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"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

Seaman Paper Company of Massachusetts, Inc.
P.O. Box 21
Baldwinville, MA 01436

is authorized to discharge from a facility located at

Seaman Paper Company of Massachusetts, Inc.
51 Main Street
Otter River, MA 01436

to receiving water named

Otter River

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

This permit shall become effective upon the date of signature.

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

This permit supersedes the permit issued on September 30, 2008.

This permit consists of 16 pages in Part I including effluent limitations, monitoring requirements, Attachment A – Freshwater Chronic Toxicity Test Procedure and Protocol (March 2013, 7 pages), Attachment B – Freshwater Acute Toxicity Test Procedure and Protocol (February 2011, 8 pages), and 25 pages in Part II, the Standard Conditions.

Signed this WK day of) HEUXDU\, 2015.

/S/SIGNATURE ON FILE_____	/S/SIGNATURE ON FILE_____
Ken Moraff, Director	David Ferris, Director
Office of Ecosystem Protection	Massachusetts Wastewater Management Program
Environmental Protection Agency	Department of Environmental Protection
Boston, MA	Commonwealth of Massachusetts
	Boston, MA

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated papermaking process wastewater, belt press filtrate, boiler blowdown, filter backwash, feedwater pump cooling water, heat exchanger water, and air conditioner condensate through **Outfall Serial Number 001A (formerly Outfall 001)** to the Otter River. Such discharge shall: 1) be limited and monitored by the permittee as specified below; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements [1]	
		Average Monthly	Maximum Daily	Measurement Frequency [2]	Sample Type
Flow, Effluent Flow, Upstream [3]	MGD cfs	1.1 Report	1.4 Report [3]	Continuous 1/Day	Meter Monitor
Biochemical Oxygen Demand (BOD)[4] (May 1st – October 31st) (November 1st – April 30th)	 lbs/day lbs/day	 286 400	 400 700	 1/Week 1/Week	 Composite [5] Composite [5]
Total Suspended Solids (TSS) [4] (May 1st – October 31st) (November 1st – April 30th)	 lbs/day lbs/day	 400 700	 600 900	 1/Week 1/Week	 Composite [5] Composite [5]
pH[6]	SU	Range: 6.0 – 8.3		1/Day	Grab
Phosphorus, Total (Apr 1st – Oct 31st)	mg/l	0.2	Report	2/Week	Composite [5]
Phosphorus, Total, Upstream (Apr 1st – Oct 31st)	mg/l	Report	Report	1/Month	Grab

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements [1]	
		Average Monthly	Maximum Daily	Measurement Frequency [2]	Sample Type
Ammonia	mg/l	Report	Report	1/Month	Composite [5]
Effluent Temperature	°F	Report	90°F	2/Week	Grab
Total Aluminum, Effluent	mg/l	0.087 [7]	1.57	1/Month	Composite [5]
Total Aluminum, Effluent	mg/l	Report [7]	1.57	1/Month	Composite [5]
Total Aluminum, Instream [7]	mg/l	Report	--------	1/Month	Grab
Dissolved Oxygen[6] (June 1st – September 30th)	mg/l	----	5.0 mg/l minimum[8]	2/Month	Grab
Total Residual Chlorine	ug/l	Report	Report	1/Month	Grab
Nitrite and Nitrate Nitrogen [9]	mg/l & lbs/day	Report	Report	1/Month	Composite [5]
Total Kjeldahl Nitrogen [9]	mg/l & lbs/day	Report	Report	1/Month	Composite [5]
Total Nitrogen [9]	lbs/day	Report	Report	1/Month	Calculated
Total Iron	mg/l	Report	Report	1/Quarter	Composite [5]

See pages 5 through 7 for explanation of footnotes.

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements [1]	
		Average Monthly	Maximum Daily	Measurement Frequency [2]	Sample Type
Whole Effluent Toxicity (WET) [10, 11]					
Acute LC_{50} [10]	%	≥100		1/Year [2]	Composite [5]
Chronic C-NOEC [10]	%	≥32		1/Quarter [2]	Composite [5]
Hardness [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Alkalinity [12]	mg/l	Report		1/Quarter [2]	Composite [5]
pH [12]	SU	Report		1/Quarter [2]	Grab [5]
Specific Conductance [12]	µmhos/cm	Report		1/Quarter [2]	Grab [5]
Total Solids [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Ammonia Nitrogen (as N) [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Organic Carbon [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Residual Chlorine [12]	mg/l	Report		1/Quarter [2]	Grab [5]
Dissolved Oxygen [12]	mg/l	Report		1/Quarter [2]	Grab [5]
Total Cadmium [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Chromium [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Lead [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Copper [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Zinc [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Nickel [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Aluminum [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Magnesium [12]	mg/l	Report		1/Quarter [2]	Composite [5]
Total Calcium [12]	mg/l	Report		1/Quarter [2]	Composite [5]

See pages 5 through 7 for explanation of footnotes.

Part I.A.1, Continued

Footnotes:

1. Samples taken in compliance with the monitoring requirements specified above shall be taken at a point representative of all the discharge from the site through the outfall, prior to mixing with the receiving water. Specifically, effluent samples for Outfall 001A shall be collected from the channel ("rippleway") that receives final plant effluent from the secondary clarifier, unless otherwise specified. Any changes in sampling location must be approved in writing by EPA and MassDEP. All samples shall be tested in accordance with the procedures in 40 CFR 136, unless specified elsewhere in the permit.

2. For example, sampling frequency of 1/day is defined as the sampling of one (1) discharge event during each 24-hour period, when discharge occurs and sampling frequency of 2/month is defined as the sampling of two (2) discharge events in each calendar month, when discharge occurs. Quarterly samples shall be collected during the months of January, April, July, and October. The permittee shall submit the results to EPA of any additional testing conducted beyond that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii). For those months when there are no discharges, the permittee must report a No Data Indicator (NODI) Code (e.g., "C" for "No Discharge") on the Discharge Monitoring Report (DMR). A list of NODI codes may be found in Attachment E of *NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, available at http://www.epa.gov/region1/enforcement/water/dmr.html.

3. The permittee shall obtain daily upstream river flow readings from USGS Gage No. 01163200, located at Turner Street in Templeton on the Otter River.

4. These BOD and TSS limits do not apply during low flow conditions. During low flow conditions, as defined in Part I.A.2, the BOD and TSS limits in that Part shall apply. During such low flow conditions and for the purposes of Outfall 001A, the permittee shall calculate the monthly average and daily maximum values for BOD and TSS for only those portions of the month which do not include any days when operating under low flow conditions.

5. A 24-hour composite shall consist of twenty-four (24) grab samples collected at hourly intervals during a twenty-four hour period (i.e., 0700 Monday to 0700 Tuesday), combined proportionally to flow.

6. Required for State certification.

7. Once per month, on the day that the composite total aluminum sample is taken of the effluent, the permittee shall also take a grab sample for total aluminum upstream of the effluent at a representative location in the Otter River. The monthly average effluent limit for total aluminum is 87 ug/l in the event that the instream sample is 87 ug/l or lower. If the instream sample is higher than 87 ug/l, then the monthly average effluent aluminum limit will be the concentration value of the instream sample.

8. Report the lowest recorded dissolved oxygen concentration on each month's DMR.

9. See Part I.C for requirements regarding the optimization of the removal of nitrogen through the treatment plant as well as nitrogen reporting requirements. The Total Nitrogen loading will be calculated by the addition of the components nitrite and nitrate nitrogen and total kjeldahl nitrogen. The permittee shall provide the methodological error associated with the Standard Method that is used to analyze for these nitrogen components. The effluent sampling for all nitrogen parameters and reporting of the total effluent nitrogen loading is required for the term of this permit.

10. The permittee shall conduct quarterly, chronic whole effluent toxicity (WET) tests. The permittee shall test the daphnid, *Ceriodaphnia dubia*. Chronic WET test samples shall be collected during the months of January, April, July, and October and acute WET test samples shall be collected during July. The test results shall be submitted by the last day of the month following the completion of the test. The results are due February 28th, May 31st, August 31st, and November 30th, respectively. The tests must be performed in accordance with test procedures and protocols specified in Attachments A and B of the permit.

WET Testing Months	Submit Results by:	Test Species	Chronic Limit	Acute Limit
January, chronic April, chronic July, chronic and acute October, chronic	February 28th May 31st August 31st November 30th	*Ceriodaphnia dubia* (Daphnid)	C-NOEC $\geq$ 32 %	$LC_{50} \geq 100\%$

The C-NOEC is the chronic no observed effect concentration and LC_{50} is the concentration of the effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than 50% mortality rate. After submitting one year and a minimum of four consecutive sets of chronic WET test results, all of which demonstrate compliance with the chronic limit, the permittee may request a reduction in the chronic WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from EPA that the WET testing requirement has been changed.

11. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in Section IV (Dilution Water) of Attachment A in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required in Attachment A, EPA-New England has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. If this Guidance Document is revoked, the permittee shall revert to obtaining approval as outlined in Attachment A. The "Guidance Document" has been sent to all permittees with their annual set of DMRs and Revised Updated Instructions for Completing EPA's Pre-Printed NPDES Discharge Monitoring Report (DMR) Form 3320-1 and is not intended as a direct attachment to this permit. Any modification or revocation to this "Guidance Document" will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in Attachment A.

12. For each Whole Effluent Toxicity (WET) test, the permittee shall report on the appropriate Discharge Monitoring Report (DMR), the concentrations of the Hardness, Total Ammonia Nitrogen as Nitrogen, Alkalinity, pH, Specific Conductance, Total Solids, Total Organic Carbon, Total Residual Chlorine, Dissolved Oxygen, Aluminum, Cadmium, Chromium, Copper, Lead, Nickel, Zinc, Magnesium, and Calcium found in the 100 percent effluent sample. Metals shall be reported as total recoverable concentrations. The permittee should note that all chemical parameter results must still be reported in the appropriate WET testing report. The chemical analysis results for iron, ammonia, aluminum, and TRC from the WET test may be used to satisfy the monitoring requirements for these parameters on Page 3 of this permit for that particular quarter.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge treated papermaking process wastewater, belt press filtrate, boiler blowdown, filter backwash, feedwater pump cooling water, heat exchanger water, and air conditioner condensate **during low flow conditions** (as defined in footnote 1) through **Outfall Serial Number 001B (formerly Outfall 001A)** to the Otter River. Such a low flow condition discharge shall: 1) be limited and monitored by the permittee as specified below for BOD and TSS and as specified in Part I.A.1 for other effluent characteristics; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirements [1,2]	
		Average Monthly	Maximum Daily	Measurement Frequency [3]	Sample Type
Flow, Upstream [4]	cfs	Report	Report	1/Day	Monitor
Biochemical Oxygen Demand (BOD) [5] (May 1st – October 31st)	lbs/day	150 [5]	200 [5]	1/Week	Composite [6]
Total Suspended Solids (TSS) [5] (May 1st – October 31st)	lbs/day	150 [5]	200 [5]	1/Week	Composite [6]

Footnotes:

1. Samples taken in compliance with the monitoring requirements specified above for Outfall 001B shall be taken at the same monitoring point as specified for Outfall 001A in Part I.A.1 of the permit, when the total daily flow in the receiving water, as measured at the USGS Gage Station No. 01163200, has been less than 17 cfs for 30 or more consecutive days. Therefore, Outfall 001B is the discharge through Outfall 001A during low flow conditions. These Outfall 001B requirements for upstream flow, BOD, and TSS replace the requirements for these parameters at Outfall 001A in Part I.A.1.

Part I.A.2, continued

2. In the event of normal upstream flow conditions (17 cfs or greater), or the low flow condition (less than 17 cfs) that are not at least 30 consecutive days in length, the permittee shall enter "NODI 9" on the DMR for this month, and report the required parameters in Part I.A.1 of the permit for Outfall 001A.

3. Sampling frequency of 1/day is defined as the sampling of one (1) discharge event during each 24-hour period, when discharge occurs. Sampling frequency of 1/week is defined as the sampling of one (1) discharge event in each calendar week, when discharge occurs. The permittee shall submit the results to EPA of any testing that is conducted in addition to that required herein, if it is conducted in accordance with EPA approved methods consistent with the provisions of 40 CFR §122.41(l)(4)(ii).

4. The permittee shall obtain daily upstream river flow readings from the USGS Gage No. 01163200, located at Turner Street in Templeton on the Otter River.

5. When the 30th consecutive day of the low flow condition is met, and until the daily flow as measured by the Turner Street Gage equals or exceeds 17 cfs, the permittee shall achieve thirty (30) day average limits of 150 lbs/day for both BOD and TSS. The permittee shall also achieve maximum daily limits of 200 lbs/day for both BOD and TSS beginning on the 31st day of consecutive low flow and every consecutive day that the gage flow remains below 17 cfs. Up through the 30th day of gage-measured flow of less than 17 cfs, the BOD and TSS limits in Part I.A.1 shall apply.

   For example, if on June 12th, the total daily receiving water flow fell below 17 cfs and remained under 17 cfs through July 11th, the permittee shall achieve the thirty (30) day average limits for BOD and TSS on July 12th, using all effluent data collected during the prior thirty (30) day period. As long as the daily gage flow remains under 17 cfs, the permittee would be subject to the more stringent limits and the thirty (30) day average for subsequent days would be calculated using effluent sampling results from that day and the previous 29 days. Using the example above, the applicable maximum daily limit of 200 lbs/day for BOD and TSS shall be met beginning on July 12th and for every consecutive day that the gage flow remains below 17 cfs. In this case, the permittee would report BOD and TSS values for Outfalls 001A and 001B for the month of July.

