

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100 (CIP)
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

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

NPDES PERMIT NUMBER: **MA0004561**

PUBLIC NOTICE START AND END DATES: **October 16, 2009 through November 14, 2009**

NAME AND MAILING ADDRESS OF APPLICANT:

**Hollingsworth & Vose Company
112 Washington Street
East Walpole, MA 02032**

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**Hollingsworth & Vose Company
219 Townsend Road
West Groton, MA 01472**

RECEIVING WATER: **Squannacook River (MA81-19)
Hydrological Basin Code No. 0107004**

RECEIVING WATER CLASSIFICATION(S):

Class B, Warm Water Fishery

SIC CODE: **2621 (Paper mills)**

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1.0 Proposed Action, Type of Facility, and Discharge Location

Hollingsworth & Vose Company applied to the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated paper production and laboratory process water as well as treated stormwater into the designated receiving water. The current permit was reissued on January 12, 2004 and became effective sixty days from the date of issuance. Hollingsworth & Vose filed a Petition for Review of the reissued permit on February 12, 2004. On July 12, 2004, EPA notified Hollingsworth & Vose that all terms and conditions of the permit, except for the Zinc limits, were uncontested and therefore in effect. On January 11, 2005, the Environmental Appeals Board granted Hollingsworth & Vose's motion to withdraw their Petition for Review for the current permit. Thus, the limits for total Zinc in the permit issued January 12, 2004 were effective on April 1, 2005, but the Administrative Order issued on January 12, 2005 provided relief from the permit limits. The current permit expired on September 30, 2008 and EPA received a permit renewal application from Hollingsworth & Vose on March 28, 2008. EPA deemed the permit renewal application complete and the current permit has been administratively continued. The permit to be reissued will herein be referred to as the draft permit.

Hollingsworth & Vose is a facility that produces specialty filter paper in West Groton, Massachusetts, as illustrated in the map of the facility and receiving water in Attachment A: "Map of Site and Receiving Water." Hollingsworth & Vose combines water with synthetic fibers to make a pulp mixture that is refined to produce filter paper used for a variety of industrial purposes. Water that is not reused by the facility is pumped to an onsite water treatment plant (WTP). In addition, water used in an onsite laboratory is pumped to the WTP. Stormwater collected in onsite roof and storm drains is also pumped to the WTP. After treatment at the WTP, the water is discharged through Outfall 001, as shown in Attachment A and illustrated more specifically in the process schematics in Attachment B: "Map of Water Flow at Site." The permitted discharge from the facility consists of treated stormwater and treated water leftover from paper production as well as production process water from the onsite laboratory.

2.0 Description of Discharge

A quantitative description of the effluent parameters based on the permit application and recent Discharge Monitoring Report (DMR) Data from January 31, 2003 through June 30, 2009 is provided in a summary of the DMR provided in Attachment C: "Discharge Monitoring Report (DMR) Data."

3.0 Receiving Water Description

Outfall 001 discharges into the Squannacook River (MA81-19). The Squannacook River is classified as a Class B, Warm Water Fishery, in the 314 Code of Massachusetts Regulations (CMR) 4.00, known as the "Massachusetts Surface Water Quality Standards." 314 CMR 4.02 defines a "Warm Water Fishery" 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 4.05(3)(b) defines Inland Water Class B as,

These waters are 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”). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

Section 303(d) of the Federal Clean Water Act (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 total maximum daily loads (TMDLs). MassDEP is required under the CWA to develop a TMDL for a water body 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. The TMDL then outlines a plan to meet the waste load allocations.

The Massachusetts Year 2008 Integrated List of Waters states that the Squannacook River, Segment MA81-19, is impaired for an unknown cause. A TMDL has not yet been developed for the Squannacook River. In the interim, EPA developed the conditions for the draft permit based on a combination of technology-based standards, water quality-based standards, and all limitations and requirements in the current permit. If a TMDL developed in the future identifies the discharge from the facility as causing or contributing to the non-attainment of surface water quality criteria, the permit may be reopened.

4.0 Limitations and Conditions

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

5.0 Permit Basis: Statutory and Regulatory Authority

5.1 General Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a 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. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and 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 the permit limits for this draft permit, EPA considered (a) technology-based requirements, (b) water quality-based requirements, and (c) all limitations and requirements in the current permit.

5.2 Technology-Based Requirements

Subpart A of 40 CFR §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.

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (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 available (BAT) for toxic and non-conventional pollutants. In general, technology-based effluent guidelines for non-POTW facilities must have been 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 (40 CFR §125.3(a)(2)).

