type has been changed from "recorder" to "grab." See response <u>II.G.2.</u> below.

I. PUBLIC HEARING COMMENTS

A. EPA received numerous comments regarding the schedule for implementing secondary treatment.

1. MORE RATHER THAN LESS TIME: Several commenters advocated allowing the City enough time to sufficiently study available secondary treatment implementation options prior to construction of any new facility(s).

The City Manager stated that "it is vital that we ... have sufficient time to carefully consider all possible options for implementing this secondary treatment requirement, rather than rush forward to expand the sewer treatment facility at Peirce Island without reviewing the potential impacts to the City. Some the options the City would like to explore include: upgrading the current Peirce Island site to expand to secondary treatment; relocating the plant to the Pease International Tradeport or some other location; possibly diverting a portion of the City's flow to the Pease Wastewater Treatment Plant, a secondary treatment facility, which would allow Peirce Island to remain within the existing footprint; investigating the possibility of a new, regional treatment plant; and, evaluating new types of treatments that may require smaller plant footprints." Additionally, the City's Deputy Director of Public Works stated that "The City is committed to conducting the appropriate studies, to obtaining public input, and to employing sustainable design in meeting the City's commitment to achieving compliance with secondary treatment limits."

Other commenters offered comments supportive of allowing sufficient study time, such as: "... we take the time to do this right ..."; "... we as a community have sufficient time to carefully consider all possible options for implementing this secondary treatment requirement, rather than rush forward to expand the sewer treatment facility at Peirce Island without reviewing the potential impacts to the City."; "We are embarking on a decision that will require a significant impact on the City for the next 50 to 100 years."; "I support the City's request, that it be done in an orderly and all encompassing and perhaps a creative fashion."; "They are committed to meet what your requirements are, but they need some time. And I think it's a reasonable request ..."; "while I think that things should proceed in an expedited manner, I would hope that the EPA does give the City time to do what needs to be done to do a good job and that in the rush to simply get something going, we don't butcher that island, simply to get something done that we'll have to face the rest of our lives out there."; "didn't seem to make sense financially or otherwise to undertake to build a secondary treatment plant while we were still in the middle of the long-term effort to eliminate the sewer overflows, and which are going to have the effect of reducing, I think, the eventual size of the secondary treatment plant we need."; "make sure that we are doing it with all possible speed, that we arrive at a good decision as quickly as we can, but a decision that will be truly a sustainable one, that will be the right decision for the coming century for the City of Portsmouth and for the whole region."

2. TIMELY/TOP PRIORITY/EXPEDITE: Other commenters argued for a timely or aggressive implementation schedule, offering: "the City has been operating under a consent decree since 1990 and here we are in 2006, sixteen years later, so this issue has been kind of carrying on for sixteen years about secondary treatment or at least moving forward with a permit ..."; "... we would ask the EPA, push the City to make this a top priority."; "It's been many, many years that the City was aware that this was an issue and

really dealing with this problem is, again, long overdue. And we, also, are concerned that planning to build an appropriate and a sufficient plant should not become a reason for delay in fulfilling this permit."; "...see no reason why the City of Portsmouth can't move very fast, considering all the various ramifications at the same time, and also involving the citizenry at the same time, so that we don't have a linear process where one engineering study has to go through a long, circuitous process, then there's a hearing, then there's another engineering study, because that could take 20 years. So our main point is to expedite this quickly and there's no reason why it can't be."; "you can be careful and fast at the same time"; "The faster it's done, the less it's likely to cost."; "So we've been dealing with this problem for well over a decade. We strongly urge that the EPA work with the City to develop and implement an aggressive time schedule, time line to address this issue."; "this planning process should not proceed in a linear manner. It needs to proceed in a more iterative manner that is more time effective, time efficient, so that we don't find ourselves ten years from now still wondering what the City of Portsmouth is going to do in terms of its treatment."

RESPONSE I.A.1 and 2:

EPA intends to establish an expeditious schedule for the facilities evaluation, design, and construction of a secondary treatment plant, taking into consideration a variety of factors, including: 1) the time necessary to thoroughly evaluate plant siting and treatment technologies; 2) a reasonable and feasible construction schedule once siting is complete; 3) other work the City is involved in that may produce significant environmental results; and 4) the need for other regulatory approvals. EPA agrees that, to the extent possible, alternatives should be evaluated on parallel paths, thereby minimizing the time frame necessary to complete planning and proceed to design/construction. At present, EPA anticipates that the schedule for facilities evaluation will be initially addressed in an administrative order. The schedule for design and construction will be incorporated into a judicial consent decree, either through modification of the existing consent decree between EPA and the City or the entry of a new consent decree. In either case, there will be a thirty day public comment period on the schedule in such consent decree before it is entered by the court.

B. Concerns over expansion at Peirce Island

"I was as vehement against the location on Peirce Island as anybody else, and the reasons that we were against it were the reasons that Mr. Jencks brought forward tonight, because of its recreational potential and because of its historic history."; "Peirce Island is a treasure."; "realize without that plant there, what a increased treasure the whole island would be."; "we do not really want to waste a beautiful place like Peirce Island for a sewage treatment plant.";

"... the city attorney mentioned about if the footprint was expanded at the present sewer treatment plant, it would probably spoil Prescott Park, it would take Peirce Island and no longer be a recreational area, and it would be devastating to what has been done over there for thousands of dollars upgrading that island to a recreation facility. But I kind a

question the footprint."; "I just question, with the technology at this day and age, is this practical? Has the footprint been overemphasized?"; "if the state of technology today, and can reduce the footprint, I think the Peirce Island Treatment Plant is a place for the secondary system."; "... supports a new location."

RESPONSE I.B.:

The siting of the facility is the responsibility of the City. EPA agrees that the City should take into account the recreational and historic importance of Peirce Island in its decision on where to build the necessary treatment facility(s) to meet the permit limits. Another factor the City should consider, if it decides to relocate the plant, is the existing water quality of a different receiving water and what effect Portsmouth's discharge would have on a different receiving water.

C. Chlorine smell

"We are getting a lot of reports from our members of a strong chlorine smell that's coming, emitting from the plant and from the river ... is there a number, an 800 number that we can call when we get that smell and let someone know what's going on?"

RESPONSE I.C.:

There is no EPA regulatory requirement regarding chlorine odor, but the presence of a noticeable chlorine smell in the river could be an indication of a high chlorine residual in Portsmouth's discharge, possibly due to plant upset or poor operation. Portsmouth's prior permit did not contain a numerical total residual chlorine limit, but the new permit does establish chlorine residual limits of 0.33 mg/l (average monthly) and 0.57 mg/l (maximum daily).

EPA is interested in knowing when chlorine odor is detected in the river. Therefore, anyone who observes a chlorine odor should feel free to contact Damien Houlihan at (617) 918-1586. Anyone reporting a chlorine smell in the river or in the vicinity of Portsmouth's WWTF should record the time, the date, and the approximate location when the observation was made. Members of the public who observe a chlorine smell should also feel free to contact the NH Department of Environmental services at (603) 271-1493 and the City of Portsmouth.