6. A 24-hour composite will consist of twenty-four (24) grab samples collected at hourly intervals during a twenty-four hour period (i.e., 0700 Monday to 0700 Tuesday), combined proportionally to flow.

Part I.A. (Continued)

3. The pH of the effluent shall not be less than 6.0 or greater than 8.3 at any time unless these values are exceeded as a result of natural causes.

4. The discharge shall not cause objectionable discoloration of the receiving waters.

5. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time in other than trace amounts.

6. The permittee shall not use fungicides or slimicides containing trichlorophenol or pentachlorophenol.

7. The discharge shall not contain materials in concentrations or combinations which are hazardous or toxic to human health, aquatic life of the receiving surface waters or which would impair the uses designated by its classification.

8. EPA may modify this permit in accordance with EPA regulations in 40 Code of Federal Regulations (CFR) §122.62 and §122.63 to incorporate more stringent effluent limitations, increase the frequency of analyses, or impose additional sampling and analytical requirements.

9. All existing manufacturing, commercial, mining and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

    a. That any activity has occurred or will occur which would result in the discharge, on a routine basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

        (1) One hundred micrograms per liter (100 µg/l);

        (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

        (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or

        (4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).

b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) Five hundred micrograms per liter (500 µg/l);

(2) One milligram per liter (1 mg/l) for antimony;

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R §122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. §122.44(f).

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

10. Toxics Control

a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

11. All intake water that is used for equipment cooling purposes shall be treated in the facility's wastewater treatment system prior to being discharged to the receiving water.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls listed in Parts I.A.1. and I.A.2 of this permit. Discharges of wastewater from any other point sources not authorized by this permit shall be reported in accordance with Part II Standard Conditions Section D.1.e.(1) of this permit (Twenty-four hour reporting).

C. SPECIAL CONDITIONS AND REQUIREMENTS

The permittee shall optimize its wastewater treatment system and operate its treatment plant in order to minimize the discharge of nitrogen. In conjunction with this effort, the permittee shall do the following:

1. **Within one year of the effective date of the permit**, the permittee shall complete an evaluation of the operation of the wastewater treatment facility and describe its efforts to optimize the removal of nitrogen. This report shall be submitted to EPA and MassDEP at the addresses in Parts I.E.4 and I.E.5 of this permit no later than **fifteen (15) months after the effective date of the permit** and shall describe any operational changes or alternative treatment methods for nitrogen removal that were evaluated. The permittee shall continue its optimization efforts in order to maintain or reduce the existing mass loading of total nitrogen.

2. The permittee shall submit an annual report to EPA and MassDEP, **by February 1 each year**, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to previous years.

D. REOPENER CLAUSE

1. This permit shall be modified, or alternately, revoked and reissued, to comply with any applicable standard or limitation promulgated or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

   a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. Controls any pollutants not limited in the permit.

E. MONITORING AND REPORTING

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

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

1. Submittal of DMRs and the Use of NetDMR

Beginning the effective date of the permit the permittee must submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP no later than the 15th day of the month following the completed reporting period. **For a period of six months from the effective date of the permit**, the permittee may submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA and MassDEP either in hard copy form, as described in Part I.E.4, or in DMRs electronically submitted using NetDMR. NetDMR is a web-based tool that allows permittees to electronically submit DMRs and other required reports via a secure internet connection. NetDMR is accessed from: http://www.epa.gov/netdmr. **Beginning no later than six months after the effective date of the permit**, the permittee shall begin reporting monthly monitoring data using NetDMR, unless, in accordance with Part I.E.6, the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs. The permittee must continue to use the NetDMR after the permittee begins to do so. When a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs to EPA or MassDEP.

2. Submittal of Reports as NetDMR Attachments

After the permittee begins submitting DMR reports to EPA electronically using NetDMR, the permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies, unless otherwise specified in this permit. Permittees shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. (See Part I.E.5. for more information on state reporting.) Because the due dates for reports described in this permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this permit.

3. Submittal of Requests and Reports to EPA/OEP

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

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

F. Notification of proposal to add or replace chemicals and bio-remedial agents including microbes

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

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

4. Submittal of Reports in Hard Copy Form

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

A. Written notifications required under Part II
B. Reports and DMRs submitted prior to the use of NetDMR

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

U.S. Environmental Protection Agency
Office or Environmental Stewardship (OES)
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

5. State Reporting

Unless otherwise specified in this permit, duplicate signed copies of all reports, information, requests or notifications described in this permit, including the reports, information, requests or notifications described in Parts I.E.3 and I.E.4 also shall be submitted to the State at the following addresses:

MassDEP – Central Region
Bureau of Waste Prevention (Industrial)
8 New Bond Street
Worcester, Massachusetts 01606

Copies of toxicity tests only shall be submitted to:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, Massachusetts 01606

6. Submittal of NetDMR Opt-Out Requests

NetDMR opt-out requests must be submitted in writing to EPA and MassDEP for written approval at least sixty (60) days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt-out request and such request be approved by EPA. All opt-out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

And

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
1 Winter Street, 5th Floor
Boston, Massachusetts 02108

7. Verbal Reports and Verbal Notifications

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

U.S. Environmental Protection Agency
Office of Environmental Stewardship
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912
617-918-1510

F. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 CMR 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, §27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. 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 this permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

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

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency, Region 1
Five Post Office Square, Suite 100
Mail Code OEP06-5
Boston, MA 02109-3912

and

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

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

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

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25 values and ≥ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

USEPA REGION 1 FRESHWATER ACUTE TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

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

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

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

II. METHODS

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

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

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

III. SAMPLE COLLECTION

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

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

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

IV. DILUTION WATER

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

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

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

and

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

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

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

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

V. TEST CONDITIONS

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

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

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

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

Footnotes:

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

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

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

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

Footnotes:

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

VI. CHEMICAL ANALYSIS

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

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

Notes:

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

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

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

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

No Observed Acute Effect Level (NOAEL)

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

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

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

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

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

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

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

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

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

2. Permit Actions

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

3. Duty to Provide Information

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

4. Reopener Clause

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

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

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

5. Oil and Hazardous Substance Liability

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

6. Property Rights

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

7. Confidentiality of Information

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

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

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

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

8. Duty to Reapply

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

9. State Authorities

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

10. Other Laws

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

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

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

2. Need to Halt or Reduce Not a Defense

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

3. Duty to Mitigate

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

4. Bypass

a. Definitions

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

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

b. Bypass not exceeding limitations

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

c. Notice

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

d. Prohibition of bypass

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

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

5. Upset

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

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

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

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

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

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

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

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

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

c. Records of monitoring information shall include:

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

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

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

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

2. Inspection and Entry

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

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

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

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

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

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

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

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

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

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

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

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

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

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

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

e. Twenty-four hour reporting.

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

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

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

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

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

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

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

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

2. Signatory Requirement

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

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

3. Availability of Reports.

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

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

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

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

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

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

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

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

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

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

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

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

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

Discharge of a pollutant means:

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

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

(a) Sewage from vessels; or

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

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

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

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

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

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

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

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

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

(f) The territorial sea; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

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

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

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
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FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: **MA0000469**

PUBLIC NOTICE START AND END DATES: January 16, 2015 – February 14, 2015

NAME AND ADDRESS OF APPLICANT:

Seaman Paper Company of Massachusetts, Inc.
P.O. Box 21
Baldwinville, MA 01436

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Seaman Paper Company of Massachusetts, Inc.
51 Main Street
Otter River, MA 01436

RECEIVING WATER: Otter River (Millers River Watershed MA 35-08)

RECEIVING WATER CLASSIFICATION: Class B (Warm Water Fishery)

SIC CODES: 2621 (Paper Manufacturing), 2679 (Paper Converting)

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1.0 Proposed Action, Type of Facility, and Discharge Location

Seaman Paper Company of Massachusetts, Inc. (Seaman Paper), or the "Permittee", has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for the reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated papermaking wastewater, boiler blowdown, and miscellaneous cooling waters associated with boiler operation into the designated receiving water. The existing permit was issued to Seaman Paper on September 30, 2008 (the current permit), became effective 60 days later, was modified on March 9, 2009, and expired on November 30, 2013. EPA received a permit renewal application from Seaman Paper on March 24, 2013 and this application was deemed complete by letter of June 21, 2013. Therefore, this permit, although expired, has been administratively continued.

The treated wastewater, boiler blowdown and cooling water are discharged from the final clarifier to a rippleway, designated as Outfall 001 and flows a short distance to the Otter River at a rate of approximately 900,000 gallons per day (GPD). A discharge monitoring report (DMR) summary is provided in Attachment A.

Stormwater discharges through Outfall 002 are covered under the NPDES Storm Water Multi-Sector General Permit (MSGP), # MAR05B644. Outfall 002 is located about 100 feet downstream from the wastewater discharge.

Outfall 001 discharges below the Seaman Paper Dam, within a 5.5 mile segment of the Otter River from the Seaman Paper Dam to the confluence with the Millers River in Winchendon (MA 35-08). According to the Millers River Watershed 2000 Water Quality Assessment Report:

> *The headwaters of the Otter River originate in the wetlands areas of Hubbardston, Templeton, and Gardner. The river slowly meanders through the marshy areas of Gardner passing under Routes 2 and 2A, where it receives the effluent from the Gardner WWTP. The Otter River then flows under Route 101 and meanders past sand and gravel operations before entering the impoundment at Seaman Paper Company in Gardner. The paper company's treatment plant discharges a short distance below the dam. The river enters a short rapid section before entering another impounded areas formed by the partially breached dam at the old Baldwinville Products Mill. Just downstream from this old dam the Templeton WWTP discharges to the Otter River. The velocity of the river picks up as the river flows through Baldwinville, then enters wetlands in the Otter River State Forest and continues for three miles before emptying into the Millers River. The USGS operates one gage on the Otter River at the Turner Street Bridge in Templeton. The drainage area at this gage is 34.2 mi^2 with an average discharge of 53 cfs. The river here is sluggish, having an average fall of about 9 feet per mile.*

The flow of the Otter River is minimal during the summer, but is always flowing. The Otter River flows to the Millers River, which flows to the Connecticut River.

2.0 Description of Treatment System and Discharges

Seaman Paper is a non-integrated specialty paper manufacturing facility that produces tissue paper wrapping, food wrapping, and decorative streamers. Non-integrated paper mills do not process forest logs or wood chips on-site. The basic raw materials are 60% secondary fiber (consisting of recycled paper from other paper mills that do not require deinking and reject paper wastes from internal manufacturing and converting processes) and 40% virgin pulp. The facility is located downstream of the Seaman Paper Dam, in the Village of Otter River in Templeton, MA as shown in Attachment B.

Seaman Paper operates an intake structure above the Seaman Paper Dam on the Otter River, which supplies approximately 1.1 MGD intake water throughout the plant to the paper machines and the boiler. See Attachment C for a schematic of water flow through the wastewater treatment plant (WWTP) and Attachment D for a schematic of the water flow through the intake structure. The water flows into the intake canal which splits the flow between the intake and a dam bypass. Gates on both of the flows can be lowered or raised to regulate the gravity flow. The intake flows past a floating log boom, through a grate, to an underground storage tank (the "Kinney Tank") which supplies water to the various plant processes. From the Kinney Tank, the boiler feed pump supplies water to the boiler, two Kinney Water Pumps supply water to the paper machines, and two Clearwell Feed Pumps supply water to the Clearwell. Water stored in the Clearwell is first treated by flocculation (with addition of poly-aluminum chloride), clarification in an uptake clarifier, and filtration by three sand filters. The sand filters are usually backwashed once per day and the sand is replaced approximately every ten years (backwash flow is a miscellaneous plant flow which flows to the new sump, as described below). The treated water from the clarifier is supplied to the paper machines for processes that require a higher grade of water than the river water supplied by the Kinney Water Pumps.

The paper making process starts at one of three pulpers, where water and virgin pulp and/or secondary fibers are added and blended (with the addition of re-circulated process water and steam) to create the specific pulp blend for the desired product type. The pulp blend is transferred to one of two paper machines which run the pulp along a series of rollers to remove the excess water to make paper. The excess water from the paper making process drains to one of two "wire pits." The water from the wire pits flows to a retention tank, which then flows to one of two "save-alls", where fiber is reclaimed for re-use in the pulpers.

The wastewater then drains to two interconnected collection basins known as the "old sump" and "new sump." Inputs to the old sump include sludge from the primary clarifier and 22' clarifier, water from the savealls, wastewater from the savealls via the machine chest, and waste activated sludge from the final clarifier. Inputs to the new sump include water from the old sump and miscellaneous plant wastewater. The water from the new sump is pumped to the treatment plant. Miscellaneous plant water consists of wash water, overflows, floor drains, sand filter backwash, filtrate from the belt press, seal water, and vacuum pump water. There are about 10,000 gallons per day of the following flows associated with the operation of the wood fired boiler that are

routed to the wastewater treatment system: boiler blowdown, filter backwash, feedwater pump cooling water, heat exchanger water, and air conditioning condensate.

Treatment consists of addition of polymer, primary clarification, aeration with addition of fertilizer (some water is diverted for additional aeration in the aerated lagoons and then back to the main aeration tank), and final clarification with addition of polymer and pH adjustment. The facility uses mono-ammonium phosphate as a source of nutrients to the treatment system, although urea has been used in the past and is kept onsite for possible future use. Approximately 900,000 GPD of treated process water is discharged to the Otter River through Outfall 001, via a rippleway.

Approximately 200,000 GPD of the treated effluent water is recycled through the paper making process. Some water from the primary clarifier is piped to the 22' diameter clarifier and recycled (via the pressure filter) as vacuum seal water makeup for the paper machine. Water from the save-alls which is not sent to the WWTP is recycled to the pulpers.