EPA established minimum technology requirements for the pulp, paper, and paperboard point source category in the form of effluent limitations guidelines promulgated under 40 CFR §430.122 Subpart L – Tissue, Filter, Non-woven, and Paperboard from Purchased Pulp Subcategory of Pulp, Paper and Paperboard Point Source Category (non-integrated mills where filter and non-woven papers are produced from purchased pulp). The guidelines specify the maximum mass (pound per 1,000 lb of product) of biochemical oxygen demand (BOD₅) and total suspended solids (TSS) which may be discharged.

5.3 Water Quality-Based Requirements

Section 301(b)(1)(C) of the CWA requires that effluent limits based on water quality considerations be established for point source discharges when such limits are more stringent than technology-based limits and are necessary to maintain or achieve state or federal water quality standards that are applicable to the designated receiving water. This is necessary when technology-based limitations would not attain or maintain the water quality of the receiving water.

Water quality standards consist of three parts: (1) beneficial designated uses for a water-body or a segment of a water-body; (2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards, 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 draft permit limits any pollutant or pollutant parameter (conventional, non-conventional, and toxic) that is or may be discharged at a level that causes or has the "reasonable potential" to cause or contribute to an excursion above any water quality standard (40 CFR §122.44(d)). An excursion occurs if the projected or actual in-stream concentration exceeds an applicable water quality criterion. In determining "reasonable potential," EPA considers: (1) existing controls on

point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from the permittee's reissuance application, monthly DMR data, and State and Federal Water Quality Reports; (3) sensitivity of the indicator species used in toxicity testing; (4) known water quality impacts of processes on waste waters; and (5) where appropriate, dilution of the effluent in the receiving water.

5.4 Anti-Backsliding

Anti-backsliding as defined in 40 CFR §122.44(l) requires reissued permits to contain limitations as stringent as or more stringent than those of the current permit unless the circumstances allow application of one of the defined exceptions to this regulation. As identified in Section 402(o) of the CWA and at 40 CFR §122.44(l), anti-backsliding provisions prohibit the relaxation of permits limits, standards, and conditions unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Anti-backsliding provisions apply to effluent limits based on technology, water quality, best professional judgment (BPJ) and State Certification requirements. Relief from anti-backsliding provisions can be granted under one of the defined exceptions stated in 40 CFR §122.44(l)(2)(i).

5.5 Antidegradation

The Commonwealth of Massachusetts' antidegradation provisions found in 314 CMR 4.04 ensure that provisions in 40 CFR §131.12 are met. These provisions ensure that all existing uses in the receiving water, along with the level of water quality necessary to protect those existing uses, are maintained and protected. The effluent limits in the draft permit should ensure that provisions in 314 CMR 4.04 are met. The State is also asked to certify that the antidegradation provisions in State law are met.

Hollingsworth & Vose completed a Squannacook River Zinc Site-Specific Water Quality Criterion Study ("SSWQC Study") to develop site specific criteria. 314 CMR 4.05(5)(e)(1) defines site specific criteria as,

Where EPA recommended criteria for a specific pollutant are not available or where the Department determines that they are invalid due to site specific physical, chemical or biological considerations, the Department shall use a site specific criterion as the allowable receiving water concentration for the affected waters. In all cases, at a minimum, site specific criteria shall not exceed safe exposure levels determined by toxicity testing using methods approved by the Department. The Department will adopt any such site specific criteria as revisions to 314 CMR 4.00 in accordance with M.G.L.c.30A.

Hollingsworth & Vose completed the SSWQC Study in compliance with the Order issued on January 12, 2005 by the Environmental Appeals Board (the Board) pursuant to Section 309(a)(3) of the CWA, as amended, 33 USC 1319(a)(3). The Board issued an Order for the SSWQC Study in response to a Petition for Review (NPDES Appeal No. 04-01) of the Zinc limitations of the current permit filed by Hollingsworth & Vose on February 12, 2004. Hollingsworth & Vose initially filed the Petition for Review, maintaining that less stringent site-specific criteria for Zinc are appropriate and protective of existing and designated uses of the receiving water. Hollingsworth & Vose withdrew the Petition for Review, agreeing with EPA and MassDEP to a schedule for mitigating the discharge of Zinc from the facility, including the development of site-specific criteria for the Squannacook River. On July 12, 2004, EPA notified Hollingsworth &

Vose that all terms and conditions of the permit, except for the Zinc limits, were uncontested and therefore in effect. On January 11, 2005, the Board approved the motion to withdraw the Petition for Review. Thus, the limits for total Zinc in the permit issued January 12, 2004 were effective on April 1, 2005, but the Administrative Order issued on January 12, 2005 provided relief from the permit limits. Hollingsworth & Vose submitted the SSWQC Final Report on January 20, 2006 and MassDEP is currently reviewing the SSWQC Study to determine if the SSWQC Study supports either more or less stringent Zinc water quality criteria than is currently stated in the Massachusetts Surface Water Quality Standards.