D. Other

Land application – "we feel very strongly that the sewage treatment should have a land application for the waste that's coming out of a secondary attrition rate. And I realize that the confines of the City are limited, but there are ways that it could be done with a land application."

RESPONSE I.D.:

EPA is unsure of what the commenter meant by "secondary attrition rate." In any event, sludge generated from the secondary treatment facility is eligible for land disposal. While there are some wastewater treatment plants that land apply their effluent, the amount of effluent land applied is small in comparison to Portsmouth's discharge.

E. Public participation

"... we have to vet this in the public arena in Portsmouth, but the outcome is certain, that we'll be in favor of the upgrade and secondary and maybe even tertiary, but we've got to look at it and you've got to give us the time to look at it, because that was a terrible mistake in 1961 to put it there instead of the other, one of the other two locations."

RESPONSE I.E.:

It's the responsibility of the City to include the public in any decisions it makes regarding the location of the necessary treatment facility(s). EPA agrees that the public should be informed and consulted. But ultimately the City is obligated to meet the final permit limits in an expeditious fashion.

F. Consider Piscataqua Basin

"... if I may ask you to consider the Piscatagua Basin as such as a subject. The Piscataqua River flows, as you know, in a southerly direction and it encompasses the flow of waters from cities of Dover, from the Town of Durham, from Newington, and on the other side we have the towns in Maine of the Berwicks, as well as Eliot, as well as Kittery. I heartedly endorse the recommendations of my preceding speakers by saying let's not rush into this, because I think it is not -- I think it would be foolhardy to rush the judgment to make an expedient decision to cure something that appears to be a Band-Aid to me. I would prefer, if I may plead with you, to consider the macro of the Piscataqua Basin ..."; "... bring together the State of Maine and New Hampshire for some bilateral consideration that we may combine the needs of those towns with ours."; "encourage a study group that would include both the State of Maine and New Hampshire to reach some kind of a conclusion to see if there is -- what are the merits of combining facilities?"; "it's a decision that we have to make in the context of what's going on in the entire Piscataqua/Great Bay region, communities that are upstream from us, and we have to be sure that whatever decision and capital expenses we undertake, that those aren't, you know, counteractive or all for naught by decisions that are made elsewhere.": "you're essentially telling the city to come up with a specific solution for our sewage problem, yet at the same time the city really doesn't know what regional solutions will ultimately be proposed. And, you know, you can think of some scenarios where Portsmouth could end up deciding on a secondary system that does not integrate well into the proposals made by the larger organization, The Great Bay Study Commission."

RESPONSE I.F.:

We are mindful of the interest various communities have in exploring regional treatment options. This issue will be evaluated in the context of setting a compliance schedule.

G. Section 106 of the Historic Preservation Act

"... if there is more work to be done at Peirce Island, if the facility gets expanded, Section 106 of the Historic Preservation Act will be called in again and archaeological research will be required to check the additional impacts on the island."

RESPONSE I.G.:

See response to comment III.A. below.

H. Alternative Treatment/Technology

"...using a manmade salt marsh as a waste treatment facility and they've had great success with that in Sweden, and it cost less money and even has attracted birds."; "The other option is evaluate new types of treatment that may require a small plant footprint."; "why isn't the City of Portsmouth looking into the latest state of the art? It's called an oxidized system, which reduces the footprint almost to one-third of the original standing primary system that we have already."

RESPONSE I.H.:

EPA encourages the City to look at all treatment options available. EPA's secondary treatment permit limits are based on biological treatment, which is typically preceded by primary settling. The City is free to meet the permit limits using alternative technology(s).

I. Nitrogen Loading

"... we feel that it's essential that the draft permit be revised to include limits for total nitrogen. The issue of nitrogen loading in the Great Bay estuary is one of growing concern among scientists and researchers who are knowledgeable of the Great Bay estuary ..."

RESPONSE I.J.:

See response to Comment IV.B.

II. CITY OF PORTSMOUTH WRITTEN COMMENTS

A. Cover Sheet - CSO coordinates are missing. City can provide information utilizing hand held GPS.

RESPONSE II.A.:

EPA does not typically include the exact coordinates for outfalls on the cover page. This information is more typically contained in the fact sheet. However, upon review of the fact sheet, it is clear that the CSO coordinates were not cited or referenced. Therefore, EPA includes them below (as taken from the City's 5/4/2004 revised application):

010A (Parrot Ave.): 43 deg. 04.80 minutes (latitude), 70 deg. 45.53 minutes (longitude) 010B (Parrot Ave.): 43 deg. 04.39 minutes (latitude), 70 deg. 45.47 minutes (longitude) 012 (Marcy Street): 43 deg. 04.60 minutes (latitude), 70 deg. 45.06 minutes (longitude) 013 (Deer Street): 43 deg. 04.80 minutes (latitude), 70 deg. 45.53 minutes (longitude)

B. Page 1 last paragraph Attachment B has 9 pages not 8 as listed.

RESPONSE II.B.:

It is unclear what the comment is referring to. The draft permit states that Attachment B has 1 page. Attachment A of the draft permit is listed as containing 7 pages. EPA has reviewed the attachments to the final permit and has confirmed that Attachment B contains one page and lists the CSO outfalls, and Attachment A is the Marine Acute Toxicity Testing Protocol and contains 7 pages. No change has been made to the final permit based on this comment.

C. Effluent Limitations and Monitoring Requirements (Part I. A.1 of draft permit)

1. This is a secondary treatment type of permit and our facility is a primary treatment facility. Before a schedule for upgrading to secondary can be committed to the City must complete a facilities evaluation to determine the most appropriate course of action. This study will look at alternatives including: 1) upgrading the current Peirce Island site to expand to secondary treatment; 2) relocating the plant to the Pease International Tradeport or some other location; 3) possibly diverting a portion of the City's flow to the Pease Wastewater Treatment Plant, which would allow Peirce Island to remain within the existing footprint while adding secondary treatment; 4) investigating the possibility of a new, regional treatment plant; and, 5) evaluating new types of treatments that may require smaller plant footprints.

In addition, in undertaking the studies necessary to upgrade to secondary treatment, the City must be mindful of the current Combined Sewer Overflow-Long Term Control Plan to ensure that any changes to the Peirce Island plant do not also impact the ongoing sewer separation program.

RESPONSE II.C.1.:

As discussed above, EPA understands that the City will need time to evaluate, design, and construct the necessary treatment facility(s) to meet the final permit limits. The City

is free to evaluate a variety of alternatives as long as they are evaluated simultaneously and expeditiously. EPA agrees that it is appropriate to consider the CSO LTCP as part of the planning and design of the treatment plant.