Sludge from the primary clarifier is pumped to the filter belt press, where it is dewatered and taken offsite to be landfilled or composted. Sludge from the 22' clarifier is pumped to the old sump. Activated sludge from the aeration tank is either recycled for use in the aeration tank or wasted to the old sump.

A variety of chemicals are added throughout the paper making process and for process water treatment. Sodium hypochlorite is used to bleach some of the virgin pulp and sodium metabisulfite is used after the pulpers to reduce the total residual chlorine. Sodium hydroxide is added at the aeration tank, polymer is added at the belt press, ferric chloride is added after the aeration tank before the secondary clarifier mainly for phosphorus removal, colloidal silica is added at the belt press, cationic flocculant emulsion is added at the primary clarifier and save-alls, cationic coagulant is added at the save-alls, anionic flocculant emulsion is added at the savealls and after the aeration tank before the secondary clarifier, and fertilizer (monoammonium phosphate, urea) is added at the aeration tank.

The discharge through Outfall 002 consists entirely of storm water and is currently authorized by the NPDES Storm Water Multi-Sector General Permit (MSGP), # MAR05B644.

3.0. Receiving Water Description

The Massachusetts Surface Water Quality Standards, found at 314 Code of Massachusetts Regulations ("CMR") 4.00, classify this segment of the Otter River, which runs from the Seaman

Paper Dam in Templeton to the confluence with the Millers River in Winchendon (Segment MA35-08), as a Class B warm water fishery (314 CMR 4.00)[1].

Class B waters are described in the SWQS [314 CMR 4.05(3)(b)] as "designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply") and suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value." A warm water fishery is defined in the MA SWQS as "waters in which the maximum mean monthly temperature generally exceeds 68° F (20° C) during the summer months and are not capable of sustaining a year-round population of cold water stenothermal aquatic life" (314 CMR 4.02).

Sections 305(b) and 303(d) of the CWA require that States complete a water quality inventory and develop a list of impaired waters. Specifically, Section 303(d) of the CWA requires States to identify those water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls, and as such, require the development of a Total Maximum Daily Load (TMDL) for each pollutant that is prohibiting a designated use(s) from being attained. In Massachusetts, these two evaluations have been combined into an Integrated List of Waters. The integrated list format provides the status of all assessed waters in a single, multi-part list.

This segment of the Otter River does not always meet the state water quality standards prescribed for Class B waters and is listed on the *Final Massachusetts Year 2012 Integrated List of Waters*[2] as a Category 5 waterbody, which are those classified as "Waters requiring a TMDL". This segment is impaired for aquatic macroinvertebrate assessments, fecal coliform, fishes bioassessments, nutrient/eutrophication biological indicators, Polychlorinated Biphenyls (PCBs) in fish tissue, taste and odor, and turbidity. This segment also contains non-native aquatic plants and may act as a fish passage barrier and have other flow regime alterations, although these last three items are non-pollutant impairments for which a Total Maximum Daily Load (TMDL) is not required.

MassDEP is required under the CWA to develop a TMDL for waterbodies that are identified as impaired. A TMDL is essentially a pollution budget designed to restore the health of a waterbody. A TMDL first identifies the source(s) of the pollutant from direct and indirect discharges in order to then determine the maximum amount of pollutant (including a margin of safety) that can be discharged to a specific waterbody while maintaining water quality standards for designated uses. It then outlines a plan to meet the goal. No TMDLs have been finalized for this waterbody segment.

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1 http:// www.mass.gov/eea/docs/dep/water/laws/i-thru-z/tblfig.pdf
2 http://www.mass.gov/eea/agencies/massdep/water/watersheds/total-maximum-daily-loads-tmdls.html

A quantitative description of the discharges in terms of significant effluent parameters based on discharge monitoring reports (DMRs) submitted for Outfall 001 during the time period from January 2009 to December 2013 was reviewed and used in the development of the draft National Pollutant Discharge Elimination System (NPDES) permit (Draft Permit). A summary of the DMR data is provided in Attachment A to this Fact Sheet.

4.0 Limitations and Conditions

4.1 Permit Basis: Statutory and Regulatory Authority

4.1.1 General Requirements

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

When developing permit limits, EPA must consider the most recent technology-based treatment and water quality-based requirements. Subpart A of 40 CFR Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA-promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA. EPA is required to consider technology and water quality-based requirements as well as all limitations and requirements in the existing permit when developing permit limits.

4.1.2 Technology-Based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants.

In general, the statutory deadline for non-POTW, technology-based effluent limitations must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 (see 40 CFR §125.3(a)(2)). Compliance schedules and deadlines not in accordance with the statutory

provisions of the CWA cannot be authorized by a NPDES permit.

In the absence of published technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ).

EPA has established National Effluent Limitation Guidelines (ELGs) for the pulp, paper, and paperboard manufacturing point source category (See 40 CFR Part 430 - *Pulp, Paper and Paperboard Manufacturing Point Source Category*). The regulation for this point source category was revised on April 15, 1998 into what is commonly referred to as the "Cluster Rule". The Cluster Rule reorganized 26 sub-categories of the pulp, paper, and paperboard industry found in the previous regulations into 12 new sub-categories by grouping mills with similar processes. The applicable Subparts of these regulations for Seaman Paper based on the most recent production information submitted by the facility are the following:

Subpart J (40 CFR §430.100), *Secondary Fiber Non-Deink Subcategory,* (secondary fiber non-deink facilities where tissue from wastepaper is produced without deinking).

Subpart K (40 CFR §430.110), *Lightweight Papers from Purchased Pulp Subcategory*, (non-integrated mills where lightweight papers are produced from purchased pulp)

Subpart L (40 CFR §430.120), *Tissue, Filter, Non-Woven and Paperboard from Purchased Pulp Subcategory*, (non-integrated mills where tissue papers are produced from purchased pulp).

The production process at Seaman Paper is not as straightforward as the Subpart definitions since a combination of both purchased virgin pulp and secondary fiber are often combined to produce the desired product. Attempting to estimate a rough breakdown of all three of the subcategories used at Seaman Paper and then calculating weighted average BOD and TSS technology limits would not result in significantly different values than those calculated with using the Subpart J ELGs. This Subpart characterizes the majority of current production at Seaman Paper. Therefore, for the purpose of calculating reasonably accurate technology based standards to compare to the water quality based standards below, the ELGs of Subpart J, which were applied in the previous permit, shall also be applied in this permit. As explained below, the water quality based standards are much more stringent than the technology based standards calculated from this Subpart.

The ELGs establish applicable limitations for existing dischargers representing; 1) best practicable control technology currently available (BPT) for conventional pollutants, 2) best conventional pollutant technology economically achievable (BCT) for conventional pollutants, and 3) best available technology economically achievable (BAT) for toxic and non-conventional pollutants. The ELG regulations establish limitations and monitoring requirements on the final outfall to the receiving waterbody as well as internal waste stream(s) such as the bleach plant effluent associated with some pulping operations. The ELGs also establish limitations based on

several methodologies including monthly average and/or daily maximum mass limits based on production of pulp and paper produced or concentration limitations based on BPT, BCT or BAT.

4.1.3 Water Quality-Based Requirements

Water quality-based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water quality standards (WQS). See Section 301(b)(1)(C) of the CWA.

Receiving water requirements are established according to numerical and narrative standards adopted under state law for each water quality classification. When using chemical-specific numeric criteria to develop permit limits, both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR §122.44(d)(1) and are implemented under 40 CFR §122.45(d). The Region has established, pursuant to 40 CFR §122.45(d)(2), a maximum daily limit and average monthly discharge limits for specific chemical pollutants.

A facility's design flow is used when deriving constituent limits for daily and monthly time periods as well as weekly periods where appropriate. Also, the dilution provided by the receiving water is factored into this process where appropriate. Narrative criteria from the state's water quality standards are often used to limit toxicity in discharges where (a) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (b) toxicity cannot be traced to a specific pollutant.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits when more stringent limits are necessary to maintain or achieve state or federal WQS. The permit must address any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion. See 40 CFR §122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers (a) existing controls on point and non-point sources of pollution; (b) pollutant concentration and variability in the effluent and receiving water as determined from the permit application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (c) sensitivity of the species to toxicity testing; (d) known water quality impacts of processes on wastewater; and, where appropriate, (e) dilution of the effluent in receiving water.

WQS consist of three parts: (a) beneficial designated uses for a water body or a segment of a water body; (b) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (c) antidegradation requirements to ensure that once a use is attained it will

not be degraded. The Massachusetts Surface Water Quality Standards (MA SWQS), found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site-specific criterion is established. The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain WQS.

4.2 Antibacksliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA.

The following requirements were reduced or eliminated in the draft permit and all of these actions meet the "new information" exception of the antibacksliding regulations.

- Elimination of the requirement to measure the upstream temperature and calculate the predicted river temperature increase (PRTI) has been eliminated from this permit. Section 5.1.4 below.

- Reduction in the frequency of acute whole effluent toxicity (WET) testing from four times per year to once per year. Section 5.1.9 below.

- Reduction in the monitoring frequency for ammonia from once per week to once per month, as described in Section 5.1.10 below.

- Reduction in the monitoring frequency for iron from once per week to once per quarter, as described in Section 5.1.11 below.

Since all proposed permit conditions, with the exception of requirements relative to iron, ammonia, temperature, and acute WET testing noted above, are at least as stringent as those of the current permit, the antibacksliding provisions for this permit reissuance are being met.

4.3 Antidegradation

Federal regulations found at 40 CFR Section 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of

waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Regulations are found at 314 CMR 4.04. There are no new or increased discharges being proposed with this permit reissuance. Therefore, the MassDEP is not required to conduct an antidegradation review regarding this permit reissuance.

4.4 State Certification

Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located that all water quality standards or other applicable requirements of state law, in accordance with Section 301(b)(1)(C) of the CWA, are satisfied. EPA permits are to include any conditions required in the state's certification as being necessary to ensure compliance with state water quality standards or other applicable requirements of state law. (See CWA Section 401(a) and 40 CFR §124.53(e).) Regulations governing state certification are set out at 40 CFR §124.53 and §124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

5.0 Explanation of Permit's Effluent Limitations

The effluent limitations, monitoring requirements, and any other conditions described in this section, may be found in Part 1 (Effluent Limitations and Monitoring Requirements) of the Draft Permit. The permit reapplication is part of the administrative file (Permit No. MA0000469).

5.1. Outfall 001A (formerly Outfall 001)

5.1.1. Flow

Seaman Paper has a Water Management Act withdrawal permit (MassDEP - registration no. 207-29401) for 1.19 MGD. During the monitoring period, the average flow through Outfall 001 has been 0.89 MGD with a high value of 1.37 MGD. The water is withdrawn above the Seaman Paper Dam, while Outfall 001 is located below the dam. The current permit flow limits of 1.1 MGD average monthly and 1.4 MGD maximum daily were not exceeded on any occasion. Therefore, the draft permit requirements for flow shall remain the same as the requirements in the current permit. The flow is measured on a continuous basis with an ultrasonic sensor located at the Parshall flume prior to discharge through Outfall 001.

The outfall designation of 001A applies to this outfall during normal flow conditions and the designation of 001B, applies during low flow conditions. Normal flow conditions are represented by receiving water flows (as measured by USGS Station 01163200) of 17 cubic feet per second (cfs) or greater or periods of flow which are less than 17 cfs that are less than 30 consecutive days in length. Low flow conditions are represented by the receiving water flow of less than 17 cfs for at least 30 consecutive days.

Dilution Factor

The 7Q10 (the lowest 7-day mean stream flow with 10-year recurrence interval) was used to calculate the effluent limits in the current permit. The 7Q10 as determined at the USGS gauging station 01163200 on the Otter River at the village of Otter River is 4.25 cfs, with a drainage area of 34.2 square miles. Using the drainage area of the Otter River at Seaman Paper of 43 square miles[3], the estimated 7Q10 at Seaman Paper and corresponding dilution factors are calculated below. This 7Q10 flow, which is based on the full period of record of gage flow (1966-2013), revises the value of 4.625 cfs that was used in the current permit. Since the permittee withdraws water from and returns it to the Otter River, the withdrawn water is subtracted from the estimated 7Q10 to reflect the actual estimated 7Q10 at Seaman Paper. The average and maximum plant flows are then added back into the equations to calculate the dilution factors at the point of discharge to the Otter River as follows:

maximum facility discharge = 1.4 MGD; average facility discharge = 1.1 MGD

7Q10 at USGS Station 01163200 at Otter River, MA 4.25 cfs; Drainage area = 34.2 square miles (period of record: 1966-2013)

Drainage area at Seaman Paper = **43 square miles**

7Q10 at Seaman Paper = (43 mi^2 / 34.2 mi^2) (4.25 cfs) = **5.34 cfs**

7Q10 adjusted by permitted intake flow = 5.34 cfs – [(1.19MGD * 1.55 cfs/MGD(conversion factor(CF)] = **3.50 cfs**

Acute Dilution Factor = (Adjusted 7Q10 + max. facility discharge*CF) / (max. facility discharge*CF)
= (3.50 cfs + 1.4 MGD * 1.55 cfs/MGD) / (1.4 MGD * 1.55 cfs/MGD)
= 5.67/2.17; Acute Dilution Factor = **2.6**

Chronic Dilution Factor = (Adjusted 7Q10 + average facility discharge * CF) / (average facility discharge * CF)
= (3.50 cfs + 1.1 MGD * 1.55cfs/MGD) / (1.1 MGD * 1.55cfs/MGD)
= 5.21/1.70; Chronic Dilution Factor = **3.1**

These dilution factors were used in assessing the need for effluent limits for metals and other toxic compounds.

