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),

Onyx Specialty Papers, Inc.
40 Willow Street
South Lee, Massachusetts 01260

is authorized to discharge from the facility located at

Willow Mill
40 Willow Street
South Lee, MA 01260

to the receiving water named **Housatonic River**, a class B water, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

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

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

This permit supersedes the permit issued on June 21, 2005.

This permit consists of 11 pages in Part I including effluent limitations, monitoring requirements, and state permit conditions, Attachment A – Freshwater Chronic and Modified Acute Toxicity Test Protocol (May 2007), and 25 pages in Part II, Standard Conditions.

Signed this 26th day of January, 2012.

/s/ SIGNATURE ON FILE

Stephen S. Perkins, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I.A. **Effluent Limitations and Monitoring Requirements**

1. During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge treated papermaking wastewater, boiler blowdown, and excess filtered river water from outfall serial number **001**. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS		MONITORING REQUIREMENTS	
PARAMETER	**AVERAGE MONTHLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[1] TYPE**
Flow	Report GPD	Report GPD	Continuous	Recorder[2]
Total Production	Report tons/day	Report tons/day	Daily	Daily Calculated
pH Range	6.0 – 9.0 s.u.		1/Week	Grab
Total Suspended Solids	150 lbs/day [3]	575 lbs/day [3]	2/Week	24-Hour Composite[4]
Biochemical Oxygen Demand, 5 day	353 lbs/day	530 lbs/day	2/Week	24-Hour Composite[4]
Temperature	Report ^{o}F	90 ^{o}F	1/Week	Grab
Total Residual Chlorine [5]	Report mg/l	Report mg/l	1/Week	Grab
Total Phosphorus [6]	Report mg/l	Report mg/l	2/Month	24-Hour Composite[4]
Aluminum, Total	Report mg/l	Report mg/l	1/Quarter	24-Hour Composite[4]
Total Ammonia Nitrogen	Report mg/l & lbs/day	Report mg/l & lbs/day	2/Month	24-Hour Composite[4]
Nitrite and Nitrate Nitrogen, Influent [6]	Report mg/l & lbs/day	Report mg/l & lbs/day	2/Month	24-Hour Composite[4]

Nitrite and Nitrate Nitrogen, Effluent [6]	Report mg/l & lbs/day	Report mg/l & lbs/day	2/Month	24-Hour Composite[4]

Footnotes are listed on Pages 3, 4, and 5.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS		MONITORING REQUIREMENTS	
PARAMETER	**AVERAGE MONTHLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE[1] TYPE**
Total Kjeldahl Nitrogen, Influent [6]	Report mg/l & lbs/day	Report mg/l & lbs/day	2/Month	24-Hour Composite[4]
Total Kjeldahl Nitrogen, Effluent [6]	Report mg/l & lbs/day	Report mg/l & lbs/day	2/Month	24-Hour Composite[4]
Total Nitrogen, Influent [6]	Report lbs/day	Report lbs/day	2/Month	Calculated
Total Nitrogen, Effluent [6]	Report lbs/day	Report lbs/day	2/Month	Calculated
Whole Effluent Toxicity [7,8,9]	LC_{50} ∃100% ; Report C-NOEC %		4/Year	24-Hour Composite[4]

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

b. The pH of the effluent shall be in the range of 6.0 to 9.0 standard units and not more than 0.5 s.u. outside of the naturally occurring range.

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

d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

e. The results of sampling for any parameter above its required frequency must also be reported.

Footnotes:

1. Samples taken in compliance with the monitoring requirements specified above shall be taken at Outfall 001 prior to mixing with any other stream. A routine sampling program shall be developed in which samples are taken at the same location, approximately the same time, and the same days of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge

monitoring report that is submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.

2. For flow, report maximum and minimum daily rates and total flow for each operating date. Attach this data to each DMR form.

3. The daily maximum TSS limit of 575 lbs/day applies at all production levels. The monthly average limit for TSS is based on the average monthly production (tons of paper product) and the limit of 150 lbs/day is based on any average monthly production of up to 40 tons per day. Proportionately higher monthly average TSS limits were calculated for monthly average production rates of up to 70 tons per day (TPD) in increments of 5 TPD. The following monthly average TSS limits apply for these ranges of production:

40 TPD or below – 150 lbs/day	55.1 to 60 TPD: 225 lbs/day
40.1 to 45 TPD: 169 lbs/day	60.1 to 65 TPD: 244 lbs/day
45.1 to 50 TPD: 187 lbs/day	65.1 to 70 TPD or higher: 262 lbs/day
50.1 to 55 TPD: 206 lbs/day	

4. Composite samples shall be comprised of at least 24 flow-weighted individual samples taken throughout one full operational day (e.g.0700 Monday to 0700 Tuesday).

5. The minimum level (ML) for Total Residual Chlorine (TRC) is defined as 20 ug/l using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G, or USEPA Methods for Chemical Analysis of Water and Wastes, Method 330.5. One of these methods must be used to determine TRC. The ML is not the minimum level of detection, but rather the lowest point on the curve used to calibrate the test equipment for the TRC. If EPA approves a more sensitive method of analysis for TRC, the permit may be reopened to require the use of the new method with a corresponding lower ML. When reporting sample data below the ML, see the latest EPA Region NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) for guidance.

6. See Part I.C for requirements regarding the optimization of the removal of phosphorus and nitrogen through the treatment plant as well as nitrogen reporting requirements. The sampling for these influent nitrogen parameters shall be conducted prior to the sampling for the same effluent nitrogen parameters, allowing for travel time through the papermaking and wastewater treatment processes. For the purposes of this permit, the travel time through the facility has been estimated at 3 days. Therefore, the day during which the influent sampling for these nitrogen parameters will be conducted shall be designated as Day 1 and the effluent sampling for the same parameters will be conducted on Day 4, beginning as close to the same time as feasible. The influent is defined as the water withdrawn from the Housatonic River and prior to entering the papermaking process. 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. After the first twelve

(12) months of sampling and reporting for the parameters of influent nitrite and nitrate nitrogen and influent total kjeldahl nitrogen, the permittee may request the elimination of these influent sampling requirements. The permittee shall continue monitoring the influent parameters until it receives written correspondence from the EPA that such monitoring is no longer required.

7. The permittee shall conduct chronic and modified acute whole effluent toxicity tests on samples collected during the second week of January, April, July and October of each year. The permittee shall test the fathead minnow, *Pimephales promelas* and the daphnid, *Ceriodaphnia dubia*. Toxicity testing reporting is due the last day of the month following the month of the test. This schedule is summarized in the Table below. For example, the January toxicity test result shall be submitted no later than February 28th. The test must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit and conducted during normal operating conditions. After submitting **one year** (a minimum of four consecutive sets) of Whole Effluent Toxicity (WET) test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the 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 the EPA that the WET testing requirement has been changed.

Test Dates Second Week in	**Submit Results** by:	**Test Species**	**LC_{50} Limit**	**Chronic Limit: C-NOEC**
January April July October	February 28th May 31st August 31st November 30th	Pimephales promelas (fathead minnow) and Ceriodaphnia dubia (daphnid)	∃100 %	Report %

8. LC50: 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.

9. For the purpose of conducting the toxicity tests on the daphnid, *Ceriodaphnia dubia*, the Housatonic River diluent water shall be taken upstream of the discharge. Alternate dilution water (ADW) may be used when performing toxicity tests on the fathead minnow, *Pimephales promelas.* For ADW, the permittee may use laboratory water as diluent and such diluent shall have characteristics such as hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids that are similar to those of the receiving water and that shall not illicit a toxic response. ADW tests must be run with a minimum of two controls: a receiving water (Housatonic River) control and a toxicity-free alternate dilution water control. Chemical data of the receiving water control, including data for all metals listed in the protocol, must be included in the whole effluent toxicity (WET) report.

Part I.A. (continued)

2. 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.

3. Numerical Effluent Limitations for Toxicants

   EPA or MassDEP may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

4. The permittee shall not add chemicals (e.g., disinfectant agents, detergents, emulsifiers) to the collection and treatment system without prior approval from EPA and MassDEP. The permittee shall notify EPA and MassDEP at the addresses in Part I.E. when it proposes to add or replace any bio-remedial agents including microbes to the collection and treatment system.

5. 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 or frequent 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 ug/l);

      (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol, and one milligram per liter (l mg/l) for antimony;

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

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

b. That any activity has occurred or will occur which could 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 ug/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 CFR §122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 CFR §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.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I A.1. 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 operate its wastewater treatment system to optimize the removal of nitrogen prior to discharge to the Housatonic River so that the total effluent nitrogen loading from the facility does not exceed the total nitrogen loading of the influent to the facility. The permittee shall optimize its wastewater treatment system to minimize the discharge of phosphorus. The permittee shall not add any substances containing nitrogen or phosphorus compounds to its treatment system without prior approval of EPA and MassDEP. In conjunction with these efforts, the permittee shall do the following:

Within one year of the effective date of the permit, the permittee shall complete an evaluation of the influent total nitrogen loading to the facility. This evaluation shall be based on the first twelve (12) months of this permit, during which time the permittee shall sample for the parameters of influent nitrite and nitrate nitrogen and influent total kjeldahl nitrogen at a frequency of twice per month and report the results in the monthly DMRs. The sampling for these influent nitrogen parameters shall be conducted prior to the sampling for the effluent nitrogen parameters, allowing for travel time through the papermaking and wastewater treatment processes. For the purposes of this permit, the travel time through the facility has been estimated at 3 days. Therefore, the day during which the influent sampling for these nitrogen parameters will be conducted shall be designated as Day 1 and the effluent sampling for the same parameters will be conducted on Day 4, beginning as close to the

same time as feasible. The influent is defined as the water withdrawn from the Housatonic River and prior to entering the papermaking process. The total nitrogen loading will be comprised of the components nitrite and nitrate nitrogen and total kjeldahl nitrogen. The effluent sampling for all nitrogen parameters and reporting of the total effluent nitrogen loading is required for the term of this permit. After the first twelve (12) months of sampling and reporting for the parameters of influent nitrite and nitrate nitrogen and influent total kjeldahl nitrogen, the permittee may request the elimination of such influent sampling. The permittee shall continue monitoring the influent parameters until it receives written correspondence from the EPA that such monitoring is no longer required.

A report detailing the findings of this influent nitrogen loading evaluation shall be submitted to EPA and MassDEP at the addresses in Part I.E. within fifteen (15) months after the effective date of the permit. This evaluation shall describe nitrogen content of the water entering the papermaking process and the nitrogen treatment efficiencies throughout the wastewater treatment plant.

If EPA determines that nitrogen is being added through the permittee's papermaking process or wastewater treatment process or is created as a byproduct of any process, the permittee shall take measures to remove sufficient nitrogen prior to discharge to the Housatonic River so that the total nitrogen loading discharged from the facility does not exceed the total nitrogen loading of the influent to the facility. The permittee shall consider, but not be limited to, the following:

1) Minimizing the addition of any nitrogen containing compounds;
2) alternative papermaking and wastewater treatment chemicals; and
3) alternative and additional wastewater treatment processes.

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

1. **For a period of one year from the effective date of the permit**, the permittee may

either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

a. Submittal of Reports Using NetDMR

NetDMR is accessed from: http://www.epa.gov/netdmr. **Within one year of the effective date of this permit**, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility 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").