2. Enterococci Bacteria - The City believes this requirement is redundant and unnecessary due to the discharge location. If the Fecal Coliform requirement is met the Enterococci requirement will also be met. The City would like to demonstrate this by performing side by side testing to show that if the Fecal Coliform limit is met the Enterococci limit will also be met.

RESPONSE II.C.2.:

The permit does not contain an enterococci limit, but it does require monitoring. EPA believes it's important to retain the enterococci monitoring in the permit at this time, since the water quality standards include enterococci criteria for tidal waters used for swimming. However, EPA notes that it may be possible, at some point in the future, to reduce or eliminate the monitoring requirement based on the "side-by-side testing" results that the City proposes to perform during this permit cycle. (See also Response to Comment IV.C below).

3. Explanation of Superscripts to Part I. A.1

a. <u>Note 7</u> requires that we use ASTM method D6503-99. As outlined in the Draft permit Note 7, this is a formal request for changing the test method from ASTM method D6503-99 to Standard Methods No. 9230-B. We have found that membrane methods do not work well with wastewater and multiple-tube fermentation is more appropriate. In addition, the ASTM method D6503 using IDEXX Enterolert TM was developed for drinking water not wastewater effluent.

<u>RESPONSE II.C.3.a.</u>: Portsmouth is free to analyze its effluent for enterococci using any of the EPA approved methods for enterococci as found at 40 C.F.R Part 136. Therefore, the requirement to use ASTM method D6503-99 has been deleted from the permit and footnote 7 has been changed to allow for the use of any method found at 40 C.F.R. Part 136 for analyzing enterococci.

b. <u>Notes 8 and 9.</u> Based on past testing we know that primary effluent will not comply with the Whole Effluent Toxicity test requirements of this draft permit. We request that this requirement be waived until the new secondary treatment plant is brought on-line.

<u>RESPONSE II.C.3.b.</u>: EPA will evaluate the timing of WET testing in the course of establishing a compliance schedule for treatment plant construction.

D. Is there a definition of "industrial" wastewater that we can apply to our customers? We are assuming that any process water that is not sanitary waste is considered industrial.

RESPONSE II.D.: See 40 C.F.R. Section 403.3 for the definition of industrial user.

E. Effluent Limitations and Monitoring Requirements (Part I. A.8 of draft permit, Page 7 of 15). Given the nature of the City's combined sewer, the Peirce Island plant is currently exceeding the 80% of 4.8 mgd which requires the initiation of a facilities evaluation. The City intends to perform the necessary studies to determine the most effective means of meeting the new secondary requirements. As part of this study a projection of future flows will be made.

RESPONSE II.E.:

EPA notes the comment and agrees that the City must determine the most effective means of meeting the new secondary requirements.

F. Records and Reporting (Part I.C.3 of draft permit, Page 10 of 15)

1. Last bullet – Can we use City weather station rain gage in-lieu of National Weather Service precipitation data. We believe given the nature of thunder storms a rain gage miles away may not accurately reflect the actual rain event experience locally.

RESPONSE II.F.I.:

EPA agrees that the City's rain gage will provide more representative results and therefore has changed Part I.C.3 to read, in pertinent part, "City of Portsmouth precipitation data including 24-hour and 1-hour intervals."

2. Currently the City is operating under a 1990 Consent Decree Civil No. 89-234-D which requires monthly submission of CSO data to the EPA, the NHDES as well as the United States District Court for the District of New Hampshire. We request that the annual report replace the monthly reports. If this is not possible we would like to have the required annual CSO report waived.

RESPONSE II.F.2.:

The issuance of this NPDES permit cannot be used to modify an existing Consent Decree and therefore, monthly submissions under the Consent Decree shall continue. With regard to the City's request to "waive" the reporting of the annual CSO report required under Part I.C.3 of the permit, EPA believes that this information is important to have as part of the permit file and, further, does not believe this requirement is overly burdensome since, as the commenter points out, monthly reporting is already required. Presumably, the annual report can be a compilation of the monthly reports.

G. State Permit Conditions, (Part I.F of draft permit).

1. Is there a definition of "industrial" wastewater that we can apply to our customers? We are assuming that any process water that is not sanitary waste is considered industrial.

<u>RESPONSE II.G1.</u>: See response to II.D above.

2. Continuous Chlorine residual monitoring has been attempted on primary effluent during the last 16 months and has not been successful due to the nature of the wastewater. We ask that this condition be deleted until we upgrade to secondary treatment. In lieu of continuous chlorine residual monitoring we request that the City is allowed to continuously monitor the level of the bulk chlorine storage tank and show through usage that chlorine is being dosed. This tank is monitored by our SCADA system and tank levels are automatically downloaded to an excel spreadsheet daily. Our SCADA system also monitors our chemical feed pumps and provides continuous alarms coverage for pump failure and leakage. We believe this approach along with the twice-daily chlorine grab samples required by the permit provides the monitoring that is intended by the continuous chlorine residual monitoring requirement.

<u>RESPONSE II.G.2.</u>: EPA acknowledges that continuous chlorine monitoring has not been successful with regard to Portsmouth's primary effluent. However, this permit requires secondary treatment and continuous chlorine monitoring (both before and after dechlorination) should be possible once the facility achieves secondary treatment. Therefore, no change has been made to the final permit.

As previously explained in this response to comments, through an administrative order and/or consent decree, interim limits and conditions will be developed along with a compliance schedule, and will apply until the secondary treatment facility is operational. As the permittee recommends above, monitoring the chlorine level of the bulk storage tank and 2/daily grab effluent compliance samples, in lieu of continuous chlorine monitoring, will be considered when EPA develops the interim limits and conditions.

3. The requirement of notification to the State for average daily flows above 4.8 mgd provides no benefit to the environment and is an unnecessary burden to the City. The City's collection system is combined sewer meaning during rainy periods of the year the City would have to call the State daily and follow-up with a five day letter. This is unnecessary. Please remove this requirement.

RESPONSE II.G.3.:

This is a state requirement. The requirement to notify the State by placing a phone call to the 24-hour pager is not overly burdensome. The permit does not require any written follow-up.

H. Attachment B – CSO Outfalls Under the Jurisdiction of the City of Portsmouth. CSO 012 (Marcy Street) is a manually operated overflow. The City is currently in construction on a project that will eliminate this CSO. This project is scheduled to be completed by spring of 2007.
RESPONSE II.H.:

Since this CSO is not yet eliminated, it remains in the final permit. When the CSO is eliminated, the City can report "no discharge" in the monthly discharge monitoring report (DMR) until the permit is either modified or re-issued.

I. Dilution Factor

The EPA has used a dilution factor for existing conditions derived by the NHDES based on the June 3, 2003 NHDES review comments to the Outfall Evaluation Report (Underwood Engineers, Inc. March 28, 2003). The NHDES has used a lower velocity than that estimated in the report based on a smaller cross-section.

The velocity within the receiving stream was measured using an Acoustic Doppler Current Profiler. The river velocity was measured along a transect of the river at the outfall location for the entire river width. A velocity current and directional vector was measured along every square meter of river cross-section, producing thousands of measurements.