6.0 Explanation of the Permit's Effluent Limitations

6.1 Facility Information

Hollingsworth & Vose is a paper production facility located on the eastern shore of the Squannacook River in West Groton, MA of Middlesex County, as illustrated in the map of the facility and receiving water in Attachment A: "Map of Site and Receiving Water." The facility produces filter paper made from a mixture of water and synthetic fibers. Townsend Road divides the facility into two parts, east and west. The majority of the facility, located west of Townsend Road, includes two main paper production buildings, a research laboratory as well as a water treatment plant (WTP) and Outfall 001. In addition to wastewater discharged from the two buildings and laboratory, stormwater collected west of Townsend Road is regulated by the draft permit. Stormwater collected east of Townsend Road is regulated by the Multi-Sector General Permit (MAR05CZ62). EPA toured the facility during a site visit on April 29, 2009.

Hollingsworth & Vose begins the papermaking process by withdrawing water from the Squannacook River. The intake water used at the facility is regulated by MassDEP (Registration Number 21111502). Water from the Squannacook River is filtered and then pumped to the two main paper production buildings, each of which contains one of two paper machines, numbered five and seven.

In the production buildings, intake water is combined with cellulose and synthetic fibers such as fiberglass make a pulp mixture. The pulp mixture is then processed through one of two paper machines. As illustrated in the attached water line diagram in Attachment B: "Map of Water Flow at Site," wastewater discharged from the paper making process consists of backwash water from multimedia filters (80,000 GPD), wash water from pulpers (95,000 GPD), blowdown condensate from boilers (6000 GPD), and excess water from paper machines savealls (1,950,000 GPD). Process water collects in a large sump in the same building that houses paper machine number five.

Process water also includes process water from the onsite laboratory that collects in the sump. The lab discharges approximately 100 GPD from sink drains and from producing 8" by 11" paper sheets by hand for testing purposes. The lab also discharges water used to cool laboratory equipment. Discharge mainly occurs during the regular eight-hour work day, Monday through Friday.

In addition to process water, stormwater collected in roof and storm drains from the property west of Townsend Road collects in the sump.

Process water collects in the sump and is then pumped to the WTP along with stormwater and the wastewater from the onsite laboratory. Hollingsworth & Vose samples at the sump daily, prior to pumping to the WTP for internal control purposes. Hollingsworth & Vose submits DMR data to EPA from the discharge through Outfall 001 at the WTP.

After being pumped to the WTP, wastewater, comprised of facility process water and stormwater, moves by gravitational flow through the WTP and ultimately to the Squannacook River. Wastewater at the WTP is initially treated at the primary clarifier. Wastewater then flows to a large horseshoe-shaped aeration lagoon to allow equalization and settling of solids. Wastewater from the aeration lagoon is then processed through chemical conditioning, which includes the addition of chloride, lime, and other coagulants. Sludge removed from the wastewater is processed through belt filtration and is then transported to the landfill. A 300,000 gallon concrete lagoon is available for storage in case of emergencies. Any wastewater leftover from sludge dewatering is pumped back to the primary clarifier for further treatment. Finally, wastewater flows to a secondary clarifier from which the wastewater discharges to the Squannacook River.

6.2 Permitted Outfall

The discharge through Outfall 001 consists of treated stormwater and treated wastewater from paper production and the laboratory. Outfall 001 is sampled at the outlet of the secondary clarifier, after final treatment, and prior to discharge to the Squannacook River. The sampling point for Outfall 001 is located at the outer rim of the secondary clarifier overflow, immediately before the gravitational flow of water from the secondary clarifier to the Squannacook River. The discharge area in the Squannacook River is visible at the facility, but the actual pipe through which the discharge flows through Outfall 001 is submerged in the river.

6.3 Derivation of Effluent Limits

A. Flow

The draft permit flow reporting requirements maintains the requirements in the current permit, which require the permittee to report average monthly and maximum daily flow. A review of the DMR Data, as shown in Attachment C, shows that the average daily maximum flow was 4.0 MGD and the average monthly average flow was 2.4 MGD.