The permittee is also required to report the ambient upstream river flow in order to determine whether the low flow condition is triggered which would result in lower BOD and TSS limits as described in Part 5.1.2 below and Part I.A.2 of the permit. The permittee shall obtain the daily

3 The drainage are of Otter River at Seaman Paper was calculated by plotting points on a GIS system (ArcMap) which calculates the area of the watershed.

ambient upstream river flow readings from the USGS Gage No. 01163200, located at Turner Street in Otter River.

5.1.2. Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)

The water quality based limits in the current permit are based in part on a Waste Load Allocation (WLA) conducted by the MassDEP in March of 1984 for Otter River. At that time, this WLA also formed the basis of permits limits for the Gardner and Templeton wastewater treatment facilities (WWTF). The MassDEP recommended the following limits for Seaman Paper based on the WLA, on an average daily basis:

Seasonal period	BOD	TSS
July 1 – October 31	110 lbs	120 lbs
November 1 – June 30	240 lbs	240 lbs

These limits were established at that time which prompted the permittee to upgrade its treatment plant. During the drafting of the 1992 permit, the permittee requested relief from these BOD and TSS limits and also requested that higher winter limits be established. Based on the performance of the permittee's wastewater treatment plant and in consideration of the limits established for the Templeton and Gardner permits, EPA and MassDEP agreed to higher winter limits and also adjusted the summer period to include the months of May and June. For the warm weather period of May to October, EPA established a two tier system of limits, with stricter limits based on an upstream flow of 17 cfs or less for a period of greater than 30 days, which continues to be reflected in this draft permit. These limits were deemed necessary to achieve water quality standards.

From May 1 to October 31, the permittee is required to monitor and report daily the flow of the Otter River at USGS gage 01163200, located upstream at the Turner Street crossing. If the daily river flow is 17 cfs (11 MGD) or lower for 30 consecutive days or more, the BOD and TSS limits of 150 lbs/day average monthly and 200 lbs/day maximum daily would apply, beginning on the 31st day. This permit requirement is described in detail in Part I.A.2 of the permit and requires reporting the BOD and TSS on a separate DMR as Outfall 001B. Outfall 001B is the discharge through Outfall 001 during low flow conditions, which is defined as beginning when the total daily flow in the receiving water, as measured at the USGS Gage Station No. 01163200, has been equal to or less than 17 cfs for 30 or more consecutive days.

As noted in Section 4.1.2 above, the Subpart J ELGs that apply to production at Seaman Paper are summarized in Table 1, below:

Table 1. Effluent Limitation Guidelines (ELGs) applicable to Seaman Paper

40 CFR	BOD5	TSS	pH

§ 430 Subpart	Kg/kkg (or pounds per 1,000 lb) of product			Kg/kkg (or pounds per 1,000 lb) of product			Range
	Continuous dischargers		Non-Continuous dischargers (annual average days)	Continuous dischargers		Non-Continuous dischargers (annual average days)	
	Max for any 1 day	Average of daily values for 30 consecutive days		Max for any 1 day	Average of daily values for 30 consecutive days		
Subpart J	13.7	7.1	4.0	17.05	9.2	5.1	5.0-9.0

Mass-based ELGs are expressed as an allowable mass of pollutant discharge per unit of production and are directly related to a particular mill's production. In its March 2013 permit re-application, the permittee reported that it produced approximately 170,000 lbs/day of non-integrated lightweight paper, which fall under all three aforementioned Subparts.

As discussed in Section 4.1.2 above, the Subpart J guidelines were utilized to calculate the permissible mass-based limits in the draft permit for BOD and TSS. The calculated limits based on the Subpart J ELGs are summarized in Table 2 below.

Table 2. Summary of Calculated ELG Limits for BOD and TSS at Seaman Paper

40 CFR § 430 Subpart	Production Data (lbs/day)	BOD Monthly Ave		BOD Daily Max		TSS Monthly Ave		TSS Daily Max	
		ELG Factor[1]	ELG[2]	ELG Factor[1]	ELG[2]	ELG Factor[1]	ELG[2]	ELG Factor[1]	ELG[2]
Subpart J	170,000	7.1	1210	13.7	2330	9.2	1560	17.05	2900
Technology Based Limit	---	---	1210	---	2330	---	1560	---	2900

1. The ELG Factor is in units of lbs/1000 lbs.
2. The calculated ELG is in units of lbs/day.

These technology based limits are compared to the current permit's water quality based limits in Table 3 below:

Table 3. Summary of Technology Based and Water Quality Based Effluent Limits for BOD and TSS at Seaman Paper

Parameter	Technology Based Effluent Limits		Water Quality Based Effluent Limits (lbs/day)					
	Average Daily (lbs/day)	Maximum Daily (lbs/day)	Winter (November 1st – April 30th)		Summer (May 1st – October 31st)		Low Flow Conditions	
			Ave Monthly	Max Daily	Ave Monthly	Max Daily	Ave Monthly	Max Daily
BOD	1210	2330	400	700	286	400	150	200
TSS	1560	2900	700	900	400	600	150	200

During the current permit term, low flow conditions as defined by the current permit occurred twice - in September of 2010 and in July of 2012. Review of the DMR data shows that the BOD and TSS levels in the discharge did not exceed the lower effluent limitations established during periods when the river flow was less than 17 cfs. Therefore, the sampling frequency during such low flow periods will remain at 1/week.

The current permit's WQ based effluent limitations for BOD and TSS are more protective than the technology based limits calculated according to the effluent guidelines and standards as shown above in Section 5.1.2. Therefore, the water quality based limits for BOD and TSS shall remain in the permit based on anti-backsliding requirements found in 40 CFR §122.44(l).

5.1.3. pH

The pH limitation range of 6.0-8.3 SU has been retained in the draft permit in accordance with anti-backsliding requirements found in 40 CFR§122.44(l). The Massachusetts Surface Water Quality Standards, 314 CMR, Inland Water, Class B at 4.05 (3)(b)3, require that the pH of the receiving water be in the range of 6.5 to 8.3 standard units and no more than 0.5 units outside the background range. There shall no change from background conditions that would impair any use assigned to this Class. The water quality criteria have been adopted as discharge limitations based on certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR §§124.53 and 124.55.

The 2008 permit was issued with the lower pH range limit of 6.5 s.u., consistent with the State standards for class B waters. However, based on a request by the permittee, the permit was modified on March 9, 2009 to change the lower level to 6.0 s.u. The Agencies determined that the lower end of the pH range of 6.0 was warranted for the Otter River. Upstream levels were found to be below 6.5 s.u. and there was no evidence that instream biota were being affected by this pH level. In addition, due to the dilution available to this discharge once it enters the Otter River, no measurable changes in the instream pH levels would be expected. With this lower limit, the permittee would avoid having to use caustic soda to raise its effluent pH to 6.5 s.u.

Review of the DMR data reveals that the pH level has ranged from 6.02 to 7.84 s.u., with no exceedences of the limited range. Based on these monitoring results, the daily sampling frequency has been maintained in the draft permit.

5.1.4 Temperature

The Massachusetts Surface Water Quality Standards, 314 CMR 4.05 (3)(b)2, states that Class B waters, "Shall not exceed…83°F (28.3°C) in warm water fisheries. The rise in temperature due to a discharge shall not exceed…5°F (2.8°C) in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month). Natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. There shall be no changes from background conditions that would impair any use assigned to this Class, including those conditions necessary to protect normal species diversity, successful migration, reproductive functions or growth of aquatic organisms".

The current permit required a temperature limit of 90°F, monitored twice per week. During the monitoring period, the temperature of the effluent ranged from 60.3 – 89.7°F. This maximum daily temperature limit and monitoring frequency have been retained in the draft permit.

As stated above, the Massachusetts SWQS require that the rise in temperature in Class B warm water fisheries due to a discharge shall not exceed 5°F (based on the minimum expected flow for the month). In the 2008 permit, EPA assessed the change in temperature associated with the discharge through review of temperature information collected in accordance with the current permit and calculation of the predicted river temperature increase (PRTI) associated with the discharge from Outfall 001. Using the monthly average ambient flow values taken at the USGS gage (#01163200), the maximum PRTI calculated was 3.4°F, as shown below:

Calculation of maximum PRTI in the 2008 permit using DMR data for the period of January 2005 through December 2007:

$$\textbf{PRTI (°F)} = \frac{[(\text{MaxFlow}_{001}\ \text{MGD})*(\text{MaxTemp}_{001}\ °\text{F} - \text{Temp}_{\text{Ambient}}\ °\text{F})]}{(\text{Flow}_{\text{Ambient}}\ \text{cfs})\ (0.6464\ \text{MGD/cfs})}$$

$$= \frac{[(1.0414\ \text{MGD})*(86°\text{F} - 64°\text{F})]}{(10.3\ \text{cfs})\ (0.6464\ \text{MGD/cfs})} = \textbf{3.4°F}$$

Therefore, it was determined that the change in temperature associated with the discharge was not expected to exceed the SWQS temperature standard of a rise in temperature of the receiving water not to exceed 5ºF. In order to confirm this determination, the 2008 permit required the permittee to use data representative of actual discharge through Outfall 001 along with concurrent ambient river conditions as the basis of the calculation and reporting of the PRTI on a biweekly basis. The PRTI calculation shown above assumes instantaneous mixing of the effluent once it enters the Otter River.

During the monitoring period, the PRTI resulted in an average instream temperature increase of 0.78°F and a maximum increase of 4.17°F. Therefore, this shows that there is not a reasonable potential that the SWQS instream temperature increase of 5°F would be violated. Therefore, the requirement to measure the upstream temperature and calculate the PRTI has been eliminated from this permit. The effluent temperature limit of 90°F will remain in this permit as the permittee has shown that it can consistently meet this limit and the PRTI values show that the 5°F instream delta T would not likely be expected to be violated.

5.1.5 Dissolved Oxygen (DO)

The Massachusetts Surface Water Quality Standards, 314 CMR 4.05 (3)(b)1, state that for Class B waters, the dissolved oxygen (DO) shall not be less than 5.0 mg/L in warm water fisheries and where natural background conditions are lower, DO shall not be less than natural background conditions. In addition, natural seasonal and daily variations that are necessary to protect existing and designated uses shall be maintained. The effluent dissolved oxygen (DO) measurements are collected at the

effluent flow meter, prior to entering the river. The current permit requires sampling of the effluent DO at a frequency of twice per month from June 1st to September 30th of each year with no minimum limit. During the monitoring period, the effluent DO has ranged from 5.08 to 7.53. Therefore, the frequency of DO monitoring has been maintained at twice per month during the same period, with the lowest recorded DO concentration to be reported on each DMR. In addition, the permit establishes a minimum DO level of 5.0 mg/l to be consistent with the MA SWQS.

5.1.6 Phosphorus

As part of its wastewater treatment process, Seaman Paper adds fertilizer to its aeration tank to enhance biological treatment since the incoming wastewater is deficient in nutrients, specifically phosphorus. Seaman Paper monitors the concentration of phosphorus added as an operating parameter, and minimizes the use of added nutrients to stay within permit limits.

In freshwater systems including rivers, streams and impoundments, phosphorus is usually the limiting nutrient for primary plant production. Phosphorus can promote the growth of nuisance algae and aquatic plants and when these plants and algae undergo their decay processes, they generate odors and lower the dissolved oxygen levels in the river.

The majority of phosphorus entering the Millers River Basin during the critical summer period is from Publicly Owned Treatment Works (POTWs) and industrial dischargers. Phosphorus is also introduced into the river basin via storm water runoff. The Millers River Watershed 2000 Water Quality Report states that the phosphorus concentrations in the Otter River segment below the Seaman Paper discharge (MA35-08) are elevated during the summer months. The report states:

> *Total phosphorus concentrations were elevated in this segment of the Otter River during the summer 1995 ranging from 0.06 to a high of 0.41 mg/L at the four stations sampled. The concentrations measured during the 2000 survey at station OT03* [upstream of the Route 202 bridge in Templeton] *were between 0.13 mg/L and 0.17 mg/L.*

The Massachusetts Surface Water Quality Standards do not contain numerical criteria for total phosphorus (TP). Narrative criteria for nutrients are found at 314 CMR 4.05(5)(c), which states the following:

> *All surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non-POTWs, to remove such nutrients to ensure protection of existing and designated uses.*

> *Human activities that result in the nonpoint source discharge of nutrients to any surface water may be required to be provided with cost effective and reasonable best management practices for nonpoint source control.*

A TMDL determines the maximum amount of pollutant that a waterbody can receive and still meet WQS, and the allocations of that amount to the pollutant's sources, such as the Seaman Paper's discharge. Since a TMDL study for nutrients is not currently available for the Otter River, phosphorus limits must meet either water quality based limits or technology based limits. The MassDEP has established that, in the absence of a watershed specific TMDL review, a monthly average TP limit of 200 µg/L (or 0.2 mg/L) represents HBPT for municipal wastewater treatment facility effluent discharged to a nutrient impaired water body. The HBPT limit of 0.2 mg/L was derived from a literature search of generally accepted treatment technologies for the removal of phosphorus and has been shown to be attainable by the existing treatment facility. Therefore, the HBPT limit of 0.2 mg/L was established in the 2008 permit. During the monitoring period, the phosphorus limit has not been exceeded, with average and maximum readings of 0.14 mg/l and 0.198 mg/l, respectively.

EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The EPA's Quality Criteria for Water 1986 (the Gold Book) recommends that in order to control eutrophication, instream phosphorus concentrations should be less than 100 µg/L (0.100 mg/L) in streams or other flowing waters not discharging directly to lakes or impoundments.