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports 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 shall continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

b. Submittal of NetDMR Opt-Out Requests

Opt-out requests must be submitted in writing to EPA 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 is 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 (OES04-1)
Boston, MA 02109-3912

and

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program

627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. All reports required under this permit shall be submitted as an attachment to the DMRs.

Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

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

MassDEP – Western Region
Bureau of Waste Prevention (Industrial)
436 Dwight Street
Springfield, MA 01103

Duplicate signed copies of all reports or notifications required above, with the exception of DMRs, shall be submitted to the State at the following address:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

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

F. STATE PERMIT CONDITIONS

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 C.M.R. 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.

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.

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.

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

FACT SHEET

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

NPDES PERMIT NO.: MA0001848

DATE OF PUBLIC NOTICE: May 25, 2011 – June 23, 2011

NAME AND ADDRESS OF APPLICANT:

Onyx Specialty Papers, Inc.
40 Willow Street
South Lee, MA 01260

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Onyx Specialty Papers, Inc.
40 Willow Street
South Lee, MA 01260

RECEIVING WATER: Housatonic River (Segment MA21-19)

RECEIVING WATER CLASSIFICATION: Class B (Warm Water Fishery)

LATITUDE: 42° 16' 30" N **LONGITUDE**: 73° 17' 15" W

SIC CODE: 2621 – Paper Manufacturing (Specialty Papers)

Table of Contents

I. Proposed Action, Type of Facility and Discharge Location

Onyx Specialty Papers, Inc., the "Permittee", formerly MW Custom Papers, LLC, manufactures decorative and overlay papers for laminates used in furniture, flooring, countertops, and cabinets. The company also produces specialty grades of paper for various industrial applications. The products are produced from purchased pulp with an average production rate of approximately 33 tons per day. On December 1, 2009, ownership of this property was transferred from MW Custom Papers to Onyx Specialty Papers, Inc. This NPDES permit was officially transferred between these two parties by letter dated July 16, 2010. The permittee has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its NPDES permit to discharge treated wastewater to the Housatonic River via Outfall 001. The current permit ("2005 Permit") was issued on June 21, 2005, and expired five years from the effective date (August 21, 2010). EPA received a completed permit renewal application from the applicant dated February 18, 2010. Since the permit renewal application was deemed timely and complete by EPA, the permit has been administratively continued pursuant to 40 CFR § 122.6. This facility has traditionally been referred to as the "Willow Mill" and this reference is used in some places in this fact sheet.

II. Description of Treatment System and Discharges

Water for the papermaking process is drawn from the Housatonic River (0.60 MGD) and the East and West branches of Beartown Brook (0.35 MGD). The permittee has a water withdrawal permit (#9P10215001) with the Massachusetts Department of Environmental Protection (MassDEP). This water is treated with alum, disinfected with bleach and passed through sand filters before it is used. Potable water purchased from the Town of Lee is used for sanitary systems and limited manufacturing usage. The discharge to the Housatonic River consists of treated process wastewater and boiler blowdown. All sanitary wastewater is discharged to the Town of Lee sewer system and treated at Lee's Wastewater Treatment Facility. See Figure 1 for the location of the facility and Figure 2 for the water balance and treatment system employed at the facility. Process wastewater from the paper manufacturing operations is collected and treated at the onsite wastewater treatment facility. The system consists of a primary clarifier, flow equalization tank, rotating biological contactors (RBCs), and a secondary clarifier. A cooling tower is scheduled to be installed in 2011 which will be used seasonally to meet the effluent temperature limit. Water from the secondary clarifier will be passed through the cooling tower prior to discharge. Sludge is dewatered in a belt filter press and composted. A summary of recent Discharge Monitoring Reports (DMRs) data may be found in Table 1.

III. Receiving Water Description

The Housatonic River originates from tributaries in the Towns of Peru, Windsor, and Hinsdale, Massachusetts, and flows in a southerly direction through the Towns of Lenox, Lee, Stockbridge,

and Great Barrington prior to flowing into the State of Connecticut and eventually into Long Island Sound. The Facility discharges through Outfall 001 to the Housatonic River segment MA21-19, which begins at the outlet of Woods Pond in Lee/Lenox and ends at the Risingdale impoundment dam in Great Barrington[1] and is classified as Class B (warm water fishery)[2], by the Massachusetts Department of Environmental Protection (MassDEP) under the Commonwealth of Massachusetts Surface Water Quality Standards (SWQS).[3]

According to the *Housatonic River Watershed 2002 Water Quality Assessment Report*,[1] this segment is generally not meeting its designated uses as identified in the water quality standards. The following table, reproduced from the Water Quality Assessment Report, further identifies the status and impairments for each designated use:

Designated Uses		Status
Aquatic Life		IMPAIRED Cause: PCBs in whole fish and sediment, elevated total phosphorus in upper 9.2 miles of segment Source: inappropriate waste disposal from General Electric Site for PCB contamination Suspected source: Nutrient inputs from point sources (municipal and industrial) and non-point source runoff exacerbated by impoundments and other upstream sources
Fish Consumption		IMPAIRED Cause: PCBs Source: inappropriate waste disposal from General Electric Site
Primary Contact		IMPAIRED Upper 9.2 mile reach Cause: Objectionable algal growth Source: Unknown Suspected source: Nutrient inputs from point sources (municipal and industrial) and non-point source runoff exacerbated by impoundments and other upstream sources SUPPORT lower 10.7 mile reach
Secondary Contact		IMPAIRED Upper 9.2 mile reach Cause: Objectionable algal growth Source: Unknown Suspected source: Nutrient inputs from point sources (municipal and industrial) and non-point source runoff exacerbated by impoundments and other upstream sources SUPPORT lower 10.7 mile reach
Aesthetics		IMPAIRED Upper 9.2 mile reach Cause: Objectionable algal growth Source: Unknown Suspected source: Nutrient inputs from point sources (municipal and industrial) and non-point source runoff exacerbated by impoundments and other upstream sources SUPPORT lower 10.7 mile reach

[1] Housatonic River Watershed 2002 Water Quality Assessment Report, http://www.mass.gov/dep/water/resources/21wqar07.pdf
[2] http://www.mass.gov/dep/water/laws/tblfig.pdf
[3] http://www.mass.gov/dep/service/regulations/314cmr04.pdf

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).[3]

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.

Housatonic River Segment MA21-19 is listed on the *Final Massachusetts Year 2008 Integrated List of Waters*[4] and on the *Proposed Massachusetts Year 2010 Integrated List of Waters*[5] as a Category 5 waterbody: "Waters requiring a TMDL." The pollutants and conditions contributing to this impairment are as follows:

- Excess Algal Growth;
- Polychlorinated biphenyls;
- Phosphorus (Total); and
- PCB in Fish Tissue.

MassDEP is required under the CWA to develop a TMDL for a waterbody once it is identified as impaired. A TMDL is essentially a pollution budget designed to restore the health of a water body. A TMDL first identifies the source(s) of the pollutant from direct and indirect discharges in order to next determine the maximum amount of pollutant (including a margin of safety) that can be discharged to a specific water body while maintaining water quality standards for designated uses. It then outlines a plan to meet the goal. No TMDLs have been drafted or finalized for the Housatonic River watershed. However, a Waste Load Allocation (WLA) was

[4] http://www.mass.gov/dep/water/resources/08list2.pdf
[5] http://www.mass.gov/dep/water/resources/10list3.pdf

conducted as described in the MassDEP's publication *The Housatonic River – 1975 Part-D Water Quality Management Plan,* whose results still form the basis for water quality based BOD and TSS limits.

In this 1975 document, the MassDEP identified dissolved oxygen violations in many segments of the river. In order to eliminate these WQS violations, the MassDEP sought to establish effluent limitations for each NPDES permitted discharge to the river. A preliminary WLA for the Housatonic River was conducted using the Streeter-Phelps equation, whose outputs are the maximum allowable loadings for each segment of the river. It was determined from a 1969 water quality survey that the river was impacted mainly due to organic loadings from point source discharges, which typically dictates dissolved oxygen as the parameter to be modeled. This analysis formulates an expression of the material balance which exists in a stream after the discharge of waste material at a single point. The specific instream effects of a discharge may be analyzed using material balances as well as the relationship between upstream loadings and discharge loadings. The final product of this type of analysis is the determination of the maximum allowable loadings for each segment and the degree of treatment required to meet water quality goals. The load allocations derived for the Willow Mill facility were 390 lbs/day for both BOD and TSS. These were revised in MassDEP's publication *The Housatonic River – 1981 Water Quality Management Plan* to 353 lbs/day for BOD and 383 lbs/day for TSS. Therefore, these would serve as appropriate water quality based limits for this permit. However, these values will be compared with the existing permit limits and the calculated technology based limits. The most stringent value for each parameter is typically established as the permit limit.

IV. Limitations and Conditions

The effluent limitations and all other requirements described herein may be found in the draft permit. The basis for the limits and other permit requirements are described below.

V. Permit Basis: Statutory and Regulatory Authority

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.

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.

EPA established minimum control technology requirements for the paper industry in the form of effluent guidelines promulgated under *40 CFR 430 - Pulp, Paper, and Paperboard Point Source Category.* The facility is most closely categorized by 40 CFR 430, Subpart K - "Fine and Lightweight Papers from Purchased Pulp Subcategory". The following are the limits that apply for this discharge:

Limits for non-integrated mills where fine paper is produced from purchased pulp—wood fiber

Pollutant or pollutant property	Kg/kkg (or pounds per 1,000 lb) of product		
	Continuous dischargers		Non-continuous dischargers (annual average)
	Maximum for any 1 day	Average of daily values for 30 consecutive days	
BOD5	8.2	4.25	2.4
TSS	11.0	5.9	3.2
pH	(1)	(1)	(1)

Limits for non-integrated mills where fine paper is produced from purchased pulp—cotton fiber

Pollutant or pollutant property	Kg/kkg (or pounds per 1,000 lb) of product		
	Continuous dischargers		Non-continuous dischargers (annual average)
	Maximum for any 1 day	Average of daily values for 30 consecutive days	
BOD5	17.4	9.1	5.1
TSS	24.3	13.1	7.2
pH	([1])	([1])	([1])

[1]Within the range of 5.0 to 9.0 at all times.

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).

The effluent monitoring requirements have been established to yield data representative of the discharges under the authority of Section 308(a) of the CWA, according to regulations set forth at 40 CFR § 122.41(j), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide continuous information on the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures are to be found in 40 CFR 136 unless other procedures are explicitly required in the permit.

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).

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 where 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 Section 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 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 the receiving water.

Water quality standards 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 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.

As noted earlier, the MassDEP has established a WLA for Biochemical Oxygen Demand (BOD)

and Total Suspended Solids (TSS). This allocation continues to serve as the basis for water quality based limits for these parameters.

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.

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 Title 314 CMR 4.04. There are no new or increased discharges being proposed with this permit reissuance. Therefore, EPA does not believe that the MassDEP is required to conduct an antidegradation review regarding this permit reissuance.

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).