B. Dilution Factor

Water-quality based limits are established using a calculated effluent dilution. The effluent dilution is calculated using the receiving water 7Q10 in accordance with 314 CMR 4.03(3)(a). The 7Q10 is the lowest observed mean river flow for seven consecutive days, occurring over a ten-year recurrence interval. Using DFLOW 3.1b software and daily data from October 1, 1949 to May 14, 2009 (available at the USGS Surface-Water Data for Massachusetts), the calculated 7Q10 low flow at the USGS gauging station 01096000 on the Squannacook River is 6.48 cubic feet per second (cfs) or 4.1 million gallons per day (MGD).

The acute effluent dilution is calculated using the daily maximum flow and the chronic effluent dilution is calculated using the monthly average flow. EPA calculated the dilution factor for the discharge from Outfall 001 using both the 7Q10 and the design flow as follows:

$$\begin{aligned} \text{Acute Dilution Factor} &= 7Q_{10}^*/\text{Daily Maximum Flow} \\ &= 4.1 \text{ MGD}/4.0 \text{ MGD} &= 1.0 \\ \text{Chronic Dilution Factor} &= 7Q_{10}^*/\text{Monthly Average Flow} \\ &= 4.1 \text{ MGD}/2.4 \text{ MGD} &= 1.7 \end{aligned}$$

*The design flow is not added to the numerator of the dilution factor calculation because the facility uses intake water from the Squannacook River and therefore does not add flow to the river.

The dilution factor of 1.0 is used to calculate the acute chronic effluent limits and the dilution factor of 1.7 is used to calculate the chronic effluent limits. Both the current and draft permits contain Whole Effluent Toxicity (WET) limits based on dilution factors using the most recent data from USGS gauging station 0109600.

C. Biological Oxygen Demand (BOD₅) and Total Suspended Solids (TSS)

The draft permit maintains the average monthly and maximum daily effluent limitations for Biological Oxygen Demand occurring over a 5-day period (BOD₅) and Total Suspended Solids (TSS) contained in the current permit. Water quality-based limits are included in the current permit because the water-quality based limits for BOD₅ and TSS are more stringent than the technology-based limits calculated according to the effluent guidelines and standards in 40 CFR §430.122 Subpart L – Tissue, Filter, Non-woven, and Paperboard from Purchased Pulp Subcategory of Pulp, Paper and Paperboard Point Source Category for non-integrated mills where filter and non-woven papers are produced from purchased pulp. The following table, provided in the fact sheet for the current permit and published by the Watershed Planning Program of the Massachusetts Division of Watershed Management in 1981, compares the technology-based limits, based on 100,000 lbs/day production, to the water quality-based limits:

Parameter	Production (lb/day)	Pounds per 1000 lb of product	Technology-based limits (lb/day)	Existing water quality-based limits (lb/day)	Proposed permit limits (lb/day)
BOD ₅ (Monthly average)	100,000	16.3	1630	240	240
BOD ₅ (Daily maximum)	100,000	29.6	2960	480	480
TSS (Monthly average)	100,000	13.0	1300	570	570
TSS (Daily Maximum)	100,000	29.6	2960	1140	1140

The table shows that the water quality-based limits for BOD and TSS are more stringent than the technology-based limits. Based on anti-backsliding requirements (40 CFR §122.44(l)), the draft permit requirements remain the same as the limits in the current permit.

D. pH

A review of the DMR data provided in Attachment C shows that over the past six years, the facility has exceeded the minimum 6.0 standard units (SU) limit four times and the facility has exceeded the maximum 8.3 SU limit twice. Even though a pH range of 6.0 SU to 8.3 SU is less stringent than the numerical range of 6.5 to 8.3 SU found in the Massachusetts Surface Water Quality Standards (314 CMR 4.05(3)(b)3), EPA and MassDEP concur that discharge to the Squannacook River within the less stringent range does not have reasonable potential to violate water quality standards in the receiving water because the dilution factor available at the facility and the buffering capacity in the receiving water is sufficient to offset the lower pH range than that stated in the Massachusetts Surface Water Quality Standards. Thus, the draft permit maintains the pH range stated in the current permit that requires a range of 6.0 to 8.3 SU.

E. Aluminum, Total

The draft permit maintains the same requirements for Aluminum stated in the current permit. In the past, the most significant source of Aluminum was its use at the WTP, but such use has been replaced by the use of ferric chloride. Even though a review of the DMR data shows that the majority of Aluminum concentration levels are non-detect, Aluminum is still used as a retention aid in the papermaking process. Given that Aluminum is still used in the paper production process and potentially in the treatment process at the WTP, the draft permit requirements remain the same as the requirements in the current permit.