The instream concentration of TP at the HBPT concentration of 0.2 mg/L would be 0.061 mg/L (Limit/Dilution Factor = 0.2 mg/L/3.1 = 0.065 mg/L), which is less than the 0.1 mg/L Gold Book number. However, the background concentration must also be assessed. EPA typically uses a mass balance equation to calculate the phosphorus limit necessary to ensure that the instream criterion is met downstream of the discharge. For phosphorus, the target instream concentration is typically the Gold Book criterion of 0.10 mg/l, to be met at treatment plant design flow and 7Q10 receiving water flow conditions.

The mass balance equation also requires data on the instream phosphorus concentration upstream of the discharge, and since recent ambient upstream data is not available at this time, the limit necessary to achieve the Gold Book targets cannot be calculated directly. The latest instream data, which was taken in 1995 and published in the 2000 WQA report cited above, indicated instream phosphorus levels ranging from 0.06 to 0.41 mg/l at four (4) upstream sampling stations. Since that time, the NPDES permit for the Gardner Wastewater Treatment Facility (WWTF) was reissued in 2009 with a seasonal effluent phosphorus limit of 0.12 mg/l, replacing the previous limit of 0.2 mg/l. Since Gardner's WWTF discharge is the main upstream source of phosphorus, it is expected that the phosphorus levels upstream of Seaman Paper have decreased to the point where the 0.2 mg/l phosphorus limit at Seaman Paper will likely assure that the instream standard of 0.1 mg/l downstream of the Seaman Paper discharge is being attained. Since May of 2010, the Gardner WWTF has met the seasonal limit of 0.12 mg/l.

EPA has calculated the upstream concentration that would ensure that the Seaman Paper discharge does not cause an exceedance of the 0.10 mg/l Gold Book target under 7Q10 flow conditions. This was done by solving the mass balance equation for the upstream concentration, assuming a downstream target of 0.10 mg/l and an effluent concentration of 0.20 mg/l (the current limit). An upstream concentration of 47 µg/l (0.047 mg/l) is calculated as shown below:

$$Qr*Cr = Qd*Cd + Qs*Cs$$

$$Cs = \frac{(Qr*Cr)-(Qd*Cd)}{Qs}$$

Where: Cs= upstream phosphorus concentration = x mg/l
Qr = downstream flow: Qs + Qd = 5.34 cfs
Cr = downstream concentration = 0.1 mg/l
Cd = discharge concentration = 0.2 mg/l
Qd = discharge flow (design flow) = 1.85 cfs
Qs = upstream flow, 7Q10 = 3.5 cfs

$$Cs = \frac{(5.34\ cfs)(0.1\ mg/l) - (1.85\ cfs)(0.2\ mg/l)}{3.5\ cfs}$$

$$Cs = 0.047\ mg/l$$

Therefore, if the upstream concentration is equal to or less than 0.047 mg/l, the current effluent limit is sufficiently stringent to achieve the instream Gold Book criterion of 0.1 mg/l. As noted earlier, although there have been no recent instream phosphorus data available, it is expected that the levels have decreased since the reissuance of the Gardner WWTF permit in 2009. In order to confirm that the downstream level of 0.100 mg/l is being met, this permit has established an instream monthly monitoring requirement for total phosphorus for the period of April through October. If these values are found to be consistently at or above the target instream level of 47µg/l calculated above, the next permit for Seaman Paper may establish a more stringent effluent phosphorus limit to assure that the instream criterion is being met downstream of Seaman Paper.

More recently, EPA released Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published ecoregion-specific criteria represent conditions in waters minimally impacted by human activities, and thus representative of water without cultural eutrophication. Otter River is within Ecoregion XIV, Eastern Coastal Plains. The total phosphorus criteria for this ecoregion is found in Ambient Water Quality Criteria Recommendations, Information Supporting the

Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV (EPA 822-B-00-022), published in December 2000, and is 24 μg/L (0.024 mg/L).

Given that the state has not yet adopted numerical water quality based phosphorus criteria, the draft permit will not establish limits based on the Gold Book or EPA Ecoregion guidance at this time. The draft permit will retain the monthly average effluent total phosphorus limit of 0.2 mg/L, based on HBPT as defined in the State Water Quality Standards and anti-backsliding requirements. While this limit will not ensure attainment of EPA's recommended Ecoregion guidance criteria, it will minimize the phosphorus in the receiving water and ensure that phosphorus discharge concentrations in the receiving waters will not significantly exceed the Gold Book Guidance, accounting for background concentrations. This limit applies seasonally, from April 1st through October 31st, is reported as a monthly average and taken as a 24-hour composite sample. The seasonal sampling frequency of twice per week has been retained in the draft permit.

EPA has also included a requirement in the Draft Permit that the permittee monitor and report upstream phosphorus concentrations twice per month during the months of April through October. This data will be reviewed to verify that the existing effluent permit limit is adequately stringent to achieve the 0.10 mg/l criterion downstream of the discharge. If more stringent limits are necessary to achieve the criterion, the permit may be reopened to revise the phosphorus limit.

If, upon completion of a TMDL for nutrients based on a detailed study of eutrophication in the Otter River and its downstream impoundments, and a detailed analysis of the total phosphorus loading from other facilities, it is determined that either a higher or lower limit will result in compliance with WQS, then the EPA and MassDEP may exercise the reopener clause in Part I.D and modify the permit accordingly.

5.1.7 Nitrogen

It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including dissolved oxygen impairments. The State of Connecticut has begun to impose nitrogen limitations on Connecticut discharges to Long Island Sound and its tributaries. EPA agrees there is a need to determine the loadings of nitrogen from sources in Massachusetts which are tributary to Long Island Sound, and to help determine what limits, if any, should be imposed on discharges in Massachusetts. The Otter River flows into the Millers River, which in turn, flows into the Connecticut River and Long Island Sound.

In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a Total Maximum Daily Load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation (WLA) for point sources and a Load Allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction

from the baseline total nitrogen loading estimated in the TMDL. This TMDL target is currently being met based on a 2005 loading evaluation that was conducted. However, discharges from this facility were not included in the 2005 loading evaluation.

The agencies intend to annually update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits. There have been significant efforts by the New England Interstate Water Pollution Control Commission (NEIWPCC) work group and others since completion of the 2000 TMDL, which are anticipated to result in revised wasteload allocations for in-basin and out-of-basin facilities. Although not a permit requirement, it is strongly recommended that any treatment system upgrades or modifications that are envisioned for this facility consider alternatives for further enhancing nitrogen reduction. Part I.C. of the draft permit requires the permittee to optimize its treatment plant to minimize the discharge of nitrogen.

EPA typically utilizes the average total nitrogen effluent values from at least the previous twelve (12) months of facility operation to establish a baseline loading. In its last 2 permit applications, Seaman Paper reported 10.87 and 6.8 mg/l values for total organic nitrogen. Due to the limited data available for this discharge, EPA has included monthly monitoring requirements for total nitrogen as Kjeldahl nitrogen, and nitrate and nitrite nitrogen in the draft permit. The information submitted by the permittee will help to establish a baseline of nitrogen loadings. The monitoring data will provide a more sound decision making basis in any future decisions relating to nitrogen loadings to the Sound. This monitoring requirement may be removed by the agencies after sufficient data collection.

5.1.8 Aluminum

The limits in the 2008 permit for aluminum were based on EPA's National Recommended WQC. The most recent EPA recommended criteria are found in *National Recommended Water Quality Criteria*: 2002 (EPA-822-R-02-047). The acute and chronic water quality criteria for aluminum are 750 µg/l and 87 µg/l, respectively and are expressed in terms of total recoverable metal in the water column. Aluminum criteria are not dependent on the hardness of the receiving water.

The current permit's aluminum limits are 0.29 mg/l and 2.1 mg/l for the monthly average and daily maximum limits, respectively, were calculated by multiplying the dilution factor by the corresponding water quality criterion. During the monitoring period, the effluent aluminum has averaged 0.063 mg/l, with a high value of 0.292 mg/l, representing the only permit exceedence of the monthly average limit of 0.29 mg/l.

Although background aluminum concentration was not taken into account when setting the aluminum limits in the 2008 permit, EPA policy requires such consideration to assure that the assimilative capacity of the receiving water for a particular parameter is not exceeded by multiple

discharge sources. The chemical analysis requirement of the Whole Effluent Toxicity (WET) tests conducted by the permittee included upstream data for aluminum. Since 2010, the levels of background aluminum have ranged from 0.086 mg/l to 0.292 mg/l, with an average of 0.17 mg/l. Since the average background is already above the chronic criterion for aluminum of 87 µg/l, this Draft Permit has established a monthly average total aluminum effluent limit of 87 µg/l.

The permittee has requested that it be given credit for the elevated upstream levels of aluminum in the Otter River, since it withdraws Otter River water for its papermaking processes. The State WQS at 314 CMR 4.05(e) read as follows:

> Toxic Pollutants. All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife . . . . Where the Department determines that naturally occurring background concentrations are higher, those concentrations shall be the allowable receiving water concentrations.

Also, the Federal regulations at 40 CFR §122.45(g) allow for EPA to adjust technology based limits to reflect credit for pollutants in the permittee's intake water. Although the aluminum limit is a water quality based limit, EPA has determined that this credit for aluminum in the intake water may be applied in this case, based on BPJ and in consideration of the allowance for background conditions provided in the State WQS.

Therefore, the draft permit will require that the permittee take a grab sample for total aluminum, upstream of its effluent and in a representative location in the Otter River, on the same day that it collects its composite effluent sample for aluminum. On those occasions when the background aluminum level as measured by the permittee's grab sample is at or below the level of 87 µg/l, the effluent limit of 87 µg/l will apply. For those occasions when the upstream aluminum sample is higher than 87 µg/l, the effluent limit that applies will be the value of that upstream sample.

Since the upstream levels of aluminum are less than the acute criterion of 750 µg/l, the equation below may be used to calculate the appropriate acute (daily maximum) aluminum limit by taking the estimated instream concentration into account. The method used is consistent with recommendations in EPA's *NPDES Permit Writers' Manual – EPA-833-B-96-003* (see page 6-19, Receiving Water Background Pollutant Concentration) and better ensures that water quality criteria will be attained.

In this equation, the downstream concentration of aluminum is set at the acute criterion value of 750 µg/l and the acute (daily maximum) effluent limit at Seaman Paper is calculated.

Where

Cr = Concentration downstream of the outfall = 750 µg/l
Qd =Discharge flow = 2.17 cfs
Cd =acute (daily maximum) discharge concentration = x µg/l
Qs =Upstream flow = 3.5 cfs

Cs =Median background concentration = 170 µg/l
Qr =Streamflow below outfall = 5.34 cfs (effluent + upstream)

Acute aluminum limit calculation:

$$Cd = \frac{(Qr * Cr) - (Qs * Cs)}{Qd}$$

$$\frac{(5.34 \text{ cfs} * 750 \text{ µg/l}) - (3.5 \text{ cfs} * 170 \text{ µg/l})}{2.17 \text{ cfs}} = 1570 \text{ µg/l (1.57 mg/l)}$$

Therefore, in order to assure that the acute criterion is met instream, the daily maximum effluent limit for aluminum is established at 1.57 mg/l, which is more stringent than the limit of the previous permit of 2.1 mg/l. The monitoring frequency for aluminum has been changed from once per quarter to once per month.

5.1.9 Whole Effluent Toxicity (WET) Testing

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts SWQS include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife, 314 CMR 4.05(5)(e).

The Region typically includes toxicity testing requirements where a combination of toxic constituents may be toxic to humans, aquatic life, or wildlife. Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

Due to the potential for toxicity resulting from the combination of pollutants in the facility's discharge, in accordance with EPA national and regional policy, and in accordance with MassDEP policy, the previous permit included acute and chronic toxicity monitoring requirements. (See Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants,50 Fed. Reg. 30,784 (July 24, 1985); EPA's Technical Support Document for Water Quality-Based Toxics Control" on September, 1991; and MassDEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990).

The 2008 permit required the permittee to conduct four freshwater chronic (and modified acute) WET tests for the Outfall 001 effluent, during each year of the permit (1/Quarter) and meet effluent limitations of a chronic no observed effect concentration (C-NOEC) of greater or equal to 30% based on the dilution factor of 3.3 and an acute LC_{50} of greater than or equal to 100%. The LC_{50} is the concentration of the effluent which causes mortality to 50% of the test organisms.

Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than 50% mortality rate. C-NOEC is the chronic no observed effect concentration.

During the monitoring period, all LC_{50} readings were 100%. The C-NOEC values ranged from 6.25% to 100% with four (4) violations of the 30% limit. With its permit application, the permittee requested a reduction in WET testing frequency from four (4) times per year to twice per year based on experiencing no WET testing permit violations over the previous three years. Since this request, there have been two (2) readings for chronic toxicity (C-NOEC) that have been below the permit limit of $\geq$ 30%, representing permit violations. Therefore, the chronic WET testing frequency will remain at four (4) times per year in the draft permit. In addition, due to the revised 7Q10 flow that has also resulted in a monthly average dilution change from 3.3 to 3.1, the NOEC limit has also changed to $\geq$ 32% (1/3.1). However, due to the facility demonstrating no acute toxicity over the last five (5) years, the frequency of the acute test with the LC_{50} limit of $\geq$ 100% has been reduced from four times per year to once per year.

During the next permit term, if the permittee submits a minimum of four consecutive WET test results over a period of at least one year, all of which demonstrate compliance with the chronic WET permit limit, the permitee may request a reduction in the chronic WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from EPA that the WET testing requirement has been changed.

The permittee shall test the daphnid, *Ceriodaphnia dubia*. The WET tests must be performed in accordance with test procedures and protocols specified in Attachments A and B of the permit. The chronic WET tests shall be performed during the months of January, April, July, and October and test reports are to be submitted, respectively, by February 28th, May 31st, August 31st, and November 30th. The annual, acute WET test shall be performed during the month of July with the results to be submitted by August 31st.