VI. Explanation of Permit's Effluent Limitations

Flow and Dilution Factor

For the purposes of evaluating flow and dilution calculations, the average flow of 0.95 million gallons per day (MGD), as noted in the application and supported by recent DMR data, will be used. The previous permit had used the design flow average of 1.1 MGD. The maximum flow rate of 1.7 MGD, which was used in the last permit, is still appropriate and will be used for this permit. Since the current permit limits are not dependent on flow, the flow will remain a monitor only parameter. However, if flows increase in the future to the point where water quality based limits dependent on flow have a reasonable potential to be violated, then flow limits and/or limits on such parameters may be established.

Water quality-based effluent limitations are established based on a calculated dilution factor derived from the available dilution in the receiving water at the point of discharge. Massachusetts water quality standards require that the available effluent dilution be calculated based upon the 7Q10 flow of the receiving water (314 CMR 4.03(3)(a)). The 7Q10 flow is the mean low flow over seven consecutive days, occurring every ten years. Use of the 7Q10 flow allows for the calculation of the available dilution under critical flow (worst-case) conditions, which in turn results in the derivation of conservative water quality-based effluent limitations.

The dilution factors for the existing permitted monthly average and daily maximum flows of 1.1 and 1.7 MGD were calculated to be 34.9 and 22.5, respectively. According to the United States Geological Survey (USGS), the 7Q10 flow at the USGS gage located on the Housatonic River in Great Barrington, MA (USGS Gage No. 01197500) is 69 cfs and the drainage area (DA) of the gage is 282 square miles.[6] The drainage area between the Facility's outfall and the gage is estimated to be 42 square miles.

The proportion of the 7Q10 flow at the point of discharge to the 7Q10 flow at the USGS Gage Station (#01197500), Great Barrington, is in the same proportion as the respective drainage areas. Therefore, the calculated 7Q10 and dilution factors for the facility are as follows:

Drainage Area (Gage Station #01197500)	282 square miles
Drainage Area (below outfall to Station)	-42 square miles
Net Drainage Area @ outfall (Willow Mill)	240 square miles

7Q10@ Gage Station = 69 cubic feet per second (cfs)

7Q10@ outfall = 7Q10@ gage station x (DA @ outfall / DA @ Gage Station)

[6] http://streamstats.usgs.gov/gagepages/HTML/01197500.htm

7Q10@ outfall = 69 cfs X (240 square miles/282 square miles) = 59 cfs

Average effluent flow: 0.95 MGD = 1.5 cfs ; Daily maximum flow: 1.7 MGD = 2.6 cfs

Because this facility draws its process water from the Housatonic River and its tributaries and returns the same volume to the Housatonic River, the dilution factor is simply the river flow divided by the discharge flow.

Dilution Factor = River 7Q10 / Discharge
Average Flow Dilution Factor = 59 cfs / 1.5 cfs = **39**
Daily maximum Dilution Factor = 59 / 2.6 = **23**

BOD and TSS

The mill uses purchased pulp that is roughly distributed in the following proportions: 63% wood fiber, 28% cotton fiber and 9% other. The effluent categorical limits in 40 CFR 430, Subpart K - "Fine and Lightweight Papers from Purchased Pulp Subcategory" provide separate categorical limits for wood fiber pulp and for cotton fiber pulp and best characterizes the production at this facility.

BOD: The categorical limits for BOD are calculated below in the proportion of wood and cotton fibers currently used. From the data in EPA's Form 2C application, the permittee listed the average production rate as 32.76 tons/day and the maximum production rate as 88.4 tons/day. For the purpose of this sample calculation, a production rate of 33 tons/day is used.

Average Monthly Technology Based Limit:

Wood fiber: 63/(63+28) * 4.25 lbs/1000 lbs. * 33 tons/day *2000 lbs/ton = 194 lbs/day

Cotton fiber: 28/(63+28)* 9.1 lbs/1000 lbs. * 33 tons/day * 2000 lbs/ton = 185 lbs/day

Total **379 lbs/day**

The existing monthly average BOD permit limit of 353 lbs/day is a limit that was established in the 1987 permit and was based on the revised WLA that was in MassDEP's 1981 Housatonic River publication. This had revised the previous figure of 390 lbs/day. Since the current, water quality based limit of 353 lbs/day is the most stringent of the three values, it will remain as the limit in this permit, as required by antibacksliding.

Maximum Daily Technology Based Limit:

Wood fiber: 63/(63+28) * 8.2 lbs/1000 lbs* 33 tons/day*2000 lbs/ton = 375 lbs/day

Cotton fiber: 28/(63+28) * 17.4 lbs/1000 lbs * 33 tons/day*2000 lbs/ton = 353 lbs/day

Total **728 lbs/day**

The maximum daily limit in the 2005 permit was set at 50% above the monthly average or 530 lbs/day (353 lbs/day * 150% = 530 lbs/day). This limit was established "to ensure compliance with the water quality standards". Although this daily maximum limit is based on the WQ based limit of 353 lbs/day, it is more appropriately characterized as a BPJ limit. There was no specific maximum daily allocation established for BOD in the 1975 WLA or the revised WLA in 1981. Because the existing WQB daily maximum limit for BOD is more stringent than the technology based limit, the existing daily maximum permit limit will remain in effect.

TSS: The monthly average TSS limit of 150 lbs/day in the 2005 permit was based on BPJ. This limit was originally established in the 1987 permit and was based on treatment plant records for the period of 1984 thorough 1986. The 1987 permit also had a provision that the monthly average TSS limit could be stepped up with production rate increases above 40 TPD. At that time, this limit was more stringent than the WLA limit of 383 lbs/day and the categorical limit. In the 2005 permit, the TSS monthly average limit could be stepped up in increments of 5 TPD, up to a maximum effluent limit of 262 lbs/day, based on a production rate of 70 TPD.

Average Monthly Technology Based Limit:

Wood fiber: 63/(63+28) * 5.9 lbs/1000 lbs * 33 tons/day *2000 lbs/ton = 270 lbs/day

Cotton fiber: 28/(63+28) * 13.1 lbs/1000 lbs * 33 tons/day *2000 lbs/ton = 266 lbs/day

Total **536 lbs/day**

Since the existing limit range of 150 – 262 lbs/days is more stringent than the water quality based WLA value of 383 lbs/day and the ELG based value of 536 lbs/day calculated above, the current monthly average permit "step" limits up to 70 TPD of production are retained. The limits calculated for 70 tons per day apply to all production levels higher than 70 TPD. The permittee is required to report the monthly average TSS value that corresponds to the actual production rate range for each month. The production based limits have been established as follows, based on increments of 5 TPD:

40 TPD or below – 150 lbs/day;

> 40 to 45 TPD: 45/40 * 150 = 169 lbs/day

> 45 to 50 TPD: 50/40 * 150 = 187 lbs/day

> 50 to 55 TPD: 55/40 * 150 = 206 lbs/day

> 55 to 60 TPD: 60/40 * 150 = 225 lbs/day

> 60 to 65 TPD: 65/40 * 150 = 244 lbs/day

> 65 to 70 TPD and above: 70/40 * 150 = 262 lbs/day

The maximum daily limit in the 2005 permit for TSS was set at 50% above the monthly average limit, or 575 lbs/day (383 lbs/day * 150% = 575 lbs/day). This MA limit was originally established in the permit issued in 2000 and used a revised figure (383 lbs/day) for the water quality based limit that was lower than the original figure of 390 lbs/day from the original WLA from 1975, due to the revisions in MassDEP's 1981 publication. There was no specific maximum daily allocation established for TSS in the 1975 WLA. This DM limit was established "to ensure compliance with the water quality standards." Although this daily maximum limit is based on the WQ based limit of 383 lbs/day, it is more appropriately characterized as a BPJ limit. A technology-based maximum daily limit for the average production rate of 33 tons/day would be as follows:

Maximum Daily Technology Based Limit:

Wood fiber: 63/(63+28) * 11.0 lbs/1000 lbs * 33 tons/day *2000 lbs/ton = 503 lbs/day

Cotton fiber: 28/(63+28) * 24.3 lbs/1000 lbs * 33 tons/day *2000 lbs/ton = 494 lbs/day

Total **997 lbs/day**

Because the existing WQB daily maximum limit for TSS is more stringent than the technology based limit, the existing daily maximum permit limit will remain in effect, as required by antibacksliding.

Temperature

The Massachusetts SWQS stipulate that the temperature for Class B warm water fisheries shall not exceed 83° F and that the rise in temperature due to a discharge shall not exceed 5°F. The *1997/1998 Housatonic River Assessment Report* indicates that this facility's effluent occasionally violated the temperature limit of 90°F. The prior fact sheet had indicated that documents in the permit file accredited those violations to high intake (i.e. river) temperature. The DMR data for the last 3 years shows no violations of the 90°F limit, but high values of 88 and 89°F. If the maximum daily discharge has a temperature equal to the permit limit, then the effect of the discharge on the receiving stream is calculated as follows. The value "T downstream" is the resulting river temperature assuming an upstream temperature of 81°F, which would represent a typical high temperature during the summer:

[(Q plant * 90°F + {(7Q10 flow – Q plant) * 81°F}] / 7Q10 flow = T downstream

[(2.6 cfs * 90°) + {(59 cfs-2.6 cfs) * 81° }] ÷ 59 cfs = downstream T

(234 + 4568) ÷ 59 = 81.4° F

Because the calculated rise in temperature is 0.4° F, the discharge will not violate the temperature rise criterion of 5°F and only has the potential to exceed the instream temperature criterion of 83°F when the instream temperature itself approaches the criterion. Therefore, the temperature limit of 90° F is maintained as in the current permit. The 2005 permit had required that the effluent temperature be taken between 10:00 AM and 4:00 P.M. This time period was established based on a comment on the draft permit that the sample should be taken when the highest temperature of the week was expected. The permittee is installing a cooling tower in 2011 that should reduce effluent temperatures. In addition, footnote 1 on Page 3 of the draft Permit requires that, "a routine sampling program shall be developed in which samples are taken at the same location, approximately the same time, and the same days of every month". This condition is required to achieve representative sampling for all parameters, including temperature. Therefore, the requirement to sample for temperature during a certain time period has been eliminated.

Nutrients

Nutrients, such as phosphorus and nitrogen, are necessary for the growth of aquatic plants and animals to support a healthy ecosystem. In excess, however, nutrients can contribute to fish disease, brown tide, algae blooms and low dissolved oxygen (DO). Excessive nutrients, generally phosphorus in freshwater and nitrogen in salt water, stimulate the growth of algae and aquatic plants, which could start a chain of events detrimental to the health of an aquatic ecosystem. When these plants and algae decay, this generates strong odors, often resulting in

lower dissolved oxygen levels in the river. This could in turn impair the benthic habitat as fish and shellfish are deprived of oxygen and excessive algae and foul smells could decrease aesthetic value, by affecting swimming and recreational uses.

It has been documented that most reaches of the Housatonic River suffer from eutrophication, a condition caused primarily by excessive nutrients entering the river. The instream nutrients prevent attainment of the designated uses as defined in the MASWQS. These uses include habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. There are several applicable water quality criteria which are not being met in the Housatonic River due to nutrient discharges and resulting eutrophication. They include numeric water quality criteria (e.g., dissolved oxygen), and narrative water quality criteria including aesthetics (314 C.M.R. § 4.05(5)(a)), bottom pollutants and alterations (314 C.M.R. § 4.05(5)(b)), and nutrients 314 C.M.R. § 4.05(5)(c)).