G. Lead, Total

The draft permit maintains the same requirements for Lead stated in the current permit. Although a review of DMR data demonstrates the majority of Lead samples as non-detect and the facility reports that it does not use any raw materials containing Lead in the papermaking and wastewater treatment process, the draft permit retains the Lead requirements required in the current permit as a result of detectable levels of the metal.

H. Zinc, Total

Based on anti-backsliding requirements (40 CFR §122.44(l)), the draft permit maintains the average monthly and maximum daily effluent limits of 152 ug/L that were established in the current permit. According to the supplier of the facility, Zinc oxide is a small component (<5%) of the glass used to make some of the fiberglass used in the papermaking process. As aforementioned, Hollingsworth & Vose completed a SSWQC Study in compliance with the Order issued by the Environmental Appeals Board pursuant to Section 309(a)(3) of the CWA, as amended, 33 USC 1319(a)(3) and under the Order, Hollingsworth & Vose has been monitoring only for Zinc twice per month using a composite sample since the effective date of the Order. A review of the DMR data shows that daily maximum Zinc concentrations exceeded the 152 ug/L limit at least ten times and monthly average Zinc concentrations exceeded the 152 ug/l limit twice. Therefore, the facility has reasonable potential to exceed the limits required in the current permit. Since February 2006, however, Zinc effluent concentration levels have been consistently below the 152 ug/L limits. As a result, while MassDEP completes a site-specific criterion for

Zinc based on the SSWQC Study, the draft permit maintains the numeric limits required in the current permit based on antibacksliding and reasonable potential for the facility to discharge high Zinc concentrations, and recent data suggests that the facility will likely achieve the effluent limits stated in the current permit. MassDEP projects that it will complete a site-specific criterion for Zinc in 2010. Based on the decision of MassDEP, EPA may choose to modify the effluent limits for Zinc.

I. Whole Effluent Toxicity (WET)

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

Based on the potential for toxicity, in accordance with EPA national and regional policy, and in accordance with MassDEP policy, the draft permit includes toxicity limitations and monitoring requirements, based on the Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants, 50 Fed. Reg. 30,784 (July 24, 1985); EPA’s Technical Support Document for Water Quality-Based Toxics Control (September 1991); and MassDEP Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990). EPA Region 1 has developed a toxicity control policy. The policy requires wastewater treatment facilities to perform toxicity testing for state certification. The frequency and type of WET testing depends on the dilution ratio and risk factor.

Pursuant to EPA Region 1 and MassDEP policy, discharges having a dilution ratio less than 10:1 require acute and chronic toxicity testing four times per year with a chronic No Observed Effect Concentration (C-NOEC) limit. The C-NOEC limit is greater than or equal to the receiving water concentration (RWC). The C-NOEC percentage of $\geq 60\%$ is calculated as follows:

$$\begin{array}{rclcl} \text{C-NOEC} & \geq & \text{RWC} & & \\ \text{And} & & & & \\ \text{RWC} & = & (1/\text{Dilution Factor}) (100) & & \\ & = & (1/1.7) (100) & \approx & 60\% \end{array}$$

The policy also requires an acute (LC_{50}) WET limit of 100%. The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant-specific control procedures to control the discharge of toxic pollutants.

During the previous monitoring period, the facility did not exceed the current permit’s LC_{50} limit of 100% and the facility exceeded the current permit’s C-NOEC limit of $\geq 60\%$ only once. Therefore, the draft permit requires an LC_{50} limit of 100% and a C-NOEC limit of $\geq 60\%$ based

on the recalculation of the dilution factor in the draft permit. The draft permit requires the permittee to conduct chronic and modified acute WET testing on the effluent at Outfall 001 four times per year and each test must include the use of *Ceriodaphnia dubia* in accordance with EPA Region 1 protocol provided in the draft permit. Procedure and protocol for WET testing as well as additional chemical analysis is described in the draft permit's Attachment A: "Freshwater Chronic Toxicity Test Procedure and Protocol."

As a condition of the draft permit, testing requirements may be reduced by a certified letter from EPA. This permit provision anticipates that the permittee may wish to request a reduction in WET testing. After conducting four consecutive WET tests that demonstrate compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to EPA to seek a review of the toxicity test results. EPA will review the test results and pertinent information to make a determination. The permittee is required to continue testing as specified in the draft permit until the draft permit is either formally modified or until the permittee receives a certified letter from EPA indicating a change in permit conditions.