While the NHDES has used what they consider a reasonably conservative estimate, we believe the velocity used in the report is defensible from a scientific basis and that the dilution is 56. The NHDES is overly conservative in applying the lower velocity. Therefore the dilution should be 56 and the chlorine residual limits should be recalculated to reflect the appropriate dilution.

RESPONSE II.I.:

EPA and the NH DES have checked the March 28, 2003 Underwood Engineers, Inc. (UEI) report and the DES's June 3, 2003 comment letter. We understand that many velocity measurements provided in Appendix C of the UEI report were made along a significant portion of the entire cross section which extends more than 800 feet across the Piscataqua River, beginning at the southern shore near the existing outfall location. All of these measurements were then averaged and two such averages (0.141 m/s and 0.11 m/s) were available for the 15 minute after neap slack low tide condition. The velocity of 0.141 m/s corresponded to the river cross section length of 720.8 feet and the velocity of 0.11 m/s that we chose corresponded to the narrower river cross section of 566 ft.

The CORMIX 1 (single port diffuser) model instructions provide that more weight be given to the ambient velocities near the outfall. Thus, the velocity of 0.11 m/s was selected. Using the information nearer the outfall in this case is further justified since it minimizes the use of the high velocities found on the shallow "shelf" which is found near the northern side of the cross section (near Henderson Point). Of the available two average velocities, the shorter cross section of 566 feet provided the average velocity closest to the outfall.

Note that the dilution factor of 56 noted in the UEI comment and in its report is based on using a 15 minute before neap slack tide velocity of 0.091 m/s. However, Dr. Doneker, EPA's Cormix technical support person, reported in his letter to UEI dated March 9, 2003 that the ambient conditions causing the more limiting dilution are 15 minutes after spring low tide, which is the condition DES used. Further, Dr. Robert Doneker also reported, in reply to an earlier DES question, that it wasn't appropriate to use separate modeling runs using near field and far field dilutions. Therefore, using what EPA and DES believed were the appropriate model conditions, the permit limits were based on a dilution factor of 43.5 (as mentioned in item 1 of the June 3, 2003 letter).

J. Nutrient Issues

One comment expressed at the September 7, 2006 public hearing on the draft NPDES permit was that the Peirce Island NPDES permit should include limits for total nitrogen. The City supports the idea that the best practical treatment technology should be used in the upgrade to the Peirce Island Primary Treatment plant and that this may include technology to remove nitrogen. For example, if activated sludge is selected as the cost effective solution to the upgrade, nitrification and denitrification facilities will also be considered.

However, as a matter of principal, no conditions should be set in the NPDES permit without rigorous comprehensive scientific justification for the need. We expect that the proper river studies be performed, including a waste load allocation study and TMDL study that identifies the non-point and point sources of pollution, the need for remediation and the magnitude of the water quality limitations within the river. The NHDES has not indicated in previous water quality reports (303(d) reports) that the Piscataqua River is not meeting water quality for nitrogen or oxygen within the area of the discharge from the Peirce Island WWTF.

We know that EPA has always used good science that drives the need for increasing the resources to remove additional pollutants at wastewater treatment facilities and expect the same high level of investigation for the Piscataqua River.

RESPONSE II.J.:

See response to IV.B below.

K. Comment Concerning Conceptual Site Impacts

A comment was received concerning the veracity of the figure presented to the City Council which showed the potential impact of a secondary plant at Peirce Island.

For the record the figure presented to the City Council was based in part on the 1980 Wright Pierce secondary treatment plant design drawings. These drawings had been completed prior to the Value Engineering Study and Original 301(h) Waiver. In addition, Underwood Engineers, Inc. prepared a preliminary cost estimate of the required upgrades necessary to meet the new secondary requirements. The intent of the figure in question was to convey the potential impacts the additional treatment tanks and buildings could have to the Island. It was not intended to be a final design or definitive determination of actual facilities.

The City is committed to minimizing the impacts to Peirce Island. To do this we will consider all viable alternatives during the study and design phases of this process.

RESPONSE II.K.:

No response required.

III. WRITTEN COMMENTS BY CITY OF PORTSMOUTH ATTORNEY

A. The tentative permitting decision issued by EPA on July 25, 2006 requires the City to comply with secondary treatment requirements at its wastewater treatment facility on Peirce Island. The City believes that accomplishing full compliance with the secondary treatment standard will require an enlargement of the footprint of the existing facility and that such enlargement will have an adverse effect on the character and use of surrounding historic properties on Peirce Island.

The tentative permitting decision issued July 25, 2006 omits any reference to the National Historic Preservation Act ("the Act" or "NHPA") and the Section 106 Consultation Process that the Act requires. Section 106 of the Act states:

The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or *prior to the issuance of any license*, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or *eligible for inclusion* in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking. 16 U.S.C. 470f - Advisory Council on Historic Preservation, comment on Federal undertakings.(Emphasis added).

Given the unique and historic character of the land surrounding the wastewater treatment plant on Peirce Island, the City believes that EPA must comply with the requirements of Section 106 of the NHPA prior to the issuance of the final NPDES permit.

1. Property Surrounding Peirce Island Water Treatment Facility is Eligible for the National Register

The City of Portsmouth believes that the property surrounding the Peirce Island Water Treatment Facility is eligible for the National Register of Historic Places. The remaining ramparts of Fort Washington, a military outpost dating back to the Revolutionary Warera, lie just north of the water treatment facility. Native American Indian artifacts have also been recovered along the shoreline, confirming archaeologists' belief that Native Americans once used the island as a fishing outpost. *Results of Phase 1B Archaeological Survey Peirce Island East End Trails Project, Portsmouth, New Hampshire, p. 49.*

The eligibility criteria for the National Register include properties (1) that are associated with events that have made a significant contribution to the broad patterns of our history; (2) that are associated with the lives of persons significant in our past; (3) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or; (4) that have yielded, or may be likely to yield, information important in prehistory or history. $36 CFR \ 60.4$.

The historic properties surrounding the plant easily satisfy the four criteria for admission to the National Register. Fort Washington was constructed by hand in 1775 to defend Portsmouth from an impending British attack. The earthen ramparts of the fort are still visible today, though they are greatly worn. The southeastern tip of the fort was demolished in 1965 during initial construction of the wastewater treatment plant. The fort was further damaged in 1977 during the expansion of the plant. Today, however, 34 meters of the fort still remain. *Results of Phase 1B Archaeological Survey Peirce Island East End Trails Project, Portsmouth, New Hampshire, p. 19.*

In addition to the presence of Fort Washington just north of the wastewater treatment facility, archaeologists have identified all areas along the shoreline as potentially sensitive for Native American artifacts. During excavation activities conducted in November 2002, six Native American artifacts were discovered. *Id. at 49.*

For these reasons, the City believes that the property surrounding the Peirce Island Water Treatment Facility is eligible for inclusion in the National Register. The City requests that the EPA begin the Section 106 Consultation Process to avoid further degradation of the property surrounding the plant.