Total Phosphorus

While phosphorus is an essential nutrient for the growth of aquatic plants, it stimulates rapid plant growth in freshwater ecosystems when it is present in high quantities. The excessive growth of aquatic plants and algae within freshwater systems negatively impacts water quality and can interfere with the attainment of designated uses by (1) increasing the oxygen demand within the water body (to support an increase in both plant respiration and the biological breakdown of dead organic (plant) matter); (2) causing an unpleasant appearance and odor; (3) interfering with navigation and recreation; (4) reducing water clarity; and (5) reducing the quality and availability of suitable habitat for aquatic life. Cultural (or accelerated) eutrophication is the term used to describe excessive plant growth in a water body that results from nutrients entering the system as a result of human activities. The relationship between high levels of phosphorus and eutrophication, as measured by chlorophyll *a*, periphyton, macrophyte, and dissolved oxygen levels is well documented in scientific literature, including in guidance developed by EPA to address nutrient over-enrichment. *See Nutrient Criteria Technical Guidance Manual – Rivers and Streams,* July 2000 (EPA-822-B-00-002). Discharges from municipal and industrial wastewater treatment plants, agricultural runoff, and stormwater are examples of human-derived (i.e., anthropogenic) sources of nutrients in surface waters.

As discussed above in Part III of this Fact Sheet, this segment of the Housatonic River is identified in the *Final Massachusetts Year 2008 Integrated List of Waters* as requiring a TMDL for phosphorus and excess algal growth. In addition, Lake Lillinonah, a 1,600-acre impoundment of the Housatonic River located over 50 miles downstream in Connecticut, is included as a 303(d) waterbody on the State of Connecticut's *2008 Integrated Water Quality Report to Congress.*[7] The 2008 report identified chlorophyll-*a*, excess algal growth, and

7 http://www.ct.gov/dep/lib/dep/water/water_quality_management/305b/2008_final_ct_integratedwqr.pdf

nutrient/euthrophication biological indicators as causing an impairment of recreational uses in Lake Lillinonah, which suggests that the effects of upstream nutrient sources are accumulating and being observed in downstream impoundments on the Housatonic River.

In the absence of a numeric water quality criterion for phosphorus, EPA looks to nationally recommended criteria and other technical guidance documents. *See* 40 CFR 122.44(d)(1)(vi)(B). EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The *1986 Quality Criteria for Water* ("Gold Book") recommends that, in order to control eutrophication, instream phosphorus concentrations of no greater than 50 ug/l in any stream entering a lake or reservoir, 100 ug/l for any stream not discharging directly to lakes or impoundments, and 25 ug/l within a lake or reservoir. The Housatonic River below the Willow Mill facility encounters a series of impoundments before crossing the CT border.

In 2001, 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 are thus representative of water without cultural eutrophication. This facility is within Ecoregion VIII, classified as "Nutrient Poor, Largely Glaciated Upper Midwest and Northeast". Recommended 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 Nutrient Ecoregion VIII*, (December, 2001, EPA 822-B-01-015). The recommended aggregate total phosphorus criterion for this ecoregion is 10 ug/l.

The MA SWQS at 314 CMR § 4.00 do not contain numerical criteria for total phosphorus. They include a narrative criterion for nutrients at 314 CMR 4.05(5)(c), which provides that nutrients "[s]hall not exceed the site specific limits necessary to control accelerated or cultural eutrophication." They also include a requirement that "[a]ny existing point source discharges containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae ... shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practicable treatment ... to remove such nutrients." See 314 CMR 4.05. MassDEP has interpreted the "highest and best practicable treatment" requirement in its standards as requiring an effluent limit of 0.2 mg/l (200 ug/l) for phosphorus.

In order to determine whether this permittee's discharge of total phosphorus is contributing to the water quality impairment, EPA is applying the Gold Book criteria (0.1 mg/l) because it was developed from an effects-based approach rather than the reference conditions-based approach used in the derivation of the ecoregional criteria. The effects-based approach is preferred in this case because it is more directly associated with an impairment of a designated use (i.e., recreation). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e.,

phosphorus) and a response variable (i.e., algal growth) associated with impairment of designated uses. Reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

The monthly data from the DMR summary indicates the sporadic discharge of phosphorus. The past 3 years have shown phosphorus levels in the range of 0.02 mg/l up to 0.78 mg/l, including many non-detectable readings, with an average of 0.06 mg/l. Although most of the effluent samples were below the 0.1 mg/l level, we have to take into account the instream, or background concentrations of phosphorus to try and determine whether the Onyx discharge is causing or contributing to the current impairment of the receiving water.

The most recent instream water quality data for this receiving water may be found in the Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007). Instream samples were collected and analyzed on 4 separate occasions for total phosphorus concentrations at 2 locations upstream of the permittee's facility (Lee and Lenox) as well as at 2 downstream locations. These values were as follows:

Instream Concentration of Total Phosphorus (mg/l)

Sampling Station and Location	May 2002	June 2002	July 2002 *	Sept. 2002
19A – Lenox	0.04, 0.05	0.09, 0.08	0.162, 0.151	0.188, 0.190
19C – Lee	0.25	0.18	0.319	0.504
19E – Stockbridge	0.04	0.07	0.108	0.092
20A – Great Barrington	0.05	0.08	0.086	0.081

* The July 2002 samples had a blank contamination of 0.014 mg/l

Instream flow data collected by two USGS gauges (No. 01197000, East Branch Housatonic River at Coltsville, MA and No. 01197500, Housatonic River near Great Barrington) as well as precipitation data collected by the Massachusetts Department of Conservation and Recreation (DCR) precipitation gauges near the USGS gauges show no correlation between precipitation and streamflow before or during the 2002 sampling events, and that flows were relatively close to the 7Q10 flows for these stations (Housatonic River Watershed 2002 Water Quality Assessment Report, Appendix B (MassDEP 2007)). Therefore, the data are representative of instream conditions during critical flow periods.

Of the four stations sampled within this segment of the receiving water in 2002, samples collected approximately 300 feet downstream from the Lee WWTF outfall (Station 19C) had the highest concentration of total phosphorus on each of the sampling dates. The data collected at this station also suggest that the Gold Book instream total phosphorus criteria of 0.1 mg/l is

being exceeded in the receiving water, as the average value at Station 19C was 0.31 mg/l. Phosphorus contributions from upstream municipal point sources could explain the 0.31 mg/l background instream total phosphorus concentration, as they have been implicated as suspected sources of nutrient inputs to the river in both the Housatonic River Watershed 2002 Water Quality Assessment Report (MassDEP 2007) and in the State of Connecticut's 2006 Integrated Water Quality Report to Congress (CT DEP 2006). It is also possible that conditions in Woods Pond, a highly eutrophic impoundment located upstream from the Onyx facility in Lenox, is negatively affecting downstream water quality and may have contributed to ambient conditions (i.e., elevated background concentrations of phosphorus), and therefore may have affected the high total phosphorus concentrations detected in samples collected by MassDEP in 2002 downstream from the Lee WWTF (Housatonic River Watershed 2002 Water Quality Assessment Report, Appendix B (MassDEP 2007)).

Prior to receiving the discharge from the Onyx facility, the Housatonic River receives discharges of treated effluent from the Pittsfield Wastewater Treatment Plant (WWTP), as well as from the Lee and Lenox WWTPs. A very stringent seasonal total phosphorus limit of 0.1 mg/l has been established for the Pittsfield WWTP that was issued in 2010, which is located upstream from the Lee and Lenox facilities. Since this facility is the largest municipal discharger on the river with a design flow of 17 MGD, it is expected that this limit will result in a significant decrease in phosphorus loadings to the river over time. Although the NPDES permit for the Lenox WWTP was issued in 2007 with a year round phosphorus limit of 1.0 mg/l and the NPDES permit was issued for Lee in 2008 with a seasonal limit of 0.1 mg/l, more stringent phosphorus limits are anticipated to be included in future permits for these facilities, as well as others which discharge to the Housatonic River, as they come up for reissuance in an effort to control eutrophication in the river to address the ongoing impairment.

By considering a reduction in phosphorus inputs from upstream sources due to more stringent permit limits and the fact that a majority of instream samples were already below the criterion of 0.1 mg/l, it is expected that the downstream receiving water will meet this criterion in most cases, due to the relatively minor loading from the Onyx discharge. The continuation of phosphorus sampling is required due to the non-attainment for this segment of the Housatonic River and the continued presence of total phosphorus in the discharge. However, this draft permit has reduced the monitoring frequency from weekly to twice per month, as the past 5 years of weekly monitoring has provided adequate characterization of this parameter with typically low and often non-detectable readings. Based on the available effluent monitoring results and limited instream data that likely does not represent decreased upstream phosphorus loadings, EPA does not conclude that there is a reasonable potential for this discharge to contribute to the water quality impairment for phosphorus, and no phosphorus limit has been established at this time. However, future monitoring results and assessment efforts on the Housatonic River may necessitate permit limits. This permit requires the optimization of treatment plant operation for the removal of phosphorus.

Nitrogen

The 2005 Permit required reporting of the daily maximum concentrations of Total Kjeldahl Nitrogen, Nitrate-Nitrogen, Nitrite-Nitrogen, and Ammonia. The Draft Permit proposes reporting of the monthly average and maximum daily effluent concentrations as well as masses (in pounds per day) of Total Nitrogen, Total Kjeldahl Nitrogen, Total Ammonia Nitrogen, and Nitrate and Nitrite-Nitrogen. This permit also establishes a monthly average total nitrogen loading of 42.2 lbs/day. The rationale for these requirements is explained below.

Total Nitrogen

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.

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

Table 1: Long Island Sound TMDL
Nitrogen Baseline Loadings, Targets, and Current Loadings

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

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

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met. The estimated current loading for the Willow Mill used in the above analysis was 42.2 lbs/day, based upon a Total Nitrogen concentration of 4.6 mg/l and the average flow of 1.1 MGD (4.6 mg/L * 1.1 MGD * 8.34), as indicated in the Facility's 2004 through 2005 DMRs. Since that time, the facility's monthly average flow has dropped from 1.1 MGD to 0.95 MGD, while the total nitrogen discharged has averaged 3.5 mg/l, as shown in Table 2 below.

Table 2: Summary of Nitrogen Results (mg/L) from June 2007 to August 2010

	Nitrogen, total Kjeldahl	Nitrogen, nitrate, total (as N)	Nitrogen, nitrite, total (as N)	Nitrogen, Total
Lowest Monthly Value	0.7	0.0	0.0	0.7
Highest Monthly Value	9.4	1.9	0.67	12.0
Average	3.0	0.4	0.056	3.5

* All values are presented as monthly average minimum.

Therefore, this more recent data would indicate a mass loading closer to 27.7 lbs/day (3.5 mg/l * 0.95 MGD * 8.34). In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA has included a condition in Part I.C. of the Draft Permit requiring the permittee to continue to optimize the operation of its treatment system for the removal of nitrogen, to evaluate alternative methods of operating its treatment plant to optimize the removal of nitrogen and to describe previous and ongoing optimization efforts. This alternative methods evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years. In addition, the permittee is limited to a monthly average total nitrogen loading of 42.2 lbs/day, which is consistent with the 25% reduction target in the Long Island Sound WLA.