7.0 Essential Fish Habitat (EFH)

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA action or proposed actions that it funds, permits or undertakes, "may adversely impact any essential fish habitat" (16 USC 1855(b)). The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 USC 1802(10)). Adverse impact means any impact which reduces the quality and/or quantity of EFH (50 CFR §600.910(a)). Adverse effects may include direct (i.e., contamination or physical disruption), indirect (i.e., 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 fish species for which federal Fisheries Management Plans exist (16 USC 1855(b)(1)(A)). EFH designations for New England were approved by the United States Department of Commerce on March 3, 1999.

A review of the relevant essential fish habitat information provided by NMFS indicates that there are no essential fish habitat designations for the Squannacook River. Therefore, EPA has determined that the proposed discharge will not adversely impact EFH and no consultation with NMFS is required. If adverse impacts are detected as a result of this permit action, NMFS will be notified and an EFH consultation will promptly be initiated. A copy of the draft permit has been provided to NMFS for review and comment.

8.0 Endangered Species Act (ESA)

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to ensure 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 species. The National Marine Fisheries Service (NMFS) typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the July 31, 2008 listing of federal endangered or threatened species of fish and wildlife for Middlesex County to see if any listed species might potentially be impacted by the reissuance of the draft permit. Based on the review, no federal endangered or threatened species are located in the vicinity of the discharge. Therefore, consultation under Section 7 of the ESA with USFWS is not required. A copy of the draft permit and Fact Sheet has been provided to USFWS.

9.0 Monitoring

The permittee is required 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.

10.0 State Certification Requirements

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

11.0 Public Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Jessica Hing, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023 or via email to hing.jessica@epa.gov. The comments should reference the name and permit number of the facility for which they are being provided.

Any person, prior to such date, may submit a request in writing to EPA and the States Agency for a public hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office and the EPA website at:

http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

Within thirty (30) days following the notice of final permit decision, permits may be appealed to the Environmental Appeals Board in the manner described at 40 CFR §124.19.

12.0 EPA and MassDEP Contact

Additional information regarding the draft permit may be obtained between the hours of 9:00am and 5:00pm, Monday through Friday, excluding holidays, from the EPA and MassDEP contacts:

Jessica Hing
Industrial Permits Branch
U.S. Environmental Protection Agency
1 Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1560
Fax: (617) 918-0560
Email: hing.jessica@epa.gov

Paul Hogan, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
637 Main Street, 2nd Floor
Worcester, MA 01608
Telephone: (508) 767-2796
Fax: (508) 791-4131
Email: paul.hogan@state.ma.us