2. EPA's Permitting Decision Constitutes a Federal Undertaking

The Section 106 Consultation Process applies to all federal undertakings. The NHPA defines "undertaking" as:

"a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including (1) those carried out by or on behalf of the agency; (2) those carried out with Federal financial assistance; (3) *those requiring a Federal permit license, or approval*, and; (4) those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency." *16 U.S.C.* 470(w)(7). (Emphasis added).

The City believes that the tentative permitting decision issued by the EPA on July 25, 2006 constitutes a federal undertaking within the meaning of the Act. Section 106 requires federal agencies to consider the potential impact of their undertakings *prior* to the issuance of any license. *16 U.S.C. 470(f)*. Further, unlike the issuance of an order for remediation of pollution under CERCLA, which has been held to be exempt from the NHPA process, *see* <u>Boarhead Corp. v. Erickson</u>, 923 F.2d 1011 (3rd. Cir. 1991), there is no similar exemption from NHPA compliance for Clean Water Act permitting decisions. *See* <u>Waterford Citizen's Association v. Reilly</u>, 970 F.2d 1287 (4th Cir. 1992).

In the City's view, EPA must initiate and complete the Section 106 Consultation Process prior to the issuance of the final NPDES permit.

3. Section 106 Procedural Requirements

The Section 106 Consultation Process involves four basic steps. The first step is to initiate the consultation process by contacting interested parties. The second step is to identify the historic property at issue. The third step is to assess the adverse effects of the proposed federal undertaking. The fourth step is to resolve the adverse effects either though a Memorandum of Agreement between the parties or further consultation with the Advisory Council on Historic Preservation. *36 CFR 800.3-800.6*.

<u>Initiate Consultation</u>: The agency must identify the appropriate State Historic Preservation Officer (SHPO) and/or Town Historic Preservation Officer (THPO) and initiate consultation. The SHPO/THPO may identify other interested parties that should be invited to participate in the Section 106 process including local governments, Indian tribes, and the public at large. $36 CFR \ 800.3(e)-(f)$.

<u>Identify historic properties</u>: The agency must determine and document the area of potential effects; review existing information on historic properties, including any data concerning possible historic properties not yet identified; seek information from other consulting parties, and finally; identify historic properties and evaluate their historic significance using the National Register criteria. $36 \ CFR \ 800.4(a)-(b)$.

<u>Assess adverse effects</u>: An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualifies for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. Adverse effects may include reasonably foreseeable effects cause by the undertaking that may occur later in time, be farther removed in distance or be cumulative. 36 CFR 800.5(a)(1).

<u>Resolve adverse effects</u>: The agency must continue consultation with the SHPO/THPO and notify the Advisory Council about any adverse effects. Resolution of the adverse effects may be achieved with or without direct involvement of the Advisory Council. Execution of a Memorandum of Agreement to avoid, minimize or mitigate the adverse effects shall evidence the agency's compliance with the Act. *36 CFR 800.6.*

As City Manager John Bohenko testified at the hearing held on September 7, 2006, the City is committed to complying with the EPA's secondary treatment requirement. Before the EPA issues its final decision, however, the agency must consider the potential adverse effects this permit will have on the historic property surrounding the Peirce Island Water Treatment Facility.

RESPONSE III.A.:

By letter dated August 4, 2006 to EPA, and in reference to the draft NPDES permit for the City's discharge, the New Hampshire SHPO informed EPA that "the proposed action, as limited and conditioned by the permit, will have no effect on known or expected resources" subject to the NHPA. Therefore we believe no further action under the NHPA is required at this time.

We recognize that in order to meet the permit's secondary treatment-based limits, the City will need to construct new facilities. No decision has been made to build those facilities on Peirce Island. Expansion of the existing facility is only one of several alternatives that the City plans to evaluate. If facilities planning results in a preferred alternative that has the potential to affect historic properties on Peirce Island, EPA will bring this information to the attention of the SHPO and will fulfill its statutory obligations under section 106 of the NHPA, including compliance with the process described in 36 C.F.R. Part 800, as appropriate.

B. The City seeks to confirm that the administrative record for the tentative decision regarding the variance from secondary treatment standards and the draft secondary permit will include all of the records previously filed with EPA by the City and by other parties concerning the discharge of wastewater from the Peirce Island treatment plant beginning with the City's initial application for waiver from secondary treatment requirements of the Clean Water Act filed on December 1, 1982. Specifically, the City believes that the administrative record includes, but may not be limited to, the documents referenced on Schedules A and B (attached).

<u>RESPONSE III.B.</u>: EPA's regulations at 40 C.F.R. §§ 124.9 and 124.18 describe the contents of the administrative record for the draft and final permits. EPA will compile its record consistent with the regulations. EPA is obligated to include in the record all relevant factual information that it considered when making its decision, whether or not that information supported the decision. We do not believe that this obligation means that the record for this final permit decision must include all documents relating to the City's 301(h) waiver request dating back to 1982.

IV. WRITTEN COMMENTS BY CLF

A. On page 6 of the draft permit, paragraph 2 states: "The discharge shall not cause a violation of the water quality standards of the receiving water." This language is an inaccurate statement of the applicable standard under the Clean Water Act and applicable

regulations, which require that discharges not "cause *or contribute to*" a violation of water quality standards. (Emphasis added). The EPA's own fact sheet for the draft permit acknowledges this legal standard,³ as does a subsequent provision of the draft permit itself.⁴ The above-referenced language should be amended to include the words "or contribute to" following the word "cause."

RESPONSE IV.A.:

EPA agrees that the correct language is "cause or contribute to a violation of water quality standards." The final permit has been changed to include this language.

B. The draft permit imposes no effluent limitation for Ammonia Nitrogen as Nitrogen, merely imposing instead a "report only" requirement. As set forth in CLF's prior comments, increasing nutrient levels in the Great Bay estuary has become a matter of significant, growing concern. Accordingly, the EPA should establish a specific effluent limitation for Ammonia Nitrogen as Nitrogen, as well as total nitrogen. To ensure adequate safeguards in light of increasing nitrogen levels in the estuary, and to ensure maintenance of water quality standards, we urge the adoption of a 5 mg/l limit for total nitrogen.⁵ Such stringent limits are needed not only to minimize the impacts of nutrients alone, but also their impacts in combination with possible warming trends, which are leading to hypoxic conditions in Rhode Island and which merit close consideration. *See* Attachment B ("Bay bottom is oxygen starved; fish won't survive," The Providence Journal, Aug. 5, 2006).

<u>RESPONSE IV.B.</u>: – In general, NPDES permit limits are based on either technology requirements or water quality requirements, whichever are more stringent for any given pollutant.