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.

pH

It had been previously determined that the Housatonic River has sufficient buffering capacity so that the stream biota will not be affected if the pH varies from the state standard range of 6.5 – 8.3 s.u. This determination is still considered adequate, given the dilution of 23 times for the daily maximum flow of the plant that was calculated earlier. An examination of the effluent data shows discharge pH ranging from 6.5 to 8.1 standard units. Therefore, the pH range of 6.0 - 9.0 s.u. of the existing permit remains in the draft permit.

Aluminum

Several aluminum compounds are used in the wastewater treatment process and aluminum is routinely detected in the effluent. During the monitoring period, total aluminum averaged 0.69 mg/l with high values of 2.0 and 1.8 mg/l. The results are shown in Table 3 below. The fact sheet accompanying the 2005 permit had conducted a reasonable potential analysis to determine if the aluminum levels in the discharge would be likely to violate the instream WQS. This analysis concluded that there was not a reasonable potential, therefore no limits were established, only a monthly monitoring requirement. Since the average flow has decreased and the average dilution has increased from 34 to 39, there is a reduced likelihood for the reasonable potential of a WQS violation under current operations.

Table 3: Aluminum Monitoring Results (mg/L) from June 2007 to August 2010

Date	concentration	Date	concentration	Date	concentration
June 07	1.5 mg/l	July 08	0.34 mg/l	August 09	1.1 mg/l
July 07	0.45	August 08	1.4	September 09	0.46
August 07	1.2	September 08	0.66	October 09	0.48
Sept 07	1.5	October 08	0.36	November 09	0.24
October 07	1.5	November 08	1.0	December 09	0.48
November 07	0.47	December 08	0.64	January 10	0.27
December 07	0.83	January 09	0.48	February 10	0.44
January 08	0.43	February 09	0.46	March 10	0.80
February 08	0.31	March 09	0.21	April 10	0.21

March 08	0.29	April 09	0.23	May 10	0.94
April 08	2.0	May 09	0.32	June 10	0.30
May 08	0.35	June 09	0.43	July 10	0.51
June 08	0.73	July 09	0.72	August 10	1.8

The chronic water quality criterion for aluminum is 87 ug/l and the acute criterion is 750 ug/l as shown in *National Recommended Water Quality Criteria: 2002* (EPA-822-R-02-047). The applicable water quality based limits would be calculated as follows based on the dilution factors calculated earlier:

Chronic limit: 0.087 * 39 = 3.4 mg/l Acute limit: 0.750 * 23 = 17.2 mg/l

The recent monitoring data for aluminum would indicate that there is no reasonable potential to violate WQS. Therefore, no aluminum limits have been established in the permit and the monitoring frequency has been reduced from monthly to quarterly.

Total Residual Chlorine

The facility has reported the continued discharge of total residual chlorine in its discharge. 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 water quality criteria established pursuant to Section 304(a) of the Clean Water Act. The most recent EPA recommended criteria are found in *National Recommended Water Quality Criteria*: 2002 (EPA-822-R-02-047). The fresh water aquatic life criteria for TRC are 11 ug/l for protection from chronic toxicity and 19 ug/l for protection from acute toxicity. The 7Q10 dilution multiplied by the chronic and acute criteria provides the appropriate TRC limits as shown below:

Chronic limit: 11 ug/l * 39 = 429 ug/l Acute limit: 19 ug/l * 23 = 437 ug/l
For the DMR reporting period, TRC has averaged 20 ug/l, with high values of 370 and 340 ug/l. Table 4 below shows the monthly average and daily maximum values for the period.

Table 4: TRC Monitoring Results (mg/L) from June 2007 to August 2010

Date	MA/DM concentration	Date	MA/DM concentration	Date	MA/DM concentration
June 07	0.01/ 0.04 mg/l	July 08	0.03/0.09 mg/l	August 09	0.01/0.02 mg/l
July 07	0.01/0.03	August 08	0.01/0.03	Sept 09	0.01/0.03
August 07	0/0.01	Sept 08	0.01/0.04	Oct 09	0.01/0.02
Sept 07	0.01/0.02	Oct 08	0.02/0.04	Nov 09	0.02/0.04
Oct 07	0.01/0.05	Nov 08	0.01/0.04	Dec 09	0.01/0.03
Nov 07	0/0.01	Dec 08	0.05/0.21	Jan 10	0.03/0.03

Dec 07	0.01/0.04	Jan 09	0/0.01	Feb 10	0.02/0.05
Jan 08	0.03/0.08	Feb 09	0.03/0.03	March 10	0.01/0.04
Feb 08	0.03/0.09	March 09	0.02/0.06	April 10	0.02/0.04
March 08	0.02/0.07	April 09	0.03/0.05	May 10	0.01/0.01
April 08	0.01/0.04	May 09	0.03/0.05	June 10	0.13/0.34
May 08	0.03/0.06	June 09	0.01/0.04	July 10	0.06/0.18
June 08	0.01/0.02	July 09	0.01/0.01	August 10	0.10/0.037

MA = monthly average; DM = daily maximum

The recent monitoring data for TRC would indicate that there is no reasonable potential to violate WQS, although there are occasional high readings. Therefore, the weekly TRC monitoring requirement has been maintained in the draft permit and TRC limits may be established in the future if monitoring shows increasing levels which could have a reasonable potential to violate WQS.

Whole Effluent Toxicity

Whole effluent toxicity (WET) testing is conducted to assess whether certain effluents are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Toxicity testing is used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Sections 402(a)(2) and 308(a) of the Clean Water Act provide EPA and the States the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Section 308 specifically describes biological monitoring methods as techniques which may be used to carried out the objectives of the Act. Under certain narrative State water quality standards and Sections 301, 303, and 402 of the Clean Water Act, EPA and the States may establish toxicity-based limits to implement the narrative "no toxics in toxic amounts".

The regulations at 40 CFR Part 122.44(d)(ii) state, "When determining whether a discharge causes, has the reasonable potential to cause, or contribute to an instream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution...(including) the sensitivity of the species to toxicity testing..." The EPA and DEP believe that the complexity of the wastewater from this discharge is such that toxicity testing and limitations are required to evaluate and address any water quality impacts.

In conducting the chronic WET tests required under the existing permit, tests using the receiving water as the diluent occasionally failed to meet the EPA minimum acceptability criterion for survival for the fathead minnow. These results indicate the Housatonic River has shown the existence of some toxicity which has yet to be identified. Consequently, the previous permit

required the use of alternative dilution water while performing these tests for the fathead minnow, *Pimphales promelas* and this permit continues to allow for the use of an alternative dilution water.

The past 3 years of WET testing shows that LC50 limit of 100% has been achieved in all occasions with the exception of one result of 50% for the fathead minnow. The LC50 limit of 100% will be maintained for both species. For the chronic no observed effect concentration (C-NOEC), which is a monitor only parameter, the levels have been mostly 100% for the dahnid with the exception of 2 results with 12.5% and 50%. For the fathead minnow, the C-NOEC results have ranged from 6.25% to 100%, often showing chronic effects to this species are very low effluent concentrations. This parameter will continue to be monitored for each quarterly WET test.

Other Conditions

The remaining conditions of the permit are based on the NPDES regulations, 40 CFR Parts 122 though 125, and consist primarily of management requirements common to all permits.

VII. Essential Fish Habitat Determination (EFH)

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

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. §1855(b)(1)(A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. The Housatonic River in the vicinity of this discharge is not covered by the EFH designation for riverine systems and thus EPA has determined that EFH consultation with NMFS is not required.

VIII. Endangered Species Act (ESA)

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 United States Fish and Wildlife Service (USFWS) typically administers Section 7 consultations for bird, terrestrial, and freshwater aquatic species. NMFS typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the listing of 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. Therefore, EPA does not need to formally consult with NMFS or USFWS in regard to the provisions of the ESA. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS.

IX. Monitoring and Reporting

The permit's monitoring requirements have been established to yield data representative of the facility's pollutant discharges under the authority of Sections 308(a) and 402(a)(2) of the CWA and consistent with 40 C.F.R. §§ 122.41 (j), 122.43(a), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide ongoing, representative information on the levels of regulated constituents in the wastewater discharge streams. The approved analytical procedures are found in 40 C.F.R. Part 136 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. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

The Draft Permit includes new provisions related to Discharge Monitoring Report (DMR) submittals to EPA and the State. The Draft Permit requires that, no later than one year after the effective date of the permit, the Permittee submit all monitoring data and other reports required by the permit 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 one year from the effective date of the permit), the Permittee may either submit monitoring data and other reports 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 discharge monitoring reports (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 C.F.R. § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

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 participate in upcoming trainings, visit http://www.epa.gov/netdmr for contact information for Massachusetts.

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

The Draft Permit also includes an "opt-out" request process. Permittees who believe they cannot 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 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 and reports 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.

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.

X. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MassDEP) certifies that the effluent limitations included in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The MA DEP has 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 the draft permit will be certified.

XI. Public Comment Period, Public Hearing, and Procedures the 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 Branch, 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 the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA 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 C.F.R. § 124.19.

XII. 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

Kathleen Keohane, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor, Worcester, Massachusetts 01608
Kathleen.keohane@state.ma.us
Telephone: (508) 767-2856 FAX: (508) 791-4131

May 13, 2011
Date

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Table 1 - Outfall 001 DMR Data Summary Data [1]

Parameter	Monthly Average [2]	Maximum Values [3]	Permit Violations [4]
Flow, MGD	0.9	1.9, 1.8	---
BOD_5, mg/l	80	631, 550	2
TSS, mg/l (150 mg/l limit)	63	304, 210	0
TSS, mg/l (169 mg/l limit)	40	125, 104	0
TSS, mg/l (188 mg/l limit)	39	120	0
pH, standard units	Range: 6.5 - 8.1		0
Aluminum, Total, mg/l	0.69	2.0, 1.8	---
Total Residual Chlorine, mg/l	0.02	0.37, 0.34	---
Temperature, effluent, °F	76	89, 88	0
Total Phosphorus, mg/l	0.06	0.78, 0.17	---
Ammonia Nitrogen, mg/l	0.45	1.8, 1.8	0
Nitrogen, Total Kjeldahl, mg/l	3.0	9.4, 5.6	---
Nitrite Nitrogen, mg/l	0.056	0.67, 0.45	---
Nitrate Nitrogen, mg/l	0.40	1.9, 1.2	---
Production, tons/day	32.8	82.3, 80.5	---
LC50, daphnid,%	100	100 [5]	0
LC50, fathead minnow,%	96	50 [5]	1
NOEL, daphnid, %	88	50, 12.5 [5]	---
NOEL, fathead minnow, %	54	6.25, 6.25 [5]	---

1. Data is from Discharge Monitoring Reports for the period of June 2007 to August 2010.
2. This value is the average of the monthly averages during the reporting period.
3. These are the two highest values during the reporting period.
4. Value provided only if parameter was limited in the permit.
5. These are the two lowest values during the reporting period.