5.1.10 Ammonia

EPA's National Recommended WQC, cite the established freshwater criteria for ammonia which are pH, temperature, and life-stage dependent. According to the procedures described in the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, except possibly where a very sensitive species is important at a site, freshwater aquatic life should be protected if both conditions specified in Appendix C to the Preamble - Calculation of Freshwater Ammonia Criterion are satisfied. Assuming salmonid fish are absent from the vicinity of the discharge and using the maximum pH value of 7.84 SU from the monitoring period, the one-hour average concentration of total ammonia nitrogen shall not exceed, more than once every three years on the average, a CMC (acute criterion) of about 11 mg N/L (ammonia nitrogen concentration), as determined by interpolating between the two (2) pH values of 7.8 and 7.9 s.u. (See Attachment E – pH Dependent Values of the CMC). Using the minimum and maximum temperature values of 60.3°F (16°C) and 89.7°F (32°C) as representative of winter and summer temperatures, respectively, and assuming early life stages of fish are

present, the 30 day concentration of total ammonia nitrogen shall not exceed, a CCC (chronic criterion) of approximately 2.7 mg N/L during the winter and 1.1 mg N/L during the summer, more than once every three years on the average (See Attachment F – Temperature and pH Dependent Values of the CCC for Fish Early Life Stages Present).

During the monitoring period, ammonia values ranged from 0.18 to 12.8 mg/l, with an average reading of 3.16 mg/l. Converted to ammonia, the calculated freshwater ammonia nitrogen CMC of 11 mg N/L is approximately 14.3 mg/L total ammonia, and the CCC's of 2.7 mg N/L and 1.1 mg N/L are approximately 3.5 mg/L and 1.43 mg/L total ammonia, respectively.[4] Based on available dilution, the CMC for effluent ammonia applicable to Outfall 001 is 37.2 mg/L (14.3 * 2.6) and the seasonal CCC's for ammonia applicable to the discharge are 10.8 mg/L (3.5 * 3.1) and 4.4 mg/L (1.43 * 3.1), during the winter (November 1 – April 30) and summer (May 1 – October 31), respectively.

Therefore, based on the DMR data noted above, there does not appear to be a reasonable potential that the discharge violates the calculated CMC of 37.2 mg/L or seasonal CCC's of 10.8 mg/L and 4.4 mg/L at this time. Therefore, the draft permit has reduced the monitoring frequency from 1/week to 1/month.

5.1.11 Iron

Due to the limited effluent iron data available during development of the 2008 permit, there was a weekly monitoring requirement established in order to determine whether there was a reasonable potential to violate the WQS for iron. The National Recommended WQC contains a freshwater chronic criterion for iron of 1000 µg/L (1.0 mg/L). Accounting for dilution, the applicable limit based on this criterion at Outfall 001 is 3.1 mg/L (1.0*3.1). There has been no acute criterion established for total iron.

During the monitoring period, iron averaged 0.79 mg/l with a high reading of 7.18 mg/l. A reasonable potential analysis was conducted using the DMR data for iron. Based on this effluent iron data, the 95th percentile value was 1.82 mg/l and the 99th percentile value was 2.76 mg/l, as shown in Attachment G. Since both of these values are below the WQC based limit of 3.1 mg/l, it is therefore determined that there is no reasonable potential for effluent iron to violate WQS. However, in order to assure that effluent iron levels remain below the level associated with violation of WQS, there has been a quarterly iron monitoring requirement retained in the permit.

5.1.12 Total Residual Chlorine

4 The conversion factor of 1.2883 is based upon weight proportions of the nitrogen and hydrogen in ammonia (1.3 grams ammonia contain 1 gram nitrogen).

Monitoring conducted as a requirement of the WET testing has shown the presence of detectable levels of total residual chlorine in the effluent. Chlorine can be extremely toxic to aquatic life. Effluent limits are based on water quality criteria for total residual chlorine (TRC) which are specified in EPA's National Recommended WQC established pursuant to Section 304(a) of the Clean Water Act. The fresh water aquatic life criteria for TRC are 11 µg/l for protection from chronic toxicity and 19 µg/l for protection from acute toxicity. The dilution factors multiplied by the chronic and acute criteria provide the appropriate TRC limits as shown below:

Chronic limit: 11 µg/l * 3.1 = 34 µg/l Acute limit: 19 µg/l * 2.6 = 49 µg/l

For the DMR reporting period, there were chemical data from the WET tests that were reviewed. Most of the readings were non-detectable, with a 20 µg/l minimum detection level, with a few readings that were detected between 10 and 30 µg/l. These data indicate that there is not a reasonable potential to violate either the chronic or the acute WQS. However, in order to assure that the permittee is effectively dechlorinating its effluent, there has been a monthly monthly TRC monitoring requirement established in the draft permit.

5.2. Outfall 001B (formerly Outfall 001A)

Outfall 001B is defined as the discharge through Outfall 001 during low flow conditions. Low flow conditions occur when the total daily flow in the receiving water, as measured at the USGS Gage Station No. 01163200, has been less than 17 cfs for 30 or more consecutive days.

5.2.1 Flow

In the event of normal upstream flow conditions (not low flow conditions), the permittee shall enter "NODI 9" on the DMR for flow for this month for Outfall 001B, and report the flow in Part I.A.1 of the permit for Outfall 001. During the monitoring period, the low flow condition occurred twice, in September of 2010 and July of 2012. In 2010, the upstream gage flow averaged 10.2 cfs with a maximum reading of 13 cfs. In the 2012 incidence, the average and maximum flows were 8.8 cfs and 14 cfs, respectively.

5.2.2. Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)

During low flow conditions, the permittee shall achieve maximum daily limits of 200 lbs/day for both BOD and TSS. For example, if on June 1st, the total daily receiving water flow, as measured by the Turner Street gage, fell below 17 cfs and remained under 17 cfs for 30 consecutive days through June 30th, the permittee is required to achieve the maximum daily limit of 200 lbs/day for both BOD and TSS starting on July 1st and continuing for each day the total daily flow remains below 17 cfs.

When the 30th consecutive day of the low flow condition is met, and until the daily flow as measured by the Turner Street gage equals or exceeds 17 cfs, the permittee shall achieve thirty

(30) day average limits of 150 lbs/day for both BOD and TSS. For example, if on June 1st, the total daily receiving water flow fell below 17 cfs and remained under 17 cfs through June 30th, the permittee shall achieve the thirty day average limits for BOD and TSS on July 1st, using all effluent data collected during the prior 30 day period. As long as the daily gage flow remains under 17 cfs, the permittee would be subject to the more stringent limits and the thirty day average for subsequent days would be calculated using effluent sampling results from that day and the previous 29 days.

In the event of normal upstream flow conditions (not low flow conditions), the permittee shall enter "NODI 9" on the DMR for BOD and TSS for this month, and report the required parameters in Part I.A.1 of the permit for Outfall 001. See Section 5.1.3 of this fact sheet for more detail on the low flow monitoring requirements for BOD and TSS.

During the two incidences of low flow during the monitoring period, the BOD and TSS values were reported as follows:

	BOD, mg/l		TSS, mg/l	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
September 2010	41	41	73.9	73.9
July 2012	45.2	91.9	83	104.5

There were no violations of the low flow permit limits for BOD or TSS during these two periods of low flow. Therefore, these water quality based limits have been maintained, due to antibacksliding requirements.

6.0 Endangered Species Act

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

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants to see if any such listed species might potentially be impacted by the reissuance of this NPDES permit and has not found any such listed species. EPA has determined that there are no species of concern present in the vicinity of this Facility's outfall. Therefore, EPA does not need to formally consult with NMFS or USFWS in regard to the provisions of the ESA. Further, the effluent limits established in this permit ensure the protection of aquatic life and maintenance of the receiving water as an aquatic habitat. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS.

7.0 Essential Fish Habitat

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

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

A review of available EFH information indicates that Otter River is not designated EFH for any federally managed species. Therefore, consultation with NMFS is not required. If adverse effects are detected as a result of this permit action, NMFS will be notified and an EFH consultation will promptly be initiated. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to NMFS.

8.0 Monitoring and Reporting

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

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month in the Discharge Monitoring Reports (DMRs) no later than the 15th day of the month following the completed reporting period.

The Draft Permit includes new provisions related to electronic DMR submittals to EPA and the

State. The Draft Permit requires that, no later than six months after the effective date of the permit, the permittee submit all DMRs to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

In the interim (until six months from the effective date of the permit), the permittee may either submit monitoring data to EPA in hard copy form, or report electronically using NetDMR.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR can be found on the EPA Region 1 NetDMR website located at http://www.epa.gov/region1/npdes/netdmr/index.html.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To learn more about upcoming trainings, please visit the EPA Region 1 NetDMR website http://www.epa.gov/region1/npdes/netdmr/index.html .

The Draft Permit also includes an "opt-out" request process. Permittees who believe they can not use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA and MassDEP at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR, subject to the same six month time frame and opt-out provisions as identified for NetDMR. Certain exceptions are provided in the permit such as for the submittal of pre-treatment reports and for providing written notifications required under the Part II Standard Permit Conditions. Once a permittee begins submitting reports to EPA using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP. Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the Draft Permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format. Hard

copies of DMRs must be postmarked no later than the 15th day of the month following the completed reporting period.

9.0 State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State WQS. The staff of MassDEP have reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the draft permit will be certified.

10.0 Public Comment Period, Public Hearing, and Procedures for Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to George Papadopoulos, U.S. EPA, Office of Ecosystem Protection**,** Industrial Permits Section, Mailcode OEP 06-1, 5 Post Office Square, Suite 100, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and MassDEP.

Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 CFR §124.19.

11.0 EPA and MassDEP Contacts

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

George Papadopoulos, Industrial Permits Branch
5 Post Office Square - Suite 100 - Mailcode OEP 06-1
Boston, MA 02109-3912

papadopoulos.george@epa.gov
Telephone: (617) 918-1579 FAX: (617) 918-1505

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
1 Winter Street, Boston, Massachusetts 02108
catherine.vakalopoulos@state.ma.us
Telephone: (617) 348-4026; FAX: (617) 292-5696

January 7, 2015
Date

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

Attachment A: Discharge Monitoring Data

Seaman Paper Company - Outfall 001

Monitoring Period End Date	Flow		Temperature, Effluent		Temperature, Predicted Increase		pH		Iron	
	MGD	MGD	°F	°F	°F	°F	s.u.		mg/L	
	Mon Avg	Daily Max	Mon Avg	Daily Max	Mon Avg	Daily Max	min	max	Mon Avg	Daily Max
Jan-09	0.8545	1.0739	62.9	65.1	0.614	0.828	6.54	6.97	1.4	2.26
Feb-09	0.8314	1.0132	67	69.7	0.822	1.045	6.5	7.04	1.18	1.88
Mar-09	0.9637	1.3043	67.1	70.3	0.422	0.686	6.5	7.5	0.72	1.5
Apr-09	0.8805	1.1962	73.9	77.9	0.332	0.495	6.54	7.65	0.964	1.35
May-09	0.8703	1.1922	7.6	80.6	0.358	0.855	6.54	6.98	0.596	0.74
Jun-09	0.9242	1.0743	81.4	85.1	0.42	0.791	6.78	7.2	0.358	0.457
Jul-09	0.8528	1.068	83.8	88.6	0.297	0.517	6.78	7.78	0.227	0.32
Aug-09	0.9078	1.0321	86.3	87.7	0.62	0.924	6.93	7.26	0.171	0.269
Sep-09	0.9226	1.1536	77.7	83.3	1.383	1.949	6.69	7.44	0.396	0.823
Oct-09	0.8839	1.1303	70.9	74.8	0.881	1.467	6.82	7.58	0.317	0.402
Nov-09	0.8112	1.2187	74.6	78.6	0.822	1.347	6.72	7.33	0.482	0.624
Dec-09	0.8519	1.0464	64.6	70.6	0.534	0.857	6.4	7.01	2.257	7.18
Jan-10			66.3	69.4			6.13	7.07	1.127	1.42
Feb-10	0.8513	1.2459	63.8	65.4	0.256	0.423	6.04	6.7	1.608	2.47
Mar-10	0.9077	1.12	65	68.3	0.162	0.335	6.37	7.29	0.564	1.21
Apr-10	0.8291	1.0471	71.9	74.5	0.304	0.449	6.72	7.32	0.752	1.23
May-10	0.7948	1.0592	78.9	86.6	0.431	0.639	6.8	7.32	0.583	0.819
Jun-10	0.8902	1.1817	82.6	86.9	0.791	1.187	6.82	7.3	0.328	0.526
Jul-10	0.9156	1.3224	87.9	89.7	1.373	2.389	6.83	7.69	0.598	0.957
Aug-10	0.9784	1.3743	85.6	88.7	2.087	2.735	6.8	7.5	0.373	0.78
Sep-10	0.8837	1.1912	80.8	89.6	2.629	4.17	6.93	7.33	0.181	0.306
Oct-10	0.9101	1.2515	71.8	76.9			6.9	7.34	0.538	1.03
Nov-10	0.8959	1.3495	66.8	68.9	0.548	1.043	6.52	7.33	0.629	1.06
Dec-10	0.8777	1.2653	60.3	62.2	0.65	0.875	6.02	7.12	1.306	2.16
Jan-11	0.813	0.9932	63.6	66.4	0.937	1.274	6.59	7.25	1.653	4.38
Feb-11	0.8302	1.1044	65.3	68.5	0.965	1.357	6.57	7.72	1.999	4.15
Mar-11	0.8749	1.032	69.3	72.2	0.293	0.651	6.35	6.9	1.006	1.84
Apr-11	0.8983	1.0401	69.2	72.8	0.19	0.27	6.29	6.97	1.079	1.59
May-11	0.9768	1.3563	76.5	81.3	0.348	0.521	6.49	7.58	0.363	0.644
Jun-11	1.0376	1.2676	82.8	86.2	0.459	0.724	6.72	7.52	0.335	0.545
Jul-11	1.0338	1.2887	86.1	88.9	1.345	2.422	6.88	7.18	0.275	0.445
Aug-11	0.8421	1.1168	81.6	87.5	0.736	2.12	6.3	7.28	0.255	0.542
Sep-11	0.8427	1.0394	79.5	82.7	0.201	0.422	6.79	7.61	0.342	0.542
Oct-11	0.8598	1.0717	70	76.1	0.254	0.422	6.6	7.43	0.225	0.313
Nov-11	0.8031	1.1912	71.2	75.7	0.328	0.813	7.07	7.65	0.349	0.445
Dec-11	0.8313	1.1442	70.6	78.3	0.39	0.547	6.89	7.58	0.508	0.568