In the case of Publicly Owned Treatment Works (POTWs), EPA is directed to establish technology treatment requirements based upon secondary treatment standards (see § 301 of the CWA, 40 C.F.R. Section 125.3(a)(1)(i), and 40 C.F.R. Part 133). These technology-based requirements were specified in the draft permit and are retained in the final permit. The secondary treatment requirements in 40 C.F.R. Part 133 do not specify a technology-based limit on nitrogen. EPA does not dispute that meeting a limit of 5 mg/l is technologically feasible. Nevertheless, because the technology-based

³ See Fact Sheet at p. 5 ("The permit must limit any pollutant or pollutant parameter (conventional, nonconventional, 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.") (citing 40 C.F.R. § 122.44(d)(1)) (emphasis added).

⁴ See Draft NPDES Permit at p. 9, ¶C,1,a(1) ("The [CSO] discharges may not cause or contribute to violations of Federal or State water-quality standards.") (emphasis added).

⁵ Achieving this limit is feasible, especially considering that technology exists to achieve an effluent limit of 3 mg/l for total nitrogen. In fact, in the context of the Seacoast Region Wastewater Management Feasibility Study, in comments submitted by Mr. George Berlandi, the N.H. Department of Environmental Services (NHDES) made the initial recommendation that, "[b]ased on the State of Connecticut's Long Island Sound's TMDL," a 5 mg/l nitrogen limit should be used for wastewater treatment plants discharging to an estuary. Attachment A. With specific regard to Peirce Island, NHDES recommended 8 mg/l. *Id.*

requirements for POTWs do not include limits on nitrogen, the Region may not set a technology-based nitrogen permit limit on Portsmouth's discharge.

In the case of establishing a water-quality based permit limit, EPA must first determine whether the discharge will cause, has the reasonable potential to cause, or contributes to an excursion above any state water quality standard, including narrative criteria (see 40 C.F.R. Section 122.44(d)(1)).

New Hampshire has not as yet adopted a numeric criterion for nitrogen, although the New Hampshire Estuary Program (NHEP) has agreed to lead an effort to develop water quality criteria for estuarine waters. Data from NHEP indicators such as dissolved oxygen, chlorophyll-a, total suspended solids, and eelgrass biomass are being reviewed to better understand nutrient dynamics and impacts in the Great Bay Estuary. The outcome of this analysis will be recommendations to the State Water Quality Standards Advisory Committee for specific criteria to protect the water quality of New Hampshire's estuaries from the effects of excess nutrients.⁶ Currently, the water quality standards provide that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair existing or designated uses, unless naturally occurring." Env-Ws 1703.14(b). Excess nitrogen can affect water quality by causing algae blooms and/or low dissolved oxygen levels, both of which can impair existing or designated uses. To date, neither of these conditions is evident in the Piscataqua River (the "receiving water") or even in Great Bay itself. While the commenter has submitted information indicating that the trend of dissolved inorganic nitrogen concentrations in the Great Bay estuary is generally upward, this information is insufficient to indicate that the City of Portsmouth's current or future discharge will cause, has the reasonable potential to cause, or contributes to an excursion of water quality standards. Therefore, at the current time, EPA does not have sufficient justification to impose a nitrogen limit for this discharge.

The commenter states that the "NHDES recommended 8 mg/l" for a Peirce Island nitrogen limit, in the context of the Seacoast Region Wastewater Management Study. EPA does not believe that this information is relevant to the permitting action. The NHDES comments were made on a draft "methodology" for development of future WWTF discharge limits. The "recommended" nitrogen levels were not based on information relevant to the Great Bay estuary, rather they were taken from the State of Connecticut's Long Island Sound Nitrogen Total Maximum Daily Load (TMDL). The purpose of this methodology was to allow planners to evaluate various wastewater management alternatives in New Hampshire's seacoast region. These 'hypothetical' permit limits were proposed for the year 2025. The "proposed" permit limits could be used to determine the need for future WWFT upgrades in the seacoast area. The draft methodology clearly states that these "proposed future limits are intended to be only (emphasis added) used in this study as a means of comparison for the various wastewater management alternatives and should not be taken to have any legal implication or indicate suggested future permit limits." In other word, these hypothetical permit limits were to be used only as a planning tool.

⁶ See <u>State of the Estuaries, 2006, New Hampshire Department of Environmental Services, pg. 13.</u>

Finally, the City has stated that it is committed to upgrading wastewater treatment to meet the permit requirements. The City has further stated that it supports the idea that the best practical treatment technology should be used in the upgrade to the Peirce Island Primary Treatment plant and that this may include technology to remove nitrogen (see comment II.K above). EPA believes that it would be prudent to include denitrification as part of any upgrade, since installing the technology now presumably would be the most cost effective way to address nitrogen removal, rather than retrofitting the treatment plant later in the event nitrogen limits are required based on the adoption of a numeric criterion and/or on new data that indicate the potential to cause or contribute to a violation of the narrative criterion.

C. The draft permit addresses enterococci bacteria with a "report only" requirement, rather than imposing a numerical effluent limitation. It does so based on the nature of the outfall location and the assumption that the location "is not ordinarily used for recreational swimming," as well as "the lack of site specific data needed in order to access (sic.) the reasonable potential from the plant to contribute to a bacteria violation of the receiving water, which is on the State's list of impaired waters for enterococci bacteria." See Fact Sheet at p. 12. As stated in CLF's prior comments, it is important to note that primary contact recreation does in fact occur (a) in Little Harbor, where children engage in a sailing school and sometimes enter the water, and (b) on New Castle Island and in Kittery, in the vicinity of Portsmouth Harbor. Moreover, the Piscataqua River is classified as a Class B waterbody, and "swimming and other recreational purposes" are among its designated uses. See Fact Sheet at p. 7. These facts require the inclusion of specific effluent limitations for enterrococci bacteria, as does the receiving water's status as being impaired for such bacteria. The above-mentioned "lack of [existing] site specific data" is hardly a basis for not imposing such limitations. Rather, such data should be collected and should be a substantive basis for amending the draft permit to include specific limitations.

RESPONSE IV.C.:

In response to CLF's concern, EPA looked further into the reason for the 303(d) listing. According to DES, the Lower Piscataqua River is identified on the 303(d) list as not supporting primary contact recreation due only to the presence of Portsmouth's CSOs within that assessment unit and not because of enterococci violations found during ambient sampling. As a matter of fact, the enterococci water quality data collected in the Lower Piscataqua River assessment unit indicate that the river fully supports primary contact recreation. There are no data to indicate that Portsmouth's treatment plant contributes to enterococci violations in the receiving water.

However, EPA does agree that enterococci data should be collected and has included such a requirement in the permit. This information will be used to ensure that the receiving water is protected for its designated use. Also, the permit contains a monthly average fecal coliform bacteria limit of 14 colonies/100 ml. While this limit is established to protect downstream shellfish beds, it should also ensure that the discharge is sufficiently disinfected to protect the waters for primary contact recreation (i.e., control

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or otherwise reduce enterococci bacteria levels). This will be fully evaluated over the term of the permit (see response II.C.2 above).