Figure 1

Facility Location

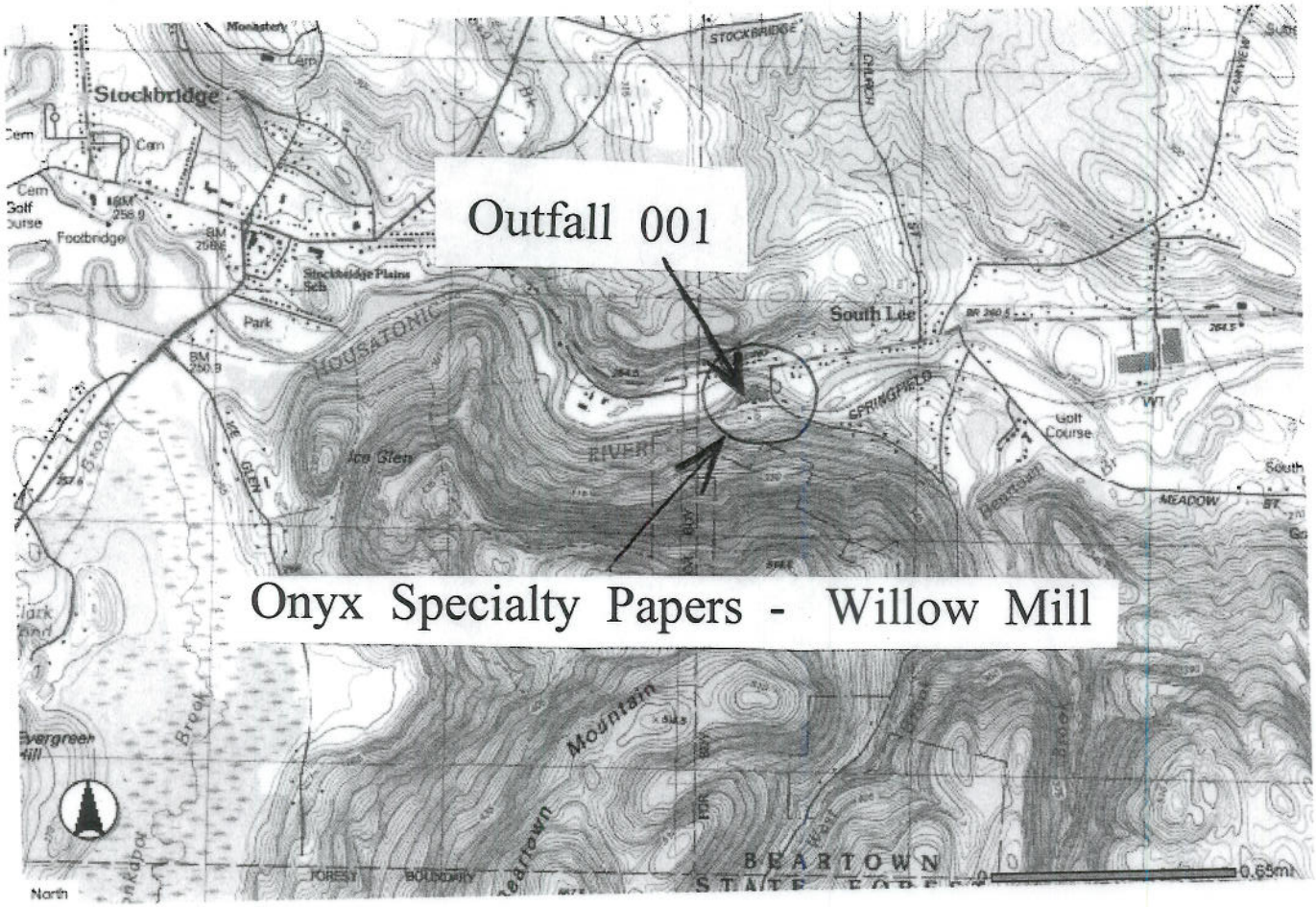
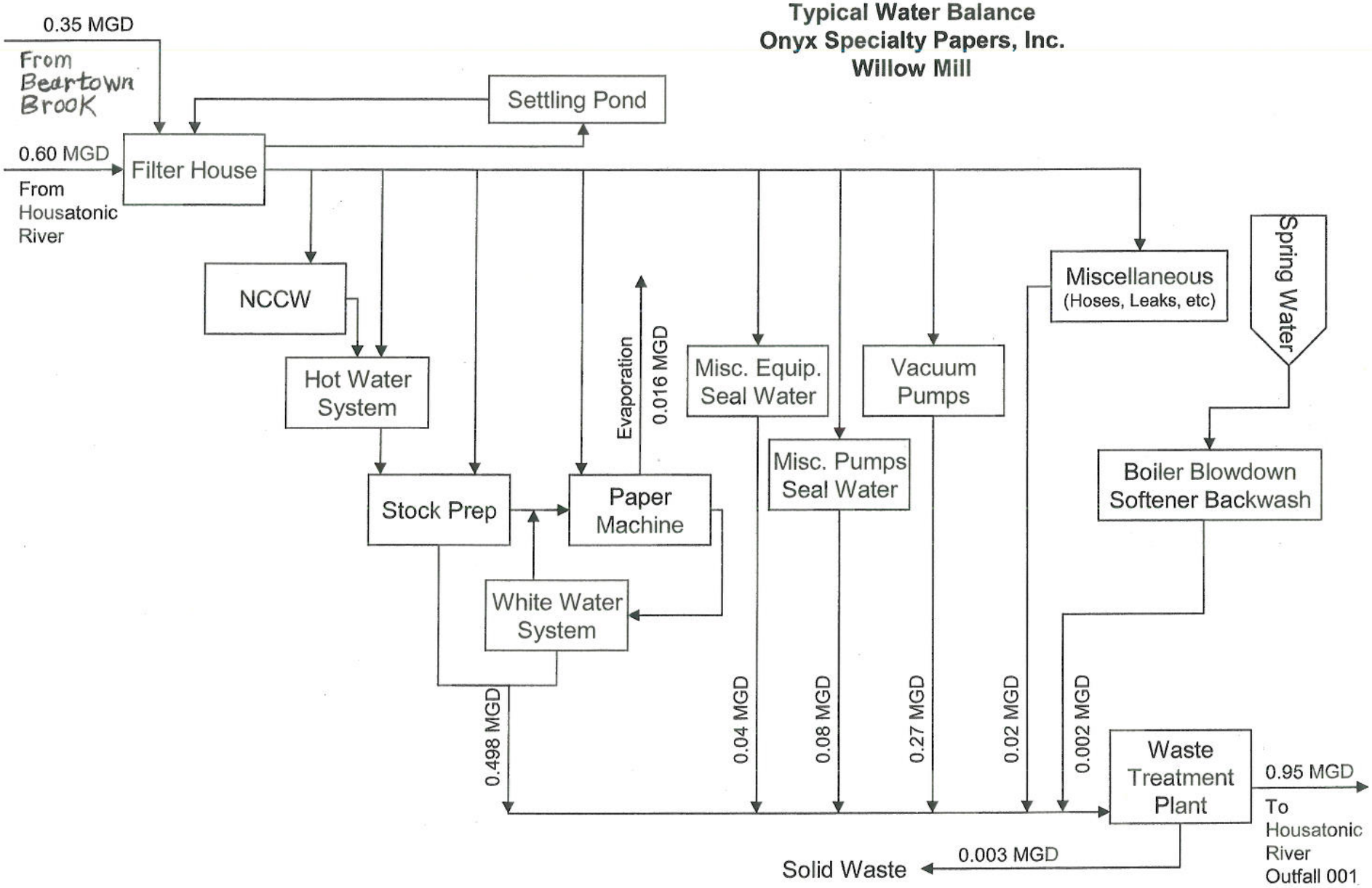


Figure 2

NPDES Permit Renewal
Typical Water Balance
Onyx Specialty Papers, Inc.
Willow Mill



Onyx Specialty Papers MA0001848

Response to Public Comments

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES Permit, #MA0001848. The responses to comments explain and support the EPA determinations that form the basis of the final permit. From May 25, 2011 to June 23, 2011, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit, #MA0001848, developed pursuant to a permit application from Onyx Specialty Papers, Inc. for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge treated papermaking wastewater, boiler blowdown, and excess filtered river water from outfall number 001 to the Housatonic River in South Lee, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The final permit is substantially identical to the draft permit that was available for public comment. Although EPA's decision-making process has benefitted from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make certain clarifications and minor changes in response to comments. The analyses underlying these changes are explained in the responses to individual comments that follow and are reflected in the final permit. A summary of the changes made in the final permit are listed below. Where applicable, relevant sections of the response document where these changes have been discussed have been included in parentheses at the end of each change.

Copies of the Final Permit may be obtained by writing or calling EPA's NPDES Industrial Permits Branch (OEP 06-1), Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, MA 02109-3912; Telephone: (617) 918-1579.

1. Part I.C. of the final permit has been changed to reflect the fact that the permittee does not use nutrients in its papermaking or wastewater treatment processes. This part now prohibits the use of nitrogen and phosphorus containing compounds in the permittee's treatment system without the prior approval of EPA and MassDEP. In addition, the permittee is now required to assess the influent nitrogen loading for the first twelve (12) months of the permit. (**A2, A3**)

2. The total nitrogen effluent limit of 42.2 pounds per day has been eliminated and replaced with a monitor only requirement and a requirement that the permittee submit an evaluation of the nitrogen load entering and leaving the facility after the first twelve (12) months of monitoring data has been collected. EPA will then conduct a statistical analysis of the influent and effluent data to determine whether there is a statistically significant increase in nitrogen loading due to operations at the facility. (**A2**)

3. The frequency of sampling for nitrogen parameters has been increased from once per month to twice per month. (**A2**)

4. The annual reporting requirement of Part I.C. regarding the optimization of nitrogen removal efficiencies has been eliminated. (**A4**)

5. Part I.A.4 of the draft permit required the permittee to receive approval from the EPA prior to adding any bio-remedial agents including microbes to the collection and treatment system. The permittee acknowledges that it uses such organisms for its rotating biological contactors (RBCs) and does occasionally change the organisms or vendors which supply them. These microscopic organisms are grown on the surface of the drums of the RBCs. As the drums of the RBCs slowly rotate, the microorganisms are periodically submerged in the wastewater, where they utilize the dissolved and suspended organic pollutants in the wastewater as a food source. In the course of their natural life cycle the micro-organisms slough off the RBCs and form clumps of organic matter called floc. The floc is carried in suspension through the treatment system where they are typically removed in the facility's clarifier.

The requirement for prior approval of using these organisms was inadvertently put into the permit and is not required by any statute or regulation. Therefore, the language in Part I.A.4 has been changed to require the permittee to notify the EPA and MassDEP in advance of when it will be using different bio-remedial agent or microbes. This notification may be made in the cover letter of a Discharge Monitoring Report (DMR) or in a separate letter.

6. Footnote 6 on Page 4 of the final permit has been corrected regarding what constitutes total nitrogen. The draft permit's Footnote 6 read in part as follows:

Total Nitrogen is composed of the three previous nitrogen parameters and shall be limited to a monthly average loading of 42.2 lbs/day.

In the effluent limits page, the three parameters referenced are Total Ammonia Nitrogen, Nitrite and Nitrate Nitrogen and Total Kjeldahl Nitrogen. Total Nitrogen does not include Total Ammonia Nitrogen. Therefore, Footnote 6 has been revised to state that Total Nitrogen is composed of Nitrite and Nitrate Nitrogen and Total Kjeldahl Nitrogen. In addition, as noted above, the total nitrogen loading limit of 42.2 lbs/day has been replaced with a monitor only requirement.