Jan-12	0.8092	1.0276	64.7	69.5	0.69	0.887	6.53	7.39	0.734	1.24
Feb-12	0.8649	1.0397	68	69.2	0.894	1.229	6.79	7.33	1.725	1.95
Mar-12	0.8292	0.9451	76.8	85.9	0.595	0.965	6.64	7.55	0.79	1.22
Apr-12	0.8702	1.0704	73.6	82.2	1.008	1.386	6.62	7.3	0.716	1.1
May-12	0.8229	1.058	77.8	83.5	0.319	0.436	6.59	7.24	0.735	0.961
Jun-12	0.8735	1.1725	81.6	87.1	0.622	1.625	6.75	7.5	0.89	1.2
Jul-12	0.9127	1.2262	86	89.3	2.053	2.625	6.72	7.2	0.636	0.906
Aug-12	0.8717	1.1155	84.7	87.4	1.194	2.054	6.64	7.25	0.699	0.854
Sep-12	0.8195	1.1212	76.8	83.5	1.316	1.925	6.39	7.39	0.746	1
Oct-12	0.8938	1.2425	72.1	76.6	0.863	1.2	6.46	7.19	0.645	0.829
Nov-12	0.9303	1.2271	68.6	74.9	0.815	1.215	6.12	7.25	1.511	3.58
Dec-12	0.9166	1.1741	65.1	70.1	1.226	2.027	6.35	7.16	1.31	1.5
Jan-13	0.9045	1.1166	62.5	69	0.995	1.584	6.51	7.39	1.026	1.31
Feb-13	0.8388	1.128	64.8	69	0.622	0.752	6.69	7.34	0.529	0.637
Mar-13	0.8735	1.1292	69.9	72	0.486	0.716	6.51	7.3	0.495	0.7
Apr-13	0.9675	1.2679	76.2	82.8	0.371	0.592	6.64	7.17	0.724	1.17
May-13	1.0302	1.2616	80.8	84.6	0.528	0.868	6.71	7.22	0.705	0.9
Jun-13	0.9652	1.23	83.2	88.9	0.189	0.329	6.29	7.2	0.691	0.882
Jul-13	0.8932	1.1704	87	89.7	0.171	0.789	6.7	7.47	0.717	0.89
Aug-13	0.8763	1.1356	84.1	85.8	0.855	1.511	6.57	7.36	0.878	1.31
Sep-13	0.9677	1.2237	79.6	88.8	1.783	2.997	6.46	7.48	1.07	1.28
Oct-13	0.8668	0.9859	73.8	78	1.351	2.082	6.27	7.15	2.209	4.93
Nov-13	0.9347	1.1581	69.5	66.5	1.864	3.015	6.38	7.84	0.718	1.7
Dec-13	0.8792	1.0793	68.2	74.9	1.314	1.851	6.69	7.4	0.552	1.06
2008 Permit Limits	1.1	1.4	---------	90 ^{o}F	-------	------	6.0	8.3	-------	--------
Minimum	0.795	0.95	60.3	62.2	0.162	0.27	6.02	6.7	0.17	0.27
Maximum	1.04	1.37	87.9	89.7	2.63	4.17	7.07	7.84	2.26	7.18
Average	0.89	1.15	74.2	78.4	0.78	1.24	6.59	7.33	0.79	1.35
Standard Deviation	0.057	0.102	7.69	8.19	0.54	0.82	0.24	0.22	0.49	1.23
Measurements	59	59	60	60	58	58	60	60	60	60

Attachment A: Discharge Monitoring Data

Seaman Paper Company - Outfall 001

Monitoring Period End Date	Biochemical Oxygen Demand				Total Suspended Solids			
	Nov - Apr		May – Oct		Nov - Apr		May - Oct	
	#/day	#/day	#/day	#/day	#/day	#/day	#/day	#/day
	Mon Avg	Daily Max	Mon Avg	Daily Max	Mon Avg	Daily Max	Mon Avg	Daily Max
Jan-09	86.7	163.3			127.9	168.3		
Feb-09	39.1	64.8			105.8	141.6		
Mar-09	65.4	87			154.6	228.4		
Apr-09	36.5	46.1			169.5	242.6		
May-09			37.2	52.7			95.9	148.6
Jun-09			45.7	107.5			97.9	143.4
Jul-09			27.6	38.8			75.9	103.5
Aug-09			30.5	39.8			65.3	77.4
Sep-09			49.8	92.9			94.4	120.8
Oct-09			69.9	114.4			89.7	123.9
Nov-09	48.7	63.1			92.4	109.6		
Dec-09	65	104.7			131.1	165.8		
Jan-10	100	126.7			83.2	106.7		
Feb-10	116.2	217.9			88.7	145.3		
Mar-10	130.7	208.8			81.6	104.1		
Apr-10	63.2	129.2			77.5	85.6		
May-10			60	124.1			115.5	169.8
Jun-10			51	117.5			99.5	147.6
Jul-10			77	159.6			81.2	95.3
Aug-10			54.3	60			85.5	122.8
Sep-10			35	45.8			51.3	73.9
Oct-10			74	148.1			86.9	138.3
Nov-10	69.5	101.3			83.6	114.6		
Dec-10	55.1	80			95.6	200		
Jan-11	147	248.5			155.8	231.9		
Feb-11	105	146.9			119.6	129.1		
Mar-11	35	66.8			71.9	117.3		
Apr-11	29.8	34.6			80.4	95.2		
May-11			29.9	41.3			51.5	77.1
Jun-11			36.7	61.3			65.7	85.5
Jul-11			34.2	50.4			78.3	129.8

Aug-11			52.4	154.1			48.5	55
Sep-11			28	31.3			74.4	86.7
Oct-11			35.3	49.1			57	112.3
Nov-11	49.1	69.7			77.2	97.5		
Dec-11	27.5	36			71.8	86.4		
Jan-12	66.2	191.4			64.6	94.1		
Feb-12	78.6	145			115.2	130		
Mar-12	34	40			66	82.7		
Apr-12	44.7	49.9			74.4	88.2		
May-12			37.9	66.8			88.7	108.1
Jun-12			32.8	75.8			99.8	142.5
Jul-12			45.2 *	91.9 *			83 *	104.5 *
Aug-12			37.4	58.2			69.4	97
Sep-12			39.6	44.9			89.3	97.3
Oct-12			34.9	41.4			64.3	75.5
Nov-12	86.9	143.3			108.4	163.7		
Dec-12	82.3	142			110.2	133.4		
Jan-13	65.1	104.5			98.4	124.1		
Feb-13	54.8	68			64.7	83.7		
Mar-13	35.5	44.9			81.3	109.1		
Apr-13	48.8	67.4			96.1	109.5		
May-13			58.3	86.9			78.1	126.3
Jun-13			48	63.7			62.9	103.6
Jul-13			42	83.4			78.6	120.4
Aug-13			44.1	106.3			78.3	122.7
Sep-13			48.6	94.5			92.8	113.4
Oct-13			58.7	87.9			70	135.7
Nov-13	51.9	115.6			86.5	131.5		
Dec-13	55.1	123.6			73.6	115.9		
2008 Permit Limits	286	400	400	700	400	600	700	900
Minimum	27.5	34.6	27.6	31.3	64.6	82.7	48.5	55
Maximum	147	248	77.0	160	169.5	242.6	115.5	169.8
Average	65.8	108	45.2	79.7	96.9	131	79.0	112
Standard Deviation	30.2	57.6	13.3	36.4	28.1	44.9	16.3	26.8
Measurements	30	30	30	30	30	30	30	30

* these values were recorded during the low flow period as defined in the permit during which the effluent limits for BOD and TSS are 150 mg/l as a monthly average and 200 mg/l as a daily maximum

Attachment A: Discharge Monitoring Data

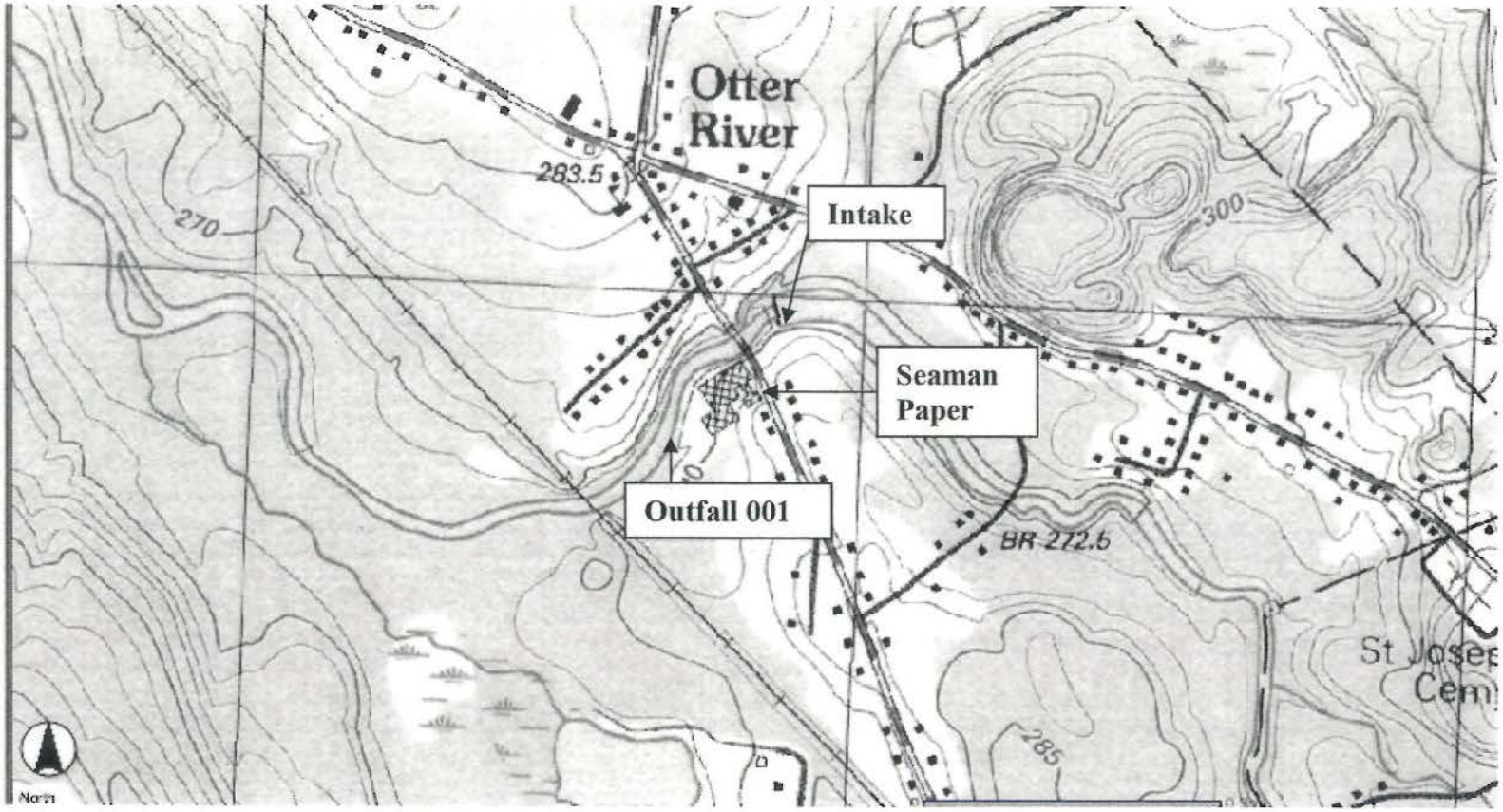
Seaman Paper Company - Outfall 001

Monitoring Period End Date	Dissolved Oxygen	Phosphorus	NH3	WET-LC50	WET-C-NOEC	Aluminum	
	mg/l	mg/l	mg/l	%	%	mg/L	
	Minimum	Monthly Average	Mon Avg	-------	---------	Mon Avg	Daily Max
Jan-09			4.6	100	50		
Feb-09			1.71				
Mar-09			0.18				
Apr-09		0.194	3.01	100	50	0.01	0.01
May-09		0.12	1.44				
Jun-09	6.81	0.198	0.288				
Jul-09	6.33	0.143	0.54	100	100	0.193	0.193
Aug-09	6.32	0.151	1.81				
Sep-09	6.2	0.177	0.784				
Oct-09		0.182	5.37	100	50	0.01	0.01
Nov-09			3.203				
Dec-09			5.378				
Jan-10			1.268	100	**6.25**		
Feb-10			3.45				
Mar-10			12.8				
Apr-10		0.151	6.33	100	100	0.01	0.01
May-10		0.197	7.2				
Jun-10	6.31	0.185	1.55				
Jul-10	6.43	0.169	1.83	100	**6.25**	0.01	0.01
Aug-10	6.11	0.143	1.4				
Sep-10	6.16	0.137	7.2				
Oct-10		0.164	4.56	100	100	0.01	0.01
Nov-10			4.97				
Dec-10			4.78				
Jan-11			7.01	100	30	0.1	0.1
Feb-11			0.86				
Mar-11			2.37				
Apr-11		0.107	0.95	100	50	0.073	0.073
May-11		0.154	2.9				
Jun-11	5.08	0.113	7.36				
Jul-11	6.09	0.136	1.08	100	100	0.034	0.034
Aug-11	6.21	0.102	3.66				
Sep-11	6.25	0.122	1.79				
Oct-11		0.115	0.268	100	100	0.068	0.068
Nov-11			4.27				
Dec-11			6.12				