Therefore, the permit contains a report-only requirement for enterococci.

D. The draft permit fails to include a time line for eliminating combined sewer overflows (CSOs). It is essential that these CSOs be addressed in the near term, and we urge an aggressive timeframe for their elimination as a term of the final permit.

RESPONSE IV.D.:

The existing consent decree between EPA and the City of Portsmouth required the City to propose a CSO Plan to address control of combined sewer overflows. The City did develop a CSO control program and has subsequently completed several separation projects. EPA expects to include a compliance schedule for completing CSO work in the administrative order and consent decree mentioned in Response I.A.1 and 2. above. The Region expects that the City will agree to a CSO construction schedule that results in the greatest reduction in CSOs obtainable in as short a time frame as is feasible. CSO construction schedules necessarily reflect significant financial and construction restraints facing communities with overflows.

E. The draft permit provides that the frequency of toxicity testing can be reduced to not less than once per year, under certain circumstances, and by written request of the City. CLF urges the EPA to amend this language to require a minimum toxicity testing frequency of at least twice per year. We also urge the inclusion of language stating that if the frequency of testing is reduced, it can later be increased if warranted by testing results. Finally, CLF specifically requests that EPA provide CLF specific notice of any written request to reduce testing frequency.

RESPONSE IV.E.:

EPA agrees that toxicity testing should not be reduced to a frequency of less than twice per year for this permit issuance, since data collected will be from the first years of operation of Portsmouth's new and/or upgraded treatment facility(s). EPA may provide for lowering the toxicity testing frequency to not less than once per year in subsequent permit issuance, if warranted.

A provision to notify CLF of any request to reduce to toxicity testing has been included in the permit (see Part I.D.1 of the final permit). EPA has also added language to the permit that specifies that toxicity testing may also be increased after any reduction, if granted, if testing results warrant an increase (see Part I.D.1 of the final permit).

F. The draft permit should include a general re-opener clause to preserve all rights of reopener pursuant to 40 C.F.R. § 122.62.

RESPONSE IV.F.:

Part II of the permit, which contains the general conditions applicable to all permits, contains a reopener clause consistent with § 122.62

G. Though CLF commends EPA for reversing its initial, tentative decision to *grant* a Section 301(h) waiver for the Peirce Island plant, we are gravely concerned with the substantial time period (15+ years) that has elapsed during the administrative extension of the City's 1985 NPDES permit and 301(h) waiver. We are equally concerned with the prospect of future delay – which the EPA should in no way tolerate – as the City now grapples with potential alternatives to the Peirce Island plant and/or upgrades of the existing facility.

The Clean Water Act established critically important goals, and aggressive timetables for achieving those goals, that have been greatly undermined by the 15+ year administrative extension of the City's 1985 waiver and NPDES permit. As set forth in Section 301(b) of the Clean Water Act, Congress established a rigorous timetable to achieve the Act's objective "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. §§ 1311(b), 1251. Pursuant to that timetable, Congress specifically provided in Section 301(b)(1)(B) that publicly owned treatment works in existence on July 1, 1977 shall, at that time, operate with effluent limitations premised on secondary treatment technologies. 33 U.S.C. § 1311(b)(1)(B). It further provided that "there shall be achieved . . . not later than July 1, 1977, any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations . . . or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to this chapter." 33 U.S.C. § 1311(b)(1)(C). This regulatory scheme has been described as follows:

The statute calls for a two phase program for application of effluent limitations. In Phase I, publicly-owned treatment works must provide, by July 1, 1977, secondary treatment $(33 \text{ U.S.C.A} \S 1311(b)(1)(B))$ or higher levels of treatment required to implement water quality standards (33 U.S.C.A. § 1311(b)(1)(C)), whichever is more stringent. The failure to provide secondary treatment to effluent discharge within the statutorily imposed period renders that publicly-owned treatment plant ineligible for a discharge permit, and hence in violation of the law. Phase II increases the standard of regulation by requiring public plants to utilize the best practicable waste treatment technology in order to qualify for a discharge permit. 33 U.S.C.A. § 1311(b)(2)(B). The duty of enforcement of these limitations and deadlines is imposed upon the EPA and the right to require such enforcement is granted to private citizens. 33 U.S.C.A. §§ 1319, 1365. *State Water Control Bd. v. Train*, 424 F.Supp. 146, 147-48 (E.D. Va. 1976).

Under Section 301(i) of the Act, Congress specifically provided the opportunity for "municipal time extensions." 33 U.S.C.A. § 1311(i). Specifically, Congress provided that where construction is required to comply with the above requirements of subsection

(b)(1)(B) or (b)(1)(C) of Section 301, "but (A) construction cannot be completed within the time required in such subsection, or (B) the United States has failed to make financial assistance under this chapter available in time to achieve such limitations by the time specified in such subsection," the plant owner may request a time extension to come into compliance. *Id.* The Act requires that such a request be filed with the EPA "within 180 days after February 4, 1987." *Id.* Of particular significance, Section 301(i) goes on to state in pertinent part:

The [EPA Regional] Administrator . . . may grant such request and issue or modify such a permit, which shall contain a schedule of compliance for the publicly owned treatment works based on the earliest date by which . . . financial assistance will be available from the United States and construction can be completed, *but in no event later than July 1, 1988.* . . .

33 U.S.C. § 1311(i) (emphasis added).⁷

As the above statutory provisions demonstrate, the Clean Water Act created an aggressive schedule by which municipalities were required to implement secondary treatment and satisfy water quality standards. Together, these provisions establish that EPA has no authority to extend the Act's secondary-treatment standard deadlines beyond July 1, 1988. See United States v. City of Hoboken, 675 F.Supp. 189, 194 (D.N.J. 1987).⁸ In Hawaii's Thousand Friends v. City and County of Honolulu, 821 F.Supp. 1368 (D. Has. 1993), for example, it was held that EPA lacked authority to allow, through an administrative consent order, the discharge of primary-treated effluent after July 1, 1988. There, Hawaii's Department of Health (DOH) had entered a 1985 consent order which contained interim effluent limitations and a construction schedule developed with approval and direction from the EPA. Thereafter, on July 1, 1985, DOH granted the subject plant an NPDES permit prohibiting the discharge of primary or advanced primary sewage effluent, and establishing effluent limitations "pegged to the secondary treatment requirements of the Clean Water Act." Id. at 1377 (emphasis in original). Despite this permit, the EPA apparently intended and believed (as did DOH and the discharger) that the interim effluent limits set forth in the consent order would remain effective after July 1, 1988. Id. In a decision invalidating this approach, the Hawaii's Thousand Friends court ruled:

Neither EPA nor its state agent, DOH, has authority to extend secondary treatment deadlines or grant permits to discharge at less than secondary levels beyond July 1, 1988. Accordingly, the provisions in the 1985 consent order between the city and DOH purportedly lowering the effluent limitations for the plant are of no effect after the statutory municipal compliance deadline of July 1, 1988.