7. The last sentence of footnote 9 on Page 5 of the draft permit read as follows:

" Chemical data of the receiving water and dilution water samples, including data for all metals listed in the protocol, must be included in the whole effluent toxicity (WET) report."

This sentence has been revised to require chemical data to be included only for the receiving water control and not the alternate dilution water, which is consistent with the guidance in the WET protocol which is found in Permit Attachment A. The permittee should refer to this protocol regarding the characterization of receiving water and dilution water samples. (**A1**)

Comments submitted by Patricia C. Begrowicz, President of Onyx Specialty Papers, Inc.:

Comment A1:

As pointed out in the Fact Sheet, the Housatonic River has exhibited toxicity to the fathead minnow (Pimephales promelas). Since all of the water used for the paper making process is withdrawn from the Housatonic River and its tributary, we believe that continued bio-assay testing of the fathead minnow does not accurately test for toxicity of our discharge. Since the Housatonic River has not exhibited toxicity to the Daphnid (Ceriodaphnia dubia), we feel that the bio-assay testing requirement for this species appropriately and adequately monitors for toxicity in our discharge. We request that whole effluent toxicity testing of the fathead minnow be removed from the permit.

Response to Comment A1:

In situations where the receiving water has been shown to be toxic to any species used in whole effluent toxicity (WET) testing, the permittee is encouraged to request the use of an alternate dilution water for its WET testing. The WET testing protocol requires that the receiving water be used as a control and also for the formulation of the different effluent dilutions in the testing. The WET protocol requires that the receiving water control has at least a 80% survival rate, otherwise the WET test is invalid, typically requiring the running of another test. As outlined in footnote 9 on Page 4 of the permit and in consideration of the toxicity of the Housatonic River to the fathead minnow, this permit authorizes the use of an alternate dilution water for WET testing.

In reissuing permits, EPA and MassDEP have the discretion of removing one of the two test species from the WET testing requirement, provided such species have not exhibited toxicity and all of the WET limits were met for at least 4 consecutive tests. For the fathead minnow, the chronic no observed effect concentrations (C-NOEC) values for the WET tests conducted in 2011 were 50% (January) and 12.5% (April). Over the past 3 years, the C-NOEC values have ranged from 6.25% to 100% as discussed in the fact sheet. For this facility, the effluent has clearly been more toxic to the fathead minnow than to the daphnid, so there is no basis at this time for removing the minnow from further testing. Although the testing for the daphnid has met the LC50 limit of 100% for the last several years, there were two occasions where the NOEC was 12.5% and 50%, indicating some level of toxicity in the effluent to this species as well.

Therefore, since the Onyx effluent continues to exhibit some toxicity to both species, both species will continue to be required in the testing. As noted, since the Housatonic River has been

shown to be unreliable in WET testing for the fathead minnow, the permittee may use an alternate dilution water for this species for future WET tests.

Comment A2:

We believe that the Total Nitrogen limit is unwarranted without further study of our process water source, the Housatonic River. We do not intentionally add nitrogen or nitrogen compounds in our process, nor do we use nitrogen compounds as nutrients for the wastewater treatment plant. The limited nitrogen data for our section of the Housatonic River, including a single sample of river water collected on June 20, 2011, indicates that substantial levels of nitrogen are present in the river. This, and the fact that the total nitrogen results from our discharge have been highly variable over the last 12 months while our production schedule and process have not, suggests that the majority contributor to our effluent results may be beyond our control. Without understanding the base line total nitrogen level in the incoming process water, it will be very difficult to establish a reasonable permit limit on total nitrogen. Total Nitrogen results on our discharge are highly variable while our production schedule is not. We request that the proposed permit limit of 42.2 lbs/day for the monthly average of Total Nitrogen be removed and the permit requirement be to report total nitrogen monthly.

Response to Comment A2:

EPA acknowledges that the permittee does not intentionally add nitrogen to its papermaking process or its wastewater treatment process. As noted in the fact sheet, EPA acknowledges the overall reduction in nitrogen loading discharged from the facility from 42.2 lbs/day to 27.7 lbs/day since 2004. Therefore, EPA has reconsidered the appropriate requirements of Part I.C. of the draft permit with the goals being that the facility optimize the removal of nitrogen, not add nitrogen to its treatment system or papermaking process, and not increase the nitrogen loading of the discharge above the nitrogen loading present in the intake water to the papermaking process. Since the permittee does not use nitrogen compounds in its papermaking or wastewater treatment processes, most of the nitrogen in the effluent likely comes from the water that it withdraws from the Housatonic River, which typically contains nitrogen from upstream publicly owned treatment works (POTWs) facilities, other industrial facilities, and non-point sources.

The final permit has revised Part I.C to require the permittee to monitor influent and effluent nitrogen levels during the permit term and to submit an initial evaluation of the first twelve months of data within fifteen (15) months after the effective date of the permit. The sampling for influent nitrogen parameters shall be conducted prior to the sampling for the effluent nitrogen parameters, allowing for travel time through the papermaking and wastewater treatment processes**.** For the purposes of this permit, the travel time through the facility has been estimated at 3 days.

Therefore, the day during which the influent sampling for these nitrogen parameters will be conducted shall be designated as Day 1 and the effluent sampling for the same

parameters will be conducted on Day 4, as close to the same time as feasible. The influent is defined as the water withdrawn from the Housatonic River and prior to entering the papermaking process. The total nitrogen loading will be comprised of the components nitrite and nitrate nitrogen and total kjeldahl nitrogen. Although the travel time through the facility has been estimated at three days, there is inherent variability in this time period and EPA acknowledges that the sample of water withdrawn from the Housatonic River on Day 1 may not be the exact same sample of water that is sampled in the effluent on Day 4. However, since the samples will be 24 hour composites, this will allow for a better approximation of an average nitrogen loading level through the day with which EPA can conduct a statistical analysis of the influent and effluent data and attempt to determine whether there is a statistically significant increase in nitrogen loading due to the facility's operation.

The permittee is required to continue taking influent nitrogen sampling beyond the first year of the permit. Any time after the first year, the permittee may submit a written request to terminate of such influent sampling and must continue sampling until receiving written notification by EPA that such sampling may be terminated. The effluent sampling for all nitrogen parameters and reporting of the total effluent nitrogen loading is required for the term of this permit.

The monthly average nitrogen limit of 42.2 pounds per day that was established in the draft permit has been removed. If the permittee's evaluation or EPA's statistical analysis finds that there is a statistically significant increase in nitrogen loading due to the facility's operation, the permittee shall propose additional treatment as necessary to optimize the removal of nitrogen prior to discharge to the Housatonic River, so that the total effluent nitrogen loading does not exceed the total nitrogen loading of the influent. The permit may be modified to include nitrogen limits.

The nitrogen limit of 42.2 lbs/day was based on the target loading in the Total Maximum Daily Load (TMDL) described in the fact sheet. This change has also resulted in revised language in footnote 6 on Page 4 of the final permit. The effluent limits table on Page 2 of the permit now requires that the permittee report the monthly average nitrogen loading, replacing the previous monthly average limit of 42.2 lbs/day. The monitoring frequency for all nitrogen parameters (including the influent monitoring) has been increased from once per month to twice per month due to the variability of past data and to better support the findings of the evaluation required in Part I.C.

In addition, the final permit in Part I.C. has added a prohibition on the addition of any substances containing nitrogen or phosphorus compounds to its treatment system without the prior approval of EPA and MassDEP.

Comment A3:

We feel that the study proposed in Part 1 Special Condition and Requirement C.1 is premature, until we have more complete data on the nitrogen levels in the incoming process water from the Housatonic River. We propose that a study of nitrogen entering and leaving our process is more appropriate. Such a study would include a determination of nitrogen content in the Housatonic River and nitrogen removal efficiencies through the waste water treatment plant. We request that Part 1 Special Condition and Requirement C.1 be changed to read:

> "Within one year of the effective date of the permit, the permittee shall complete an evaluation of nitrogen in its process water and waste water systems, and submit a report to EPA and MassDEP. The evaluation shall describe nitrogen content of the process water system and nitrogen treatment efficiencies throughout the waste water treatment system."

Response to Comment A3:

EPA agrees with the permittee that the language of Part I.C. 1. needs to be revised as noted in the Response to Comment A2. After the permittee's submittal of the influent nitrogen evaluation report and EPA's statistical analysis of this data, if the influent and effluent nitrogen data show evidence that the nitrogen loading is increased through the facility, the permittee shall optimize the removal of nitrogen prior to discharge to the Housatonic River so that the total effluent nitrogen loading from the facility does not exceed the total nitrogen loading of the influent to the facility. As noted in the Response to Comment A2, EPA will statistically analyze the influent and effluent nitrogen sampling for the first year to determine whether nitrogen loading is being increased through the facility.

Comment A4:

We feel that the annual reporting proposed in Special Condition and Requirement C.2 is premature for the reason given in Comment A3. Also, we would like to point out that the first sentence of the Special Conditions and Requirements section reads "The permittee shall optimize the addition of nutrients to maintain its biological treatment system and operate its treatment plant in order to minimize the discharge of nitrogen and phosphorus". As stated in Comment A2 above, we do not add any nutrients to maintain our biological treatment system. For these reasons, we request that Special Condition and Requirement C.2 be removed from the draft permit.

Response to Comment A4:

EPA acknowledges that the permittee does not intentionally add nutrients to its papermaking process or its wastewater treatment plant. As described in the Responses to Comments A2 and

A3 above, the language in Part I.C of the final permit has been revised. The first year of bi-monthly influent and effluent monitoring requirements followed by the influent nitrogen evaluation report has replaced the annual reporting requirement.

Comments submitted by Betsey Wingfield, Chief of the Water Protection and Land Reuse Bureau of the Connecticut Department of Environmental Protection (CTDEP):

Comment B1:

The facility discharges directly to the Housatonic River which extends through the state of Connecticut and eventually drains to Long Island Sound (LIS). The CTDEP has an interest in discharges to waters that drain to LIS since hypoxic conditions, which occur annually in the summer, have been documented to result from excessive amounts of nitrogen. Discharges from wastewater treatment plants and other point sources contribute to the nitrogen loading to LIS.

The facility's draft discharge permit demonstrates initial efforts aimed at reducing the amount of nitrogen discharged to LIS from upstream states. It includes a Special Condition for the facility to maintain a nitrogen load of approximately 42.2 pounds/day based on the facility's 2004-2005 DMR data and requires the facility to evaluate optimization methods designed to reduce its nitrogen load. The draft permit also requires the facility to submit an annual report that outlines nitrogen removal efficiencies, documents the annual nitrogen load discharged, and tracks trends in the nitrogen load. The CTDEP is pleased that such stipulations targeted at nitrogen loading have been proposed in the draft NPDES permit and hopes to see this Special Condition incorporated in the final version.

Response to Comment B1:

As discussed in the Responses to Comments A2 and A3 above, the permittee states that it does not add any nitrogen to its papermaking or wastewater treatment processes and that the nitrogen load in the facility's effluent is essentially the nitrogen load that is present in the water that it withdraws from the Housatonic River. The Special Condition in Part I.C of the permit has been revised to require the permittee to conduct influent nitrogen monitoring in addition to effluent monitoring to confirm that nitrogen is not being added by the facility. The permit continues to require the permittee to optimize its biological treatment system and operate its treatment plant in order to minimize the discharge of nitrogen. The final permit contains a prohibition on the addition of substances containing nitrogen or phosphorus compounds in the facility's treatment system (See Response to Comment A2).