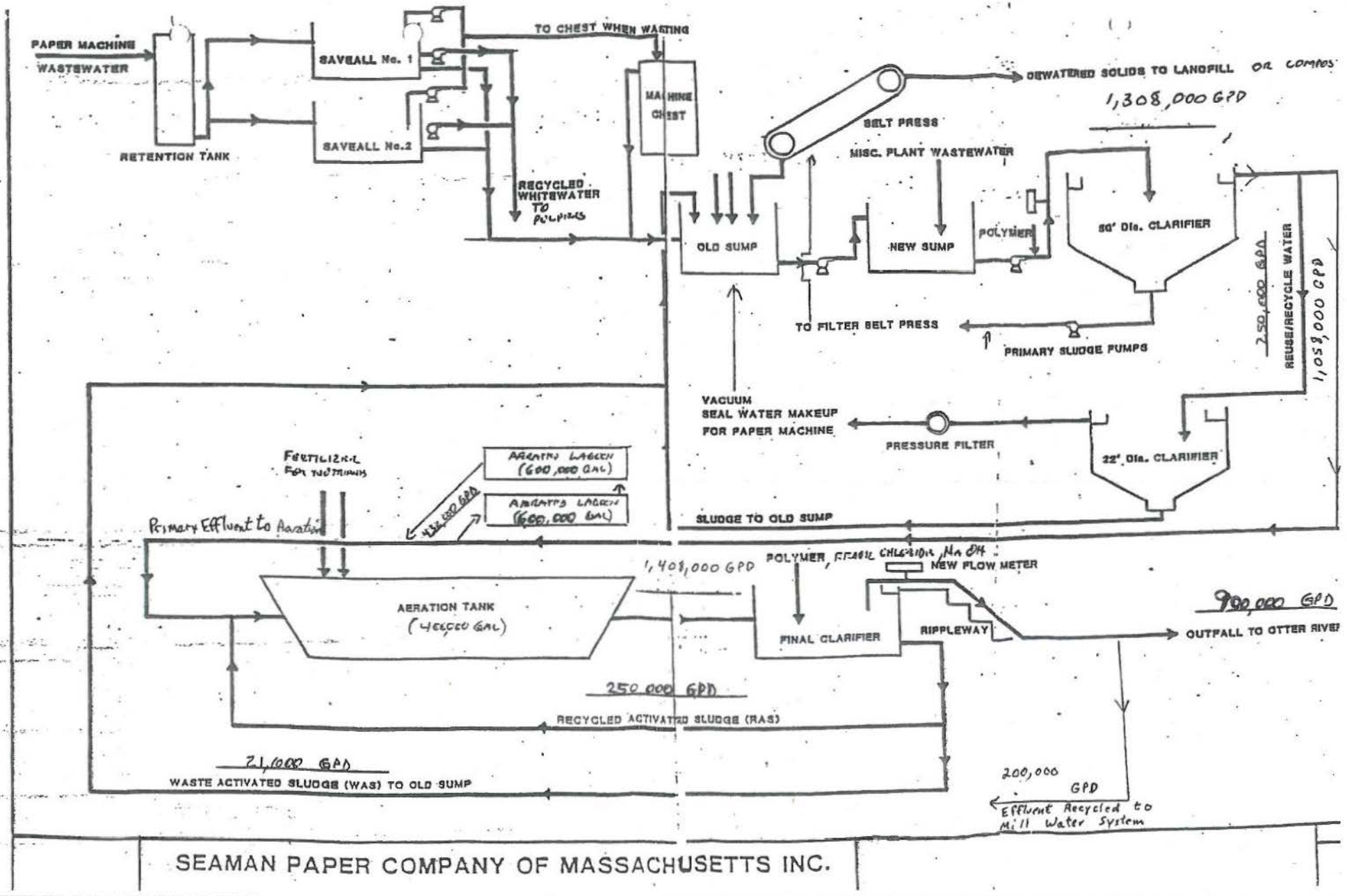
Jan-12			4.115	100	50	0.068	0.068
Feb-12			2.698				
Mar-12			1.685				
Apr-12		0.151	1.043	100	100	**0.292**	0.292
May-12		0.107	7.68				
Jun-12	5.08	0.146	0.42				
Jul-12	6.99	0.115	1.21	100	50	0.051	0.051
Aug-12	6.88	0.11	3.7				
Sep-12	6.42	0.126	2.46				
Oct-12		0.115	0.82	100	100	0.03	0.03
Nov-12			3.74				
Dec-12			5.7				
Jan-13			1.26	100	100	0.044	0.044
Feb-13			5.25				
Mar-13			1.45				
Apr-13		0.152	2.938	100	100	0.041	0.041
May-13		0.108	3.066				
Jun-13	7.02	0.123	3.135				
Jul-13	6.7	0.14	0.892	100	**12.5**	0.021	0.025
Aug-13	6.71	0.083	3.45				
Sep-13	7.53	0.104	2.253				
Oct-13		0.143	5.18	100	**6.25**	0.075	0.075
Nov-13			0.668				
Dec-13			0.295				
2008 Permit Limits	5.0 mg/l minimum	0.2 mg/l	Report	$\geq$ 100	$\geq$ 30	0.29 mg/l	2.1 mg/l
Minimum	5.08	0.083	0.18	100	6.25	0.01	0.01
Maximum	7.53	0.198	12.8	100	100	0.292	0.292
Average	6.0	0.14	3.16	100	63.0	0.063	0.063
Standard Deviation	1.0	0.03	2.47	0	37.4	0.073	0.073
Measurements	24	42	60	20	20	18	18

Note: permit violations are noted in bold

Attachment β – Site Plan



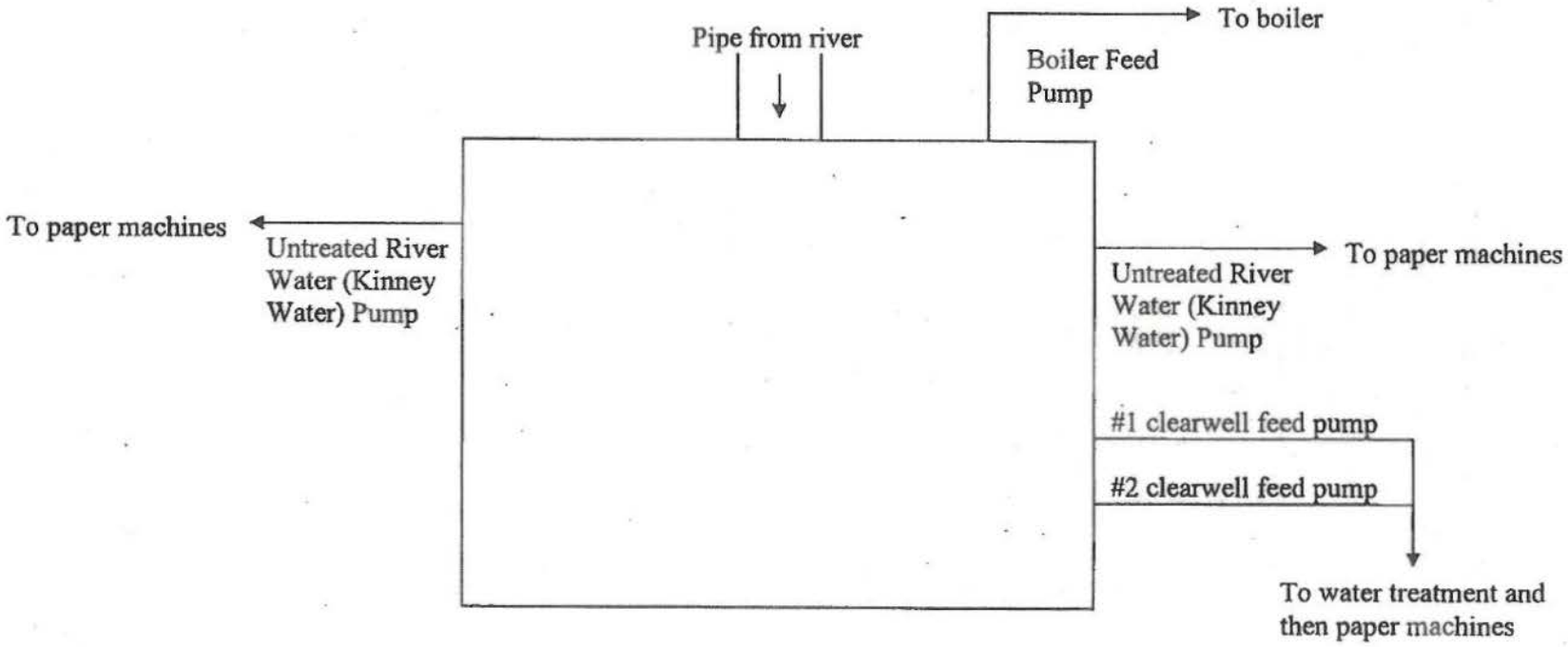
Attachment C – Flow Schematic



SEAMAN PAPER COMPANY OF MASSACHUSETTS INC.

Attachment D

Schematic of Intake Structure



Attachment E

pH-Dependent Values of the CMC (Acute Criterion)

	CMC, mg N/L	
pH	Salmonids Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Attachment F

Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present

CCC for Fish Early Life Stages Present, mg N/L										
pH	Temperature, C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

The National Criterion for Ammonia in Fresh Water - EPA's Aquatic Water Quality Criteria for Ammonia, 1999 Update

Attachment G

Reasonable Potential Analysis for Total Iron – Seaman Paper

Month	DMR Value (mg/l)	y_i ln Fe (mg/l)	Month	DMR Value (mg/l)	y_i ln Fe (mg/l)
Jan-09	1.4	0.3365	Aug-11	0.255	-1.3665
Feb-09	1.18	0.1655	Sep-11	0.342	-1.0729
Mar-09	0.72	-0.3285	Oct-11	0.225	-1.4917
Apr-09	0.964	-0.0367	Nov-11	0.349	-1.0527
May-09	0.596	-0.5175	Dec-11	0.508	-0.6773
Jun-09	0.358	-1.0272	Jan-12	0.734	-0.3092
Jul-09	0.227	-1.4828	Feb-12	1.725	0.5452
Aug-09	0.171	-1.7661	Mar-12	0.79	-0.2357
Sep-09	0.396	-0.9263	Apr-12	0.716	-0.3341
Oct-09	0.317	-1.1489	May-12	0.735	-0.3079
Nov-09	0.482	-0.7298	Jun-12	0.89	-0.1165
Dec-09	2.257	0.8140	Jul-12	0.636	-0.4526
Jan-10	1.127	0.1196	Aug-12	0.699	-0.3581
Feb-10	1.608	0.4750	Sep-12	0.746	-0.2930
Mar-10	0.564	-0.5727	Oct-12	0.645	-0.4385
Apr-10	0.752	-0.2850	Nov-12	1.511	0.4128
May-10	0.583	-0.5396	Dec-12	1.31	0.2700
Jun-10	0.328	-1.1147	Jan-13	1.026	0.0257
Jul-10	0.598	-0.5142	Feb-13	0.529	-0.6368
Aug-10	0.373	-0.9862	Mar-13	0.495	-0.7032
Sep-10	0.181	-1.7093	Apr-13	0.724	-0.3230
Oct-10	0.538	-0.6199	May-13	0.705	-0.3496
Nov-10	0.629	-0.4636	Jun-13	0.691	-0.3696
Dec-10	1.306	0.2670	Jul-13	0.717	-0.3327
Jan-11	1.653	0.5026	Aug-13	0.878	-0.1301
Feb-11	1.999	0.6928	Sep-13	1.07	0.0677
Mar-11	1.006	0.0060	Oct-13	2.209	0.7925
Apr-11	1.079	0.0760	Nov-13	0.718	-0.3313
May-11	0.363	-1.0134	Dec-13	0.552	-0.5942
Jun-11	0.335	-1.0936	Jan-14	1.175	0.1613
Jul-11	0.275	-1.291	Feb-14	0.646	-0.4370

No Non-detect (ND) values, greater than 10 data points, lognormal distribution

Total Iron (Lognormal distribution, no Non-Detects)

Estimated Daily Maximum Effluent Concentration		
k = number of daily samples =	62	
u_y = Avg of Nat. Log of daily Discharge =	-0.40566	
s_y = Std Dev. of Nat Log of daily discharge =	0.61054	
σ_y^2 = estimated variance = (SUM[$(y_i - u_y)^2$]) / (k-1) =	0.3727571	
cv(x)= Coefficient of Variation =	-1.505053358	
99th Percentile Daily Max Estimate = exp (u_y + 2.326*s_y)		
Estimated Daily Max 99th percentile =	**2.7579**	**mg/L**
Estimated Daily Max including Dilution Factor =	**0.9193**	**mg/L**
95th Percentile Daily Max Estimate = exp (u_y + 1.645*s_y)		
Estimated Daily Max =	**1.8197**	**mg/L**
Estimated Daily Max including Dilution Factor =	**0.6066**	**mg/L**