⁷ A prior version of Section 301(i) contained a deadline of July 1, 1983. The section was subsequently amended to provide the current deadline of July 1, 1988.

⁸ The *City of Hoboken* case was decided under previous language of Section 301(i) and, therefore, states that it is "clear that EPA had no authority to extend secondary-treatment standard deadlines beyond July 1, 1983," as opposed to July 1, 1988.

Id. at 1393.

Here, the Peirce Island facility will be in violation of its NPDES permit immediately upon such permit becoming effective. According to the EPA's Fact Sheet:

EPA intends to develop a schedule for the construction of secondary treatment facility(s). EPA plans to work with the City and the United States Department of Justice to modify the existing judicial Consent Decree that the City of Portsmouth entered into with the United States to include an implementation schedule. The modified Consent Decree will contain the key milestones and implementation dates. EPA also expects to set interim limits and conditions that the City will need to meet until the secondary treatment facility is operational.

Fact Sheet at p. 16. As in the *Hawaii's Thousand Friends* case, EPA intends to allow a period of time during which the Peirce Island plant's wastewater discharges will not satisfy the secondary-treatment requirements of the Clean Water Act and the yet-to-be-issued NPDES permit. The Act makes clear, however, that ever since July 1, 1988, the EPA has lacked statutory authority to sanction such discharges. See 33 U.S.C. § 1311(i); City of Hoboken, 675 F.Supp. at 194 ; Hawaii's Thousands Friends, 821 F.Supp. at 1393.⁹ Thus, the EPA is without statutory authority to pursue its intended course of action.

Without in any way waiving concerns regarding the legality of EPA's intended course of action, CLF comments as follows:

1. Any interim limits and conditions developed by the EPA should be subject to public review and comment.

2. We strongly question whether the re-opening and modification of the existing judicial consent decree – which was executed in 1990, and which in no way addresses the significantly new standards now at issue as a result of the imminent 301(h) waiver denial – is proper. Rather, should the EPA use a judicial consent decree as a vehicle for achieving compliance and establishing an enforceable implementation schedule, we urge it to initiate a new and separate action such that the parties are afforded a meaningful opportunity to address the issues as they currently exist. CLF requests that it be provided specific notice of the public's right, pursuant to 28 C.F.R. § 50.7, to review and comment on any consent decree prior to its approval and entry by the U.S. District Court.

⁹ The *Hawaii's Thousand Friends* court noted that at the time the subject 1985 consent order was drafted, "it was EPA Region IX policy to issue these orders administratively rather than through judicial means." *Hawaii's Thousand Friends*, 821 F.Supp. at 1377. Nothing in the decision indicates that use of a judicial consent decree would have somehow rendered EPA's sanctioning of post-July 1, 1988 primary treatment legal.

3. Although we struggle to understand the legality of any approach that sanctions the Pierce Island facility's discharge with less than secondary treatment, under no circumstances should the EPA allow a period in excess of the NPDES permit term (i.e., 5 years) for the City to implement secondary treatment and meet the effluent limits of the permit. Allowing a period in excess of the permit term would amount to a *de facto* granting of the City's requested 301(h) waiver – a waiver the EPA admits cannot legally be issued. In light of the substantial time that has elapsed since the expiration of the 1985 waiver and NPDES permit – a time period that flies in the face of the clear intent of the Clean Water Act and the rigorous implementation timeframe set forth therein – the EPA must demand and obtain prompt implementation such as to ensure compliance with the yet-to-be issued NPDES permit during its five-year term.

RESPONSE IV.F.:

We agree with CLF that § 301(b)(1)(B) of the Clean Water Act requires POTWs to meet secondary treatment limits by July 1, 1977 (or by certain later dates which have also passed), if certain exceptions are met. We also agree that as a result, the final permit must require immediate compliance with secondary treatment-based limits, notwithstanding the fact that pursuant to its prior permit, the City was legally authorized to discharge its effluent after only applying primary treatment. At the same time, it is clear that the City requires time to plan, design, and construct a secondary treatment plant before it is capable of meeting the final permit limits. In such a case, it is appropriate for EPA to establish an expeditious compliance schedule in an administrative order or judicial consent decree, consistent with §§ 309 (a) and (b) of the CWA.¹⁰ EPA has stated its intent in this case to establish such a schedule first in an administrative order and then in a consent decree. The terms of any new consent decree or modification of the existing consent decree, including interim limits and conditions, would be subject to public notice

¹⁰ CLF asserts that EPA would not have the authority to establish a schedule that goes beyond the statutory deadline in either an administrative order or consent decree, citing to Hawaii's Thousand Friends v. City and County of Honolulu, 821 F.Supp. 1368 (D. Haw. 1993) ("Honolulu"). Section 309(a) of the CWA clearly provides for the issuance of administrative compliance orders, which must "specify a time for compliance ... not to exceed a time [EPA] determines to be reasonable in the case of a violation of a final deadline, taking into account the seriousness of the violation and any good faith efforts to comply...." See § 309(a)(5)(A). Nowhere does § 309(a) constrain EPA's ability to specify a schedule if the statutory deadline for compliance has passed. The Honolulu decision stands for the unremarkable proposition that an administrative compliance order does not legally alter the requirements to which a permittee is subject and therefore does not shield a permittee from citizen suit to enforce the underlying permit conditions. The case does not address judicial consent decrees at all. Like administrative orders, a consent decree does not legally alter the underlying permit requirements. Rather, it is a court approved settlement of an enforcement action brought by the United States representing EPA. The extent to which a federal judicial enforcement action constrains a citizen suit is determined by § 505(b) of the CWA.

and comment pursuant to 28 C.F.R. § 50.7 before the decree is entered by the court. We agree with the many commenters who have urged that there not be undue delay in the City's attainment of the final permit limits. As discussed above, the compliance schedule needs to be expeditious, taking into consideration a variety of factors, including: 1) the time necessary to thoroughly evaluate plant siting and treatment technologies; 2) a reasonable and feasible construction schedule once siting is complete; 3) other work the City is involved in that may produce significant environmental results; and 4) the need for other regulatory approvals.

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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 <u>negligently</u> 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 <u>knowingly</u> 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.)

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.

. 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 <u>except for the information concerning storm water discharges which must be retained for a total of 6 years</u>. 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.

- 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.
- . 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 <u>Escherichia coli</u>, 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) <u>Commencement of Construction</u> is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.
- (b) <u>Dedicated portable asphalt plant</u> 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) <u>Dedicated portable concrete plant</u> 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) <u>Final Stabilization</u> 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) <u>Runoff coefficient</u> 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) 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 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.

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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:

- 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:
 - 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:
 - 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 incinerator operates, are severage 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
NH3-N	Ammonia nitrogen as nitrogen
NO3-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.

ZID