Instead of an annual report, the final permit requires the submittal of an influent nitrogen evaluation within fifteen (15) months after the effective date of the permit. If, based on this data, EPA determines that nitrogen levels are increasing due to the facility's operations, the permittee shall consider additional treatment and the use of alternative chemicals or processes as necessary

to optimize the removal of nitrogen prior to discharge to the Housatonic River so that the total effluent nitrogen loading from the facility does not exceed the total nitrogen loading of the influent to the facility. In addition, the permit may be modified to include nitrogen limits. At this time, EPA does not believe that a nitrogen loading limit is required until there is evidence that nitrogen is being added at the facility. Therefore, the draft permit's effluent nitrogen limit of 42.2 pounds per day has been replaced with a monitor only requirement.

Comment B2:

Also noted in the draft discharge permit is a requirement for the monthly monitoring of nitrogen species based on composite sampling. This type of data will serve to refine nitrogen loading estimates to LIS from upstream states and assist the Connecticut River Workgroup (EPA, NEIWPCC, CT, NY, MA, VT, NH) in determining supportable management actions.

Response to Comment B2:

EPA agrees with the importance of assessing the nitrogen species which are discharged to the Housatonic River. As mentioned in response to Comments A2 and A3 above, the permittee does not knowingly contribute nitrogen to its treatment system or papermaking operations and believes that the majority of nitrogen loading that it discharges is essentially the amount that it withdraws from the Housatonic River. Therefore, Part I.C of the permit has been revised as noted above. If the influent sampling determines that nitrogen is being added to the facility or the permittee changes its wastewater treatment process to add nitrogen compounds, this permit may be reopened to establish a monthly average nitrogen loading limit. In any case, the permit requires the permittee to optimize its biological treatment system and operate its treatment plant in order to minimize the discharge of nitrogen (and phosphorus).

Comments submitted by Jane Winn, Executive Director of the Berkshire Environmental Action Team:

Comment C1:

Onyx Specialty Papers effluent has been causing an objectionable discoloration of the receiving waters. Last year we received a couple of messages that a pipe in the approximate location where the Onyx Specialty Papers effluent pipe is located, was releasing water that was discoloring the water downstream.

On August 31, 2010, Jane Winn, Executive Director of BEAT, canoed down the Housatonic River in Lee and observed the outfall pipe from Onyx Specialty Papers. The end of the pipe appeared to be in very bad condition. Water was coming from the ground next to the pipe on the downstream side of the pipe, making it appear that the pipe had cracks farther up the pipe and

was releasing water not just at the end of the pipe. The water from next to the pipe appeared consistent with the water coming out of the pipe, rather than water just traveling along the pipe. We believe this pipe should be inspected and repaired or replaced.

Response to Comment C1:

After meeting with the plant manager of Onyx Papers, the commenter realized that the pipe she was referring to was the pipe of an upstream facility, that is currently permitted to MW Custom Papers, NPDES Permit# MA0001716. Although these paper mills are currently under different ownership, personnel of the Onyx Paper facility still operate the wastewater treatment plant at the MW Custom Papers facility. The latter facility's NPDES permit is currently expired and the next permit is currently being drafted. In a July 8, 2011 e-mail from David Bryer of MW Custom Papers to George Papadopoulos of the EPA, Mr. Bryer notified EPA that the necessary steps are being taken to repair this effluent pipe.

Comment C2:

BEAT disagrees with the conclusion that no maximum limit should be placed on the amount of flow. Many calculations rely on the amount of flow to calculate a dilution factor. EPA is now using a flow of 0.95 for this calculation. If the flow is more than 0.95 MGD, then your dilution is less. It is our understanding that the facility had monthly average flows that were at or above 1 MGD with maximum daily flows even higher. BEAT requests that a maximum daily flow be reinstituted that is no higher than the previous 1.7 MGD maximum. Elimination of this maximum is allowing the permit to backslide, even if the actual results do not.

Response to Comment C2:

As noted in the fact sheet, the average flow of 0.95 million gallons per day (MGD) and the daily maximum flow of 1.7 MGD were used to calculate monthly average and daily maximum dilution factors. These values were representative of recent discharge monitoring report (DMR) data. These flow values in turn were used to calculate potential water quality based limits, such as those for total residual chlorine and total aluminum. It was determined that it was not necessary to establish any water quality based limits based on these dilution factors. Since there are no permit limits that are dependent on flow, the flow will remain a monitor only parameter. However, if flows increase in the future to the point where water quality based limits dependent on flow have a reasonable potential to be violated, then flow limits and limits on such parameters may be established.

Comment C3:

BEAT is pleased that Onyx Specialty Papers is installing a cooling tower. While the river may not be a cold water fishery, ensuring the water temperature is not raised by this effluent is important.

Response to Comment C3:

EPA acknowledges this comment.

Comment C4:

BEAT believes an upper limit of 0.1 mg/l should be placed on Total Phosphorus. This section of the Housatonic River does not meet its designated uses including aquatic life in part because of high phosphorus levels. This section of the river is also listed as having excessive algae growth which can be exacerbated by high levels of phosphorus. The draft permit requires the Onyx Specialty Papers to optimize its treatment system to remove Nitrogen and submit annual reports with plans detailing how they might optimize the reduction of nitrogen in the discharge. BEAT believes the same should be required for Total Phosphorus. Even though EPA does not think this outfall is a major contributor, it is unfair to impose this limit on other facilities and not impose this limit on this facility.

Response to Comment C4:

As noted in the fact sheet, the monthly data from the DMR summary indicates phosphorus levels in the range of 0.02 mg/l up to 0.78 mg/l, including many non-detectable readings, with an average of 0.06 mg/l. Although most of the effluent samples were below the 0.1 mg/l level, EPA took into account the instream, or background concentrations of phosphorus to try and determine whether the Onyx discharge was causing or contributing to the current impairment of the receiving water.

The fact sheet outlined instream data which suggest that the Gold Book instream total phosphorus criteria of 0.1 mg/l is being exceeded in the receiving water, as the average value at a nearby sampling station was 0.31 mg/l. Phosphorus contributions from upstream municipal point sources could explain this background instream total phosphorus concentration, based on the referenced publications in the fact sheet. It is also possible that conditions in Woods Pond, a highly eutrophic impoundment located upstream from the Onyx facility in Lenox, is negatively affecting downstream water quality and may have contributed to the elevated background concentrations of phosphorus.

Upstream of the Onyx facility, the Housatonic River receives discharges of treated effluent from three Wastewater Treatment Plants (WWTPs). A very stringent seasonal total phosphorus limit

of 0.1 mg/l has been established for the Pittsfield WWTP that was issued in 2010. Since this facility is the largest municipal discharger on the river with a design flow of 17 MGD, it is expected that this limit will result in a significant decrease in phosphorus loadings to the river over time. The NPDES permit for the Lenox WWTP was issued in 2007 with a year round phosphorus limit of 1.0 mg/l and the NPDES permit was issued for Lee in 2008 with a seasonal limit of 0.1 mg/l. In addition, more stringent phosphorus limits are anticipated to be included in future permits for facilities that discharge to the Housatonic River in the effort to control eutrophication in the river to address the ongoing impairment.

By considering a reduction in phosphorus inputs from upstream sources due to more stringent permit limits since the 2002 sampling and the fact that a majority of instream samples were already below the criterion of 0.1 mg/l, it is expected that the downstream receiving water will meet this criterion, due to the relatively minor loading from the Onyx discharge. Based on the available effluent monitoring results and limited instream data that likely does not represent decreased upstream phosphorus loadings, EPA concludes that there is no reasonable potential for this discharge to contribute to the water quality impairment for phosphorus, and no phosphorus limit has been established at this time. However, future monitoring results and assessment efforts on the Housatonic River may necessitate effluent limits. In Part I.C and footnote 6 on Page 4, the final permit requires the optimization of treatment plant operation for the removal of phosphorus, consistent with the suggestion of the commenter.

Comment C5:

BEAT believes an upper limit should be placed on Total Residual Chlorine (TRC). Has the river above Onyx Specialty Papers effluent pipe been tested to ensure the TRC background level really is zero? Chlorine is designed to kill and is found in many environmental toxins from DDT to PCBs, not to mention being a component in many neurotoxins. Just because the EPA does not expect this limit to be exceeded, is not a reason to eliminate a limit. Many chlorinated compounds may be exhibiting synergistic effects. It is important to reduce the amount of TRC or eliminate it all together.

Response to Comment C5:

As noted in the fact sheet, recent DMR data on TRC has shown relatively low levels, far below what the calculated water quality based limits would dictate. Based on this information, EPA has concluded that there is no reasonable potential to exceed the water quality standards for TRC. EPA is not aware of any instream TRC monitoring data. Since the permittee still uses chlorine containing chemicals and TRC continues to be detected in the effluent, the permit continues to require weekly monitoring. If this monitoring shows that effluent TRC levels increase, the permit could be reopened to establish permit limits for TRC. The commenter mentioned the elimination of a limit. The previous permit had a weekly, monitor only requirement for TRC and this permit retains that requirement.

Comment C6:

BEAT believes an upper limit should be placed for Total Aluminum as well. Just because the EPA does not expect this limit to be exceeded, is not a reason to eliminate a limit.

Response to Comment C6:

Based on a review of the effluent sampling data for aluminum, EPA determined that there was no reasonable potential that either the calculated acute (daily maximum) or chronic (monthly average) limit for aluminum would be violated. Therefore, there is a monitor only requirement for total aluminum in this permit. As noted in the fact sheet, if there are effluent aluminum levels during the term of this permit that are higher than historical data and that represent a reasonable potential to violate the WQS for aluminum, EPA may reopen the permit at any time and establish aluminum limits.

Comment C7:

We are extremely worried about the Whole Effluent Toxicity data that Onyx Specialty Papers reported for 2008-2010. Chronic Toxicity for fat head minnow appears alarming. On 4 occasions, out of 12, only 6.25 percent survived? The paper manufacturer should be strongly encouraged to reduce or eliminate the use of all toxic chemicals. The less toxic chemicals used during manufacturing, the less harm to the environment and to employees. Having strict effluent limits helps to encourage manufacturers to find alternatives to toxic chemicals. BEAT strongly opposes the use of chlorine as a whitener. There are alternatives.

Response to Comment C7:

For the DMR summary period discussed in the fact sheet, the permittee has consistently met the permit's acute toxicity LC50 limit of 100% for both species, with the exception of one test result for the fathead minnow species of 50%. Although the chronic NOEC is a monitor only requirement and not a limit, the results for the fathead minnow have been variable and on four occasions were reported at 6.25%. Clearly, there are some chronic effects to this species and the permittee has also noted that the receiving water has been unreliable and shown to be toxic to this species. The C-NOEC test measures reproductive, growth and other effects instead of mortality, which is measured by the LC50 test. As noted in the response to comment A1, the Housatonic River has been shown to be unreliable in WET testing for the fathead minnow, which may be contributing to the low NOEC readings for this species. Therefore, the permittee will be authorized to use an alternate dilution water for this species for future WET tests. This change will better allow the Agencies to make the determination of whether this discharge continues to exhibit chronic effects to the test species.

January 25, 2012