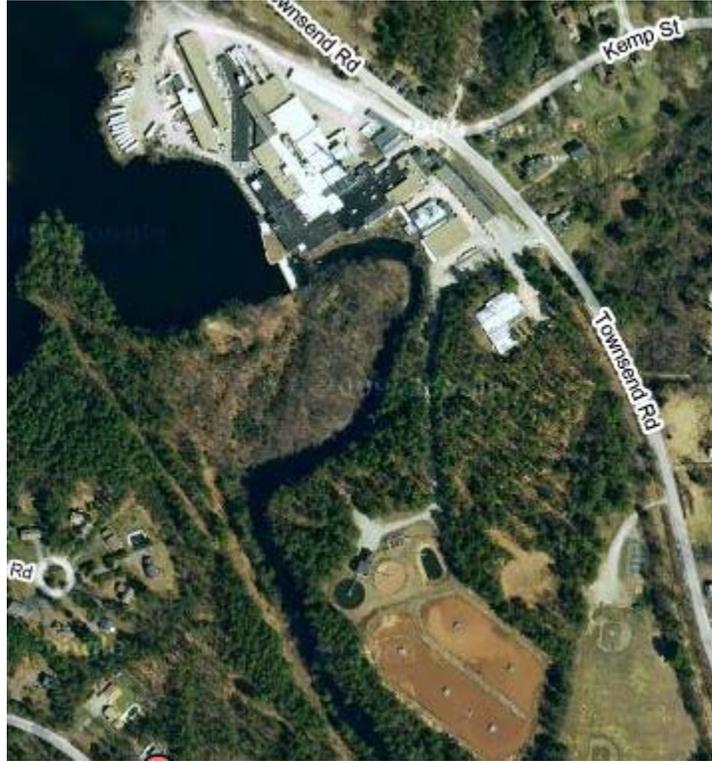
Date

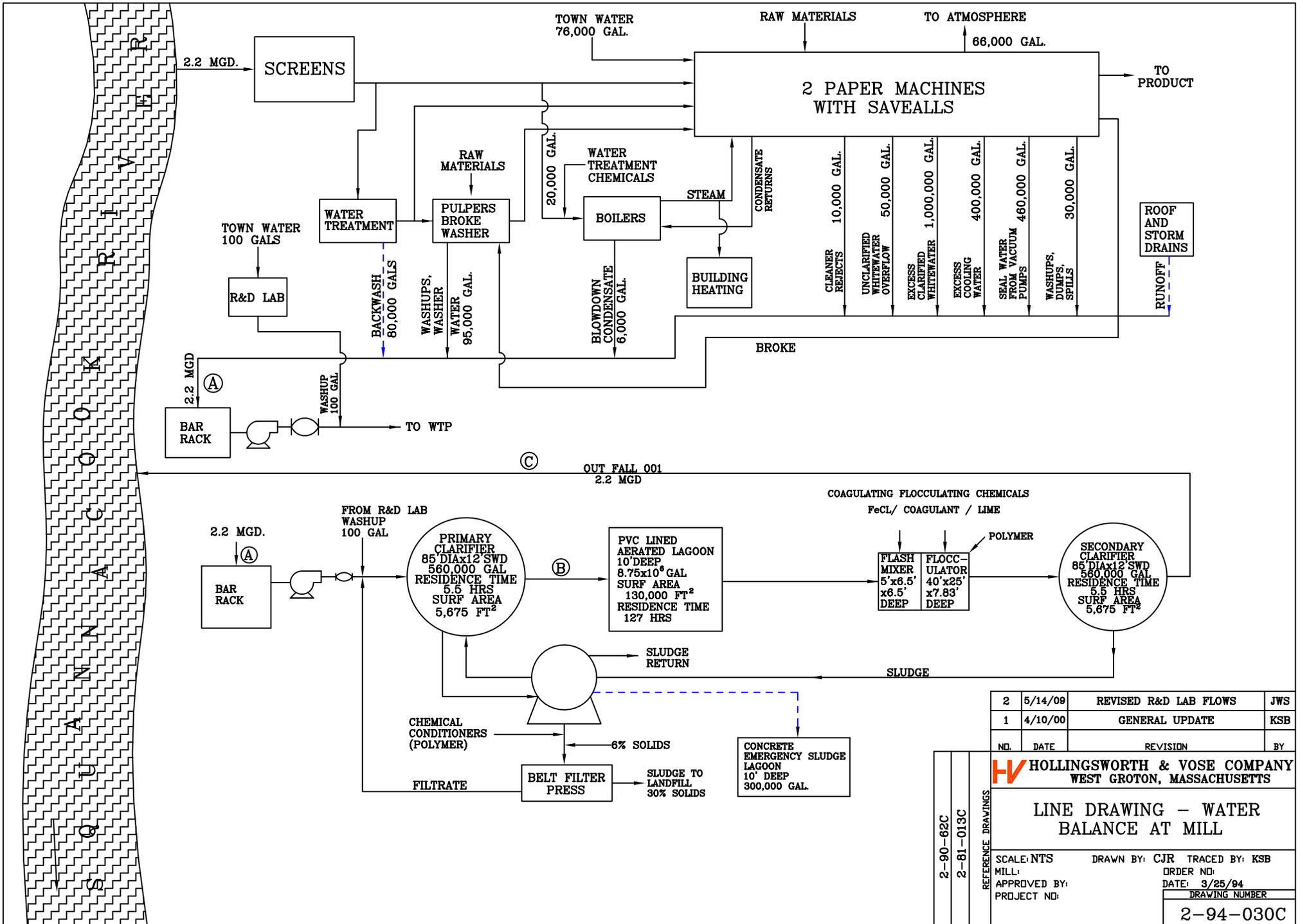
Ken Moraff, Acting Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

13.0 Appendices

- Attachment A: MAP OF SITE AND RECEIVING WATER**
- Attachment B: MAP OF WATER FLOW AT SITE**
- Attachment C: DISCHARGE MONITORING REPORT (DMR) DATA**

Attachment A: Map of Site and Receiving Water
Hollingsworth & Vose Company





NO.	DATE	REVISION	BY
2	5/14/09	REVISED R&D LAB FLOWS	JWS
1	4/10/00	GENERAL UPDATE	KSB

HOLLINGSWORTH & VOSE COMPANY
WEST GROTON, MASSACHUSETTS

LINE DRAWING - WATER
BALANCE AT MILL

SCALE: NTS
MILL:
APPROVED BY:
PROJECT NO:

DRAWN BY: CJR
TRACED BY: KSB
ORDER NO:
DATE: 3/25/94
DRAWING NUMBER

2-94-030C

Appendix C
Hollingsworth & Vose (MA0004561)
Outfall 001- DMR Data Summary
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MONITORING PERIOD END DATE	Flow (Mgal/d)		Zinc, total (as Zn) (ug/l)*		Zinc, total (as Zn) (lb/d)*		Total Suspended Solids (TSS) (lb/d)	
	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
1/31/2003	3	2.2	60	-	-	-	87	28
2/28/2003	2.8	2.2	60	0	0	0	125	37
3/31/2003	2.8	2.4	0	0	0	0	130	71
4/30/2003	3.1	2.2	0	0	0	0	105	35
5/31/2003	3.1	2.3	50	-	-	-	200	70
6/30/2003	3.6	2.6	0	-	-	-	179	77
7/31/2003	3.3	1.8	0	-	-	-	120	44
8/31/2003	3.4	2.6	0	-	-	-	158	57
9/30/2003	3.5	2.5	60	-	-	-	145	52
10/31/2003	3.5	2.7	260	-	-	-	180	52
11/30/2003	3.3	2.7	80	-	-	-	160	51
12/31/2003	3.2	2.1	130	-	-	-	180	59
1/31/2004	3.2	2.5	60	-	-	-	183	68
2/29/2004	3	2.7	60	-	-	-	173	75
3/31/2004	3	2.5	660	-	-	-	173	64
4/30/2004	3.3	2.6	50	-	-	-	130	42
5/31/2004	3.3	2.4	50	50	0.79	0.79	145	38
6/30/2004	2.9	2.7	80	80	1.8	1.8	93	34
7/31/2004	3.4	2.6	100	95	2.3	2.1	83	33
8/31/2004	3.3	2.8	80	70	1.8	1.55	220	57
9/30/2004	3.5	2.7	50	25	1.1	0.55	117	39
10/31/2004	3.1	2.6	160	130	2.8	2.45	217	50
11/30/2004	3.5	2.5	163	147	4	4	120	45
12/31/2004	3.5	2.5	157	99	3.6	2.2	259	115
1/31/2005	3.8	2.6	180	140	5.1	4	200	70
2/28/2005	3	2.2	280	200	6.1	4	120	32
3/31/2005	3.7	2.7	139	92	3.1	2	569	74
4/30/2005	3.8	2.6	80	68	1.6	1.4	234	60
5/31/2005	3.1	2.1	61	50	1.1	1	77	22
6/30/2005	4.4	2.8	92	31	1.4	0.7	180	41
7/31/2005	3.1	2.3	51	35	11	6	160	46
8/31/2005	2.9	2.4	124	67	2.79	1.32	135	27
9/30/2005	3.3	2.4	54	47	1.38	0.93	90	21
10/31/2005	3.5	2.5	82	71	1.64	1.37	209	63
11/30/2005	3.1	2.3	176	92	3.52	2	120	36
12/31/2005	2.9	1.8	208	123	4.3	2	100	39
1/31/2006	3.1	2.3	326	223	6.8	4	155	35
2/28/2006	3.2	2.4	120	94	2.3	2	107	35
3/31/2006	3.2	2.4	42	31	0.84	0.65	320	48

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MONITORING PERIOD END DATE	Flow (Mgal/d)		Zinc, total (as Zn) (ug/l)*		Zinc, total (as Zn) (lb/d)*		Total Suspended Solids (TSS) (lb/d)	
	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
4/30/2006	3.5	2.8	25	20	0.54	0.47	117	55
5/31/2006	3.5	2.9	25	19	0.67	0.52	117	55
6/30/2006	3.8	3.1	16	13	0.4	0.32	175	54
7/31/2006	3.4	2.5	11	10	0.24	0.22	107	30
8/31/2006	4.2	3.2	40	30	1.23	0.84	130	33
9/30/2006	3.5	2.8	111	76.7	2.96	1.79	217	64
10/31/2006	3.1	2.5	48	42	0.84	0.74	140	47
11/30/2006	3.2	2.5	91	66	1.75	1.4	280	74
12/31/2006	3.3	2.4	63	59	1.47	1.19	120	39
1/31/2007	2.9	2.4	69	67	1.55	1.32	250	62
2/28/2007	2.9	2.4	54	44	0.86	0.81	125	42
3/31/2007	3.8	2.5	58	45	0.87	0.77	235	50
4/30/2007	3.4	2.3	70	58.5	1.1	1.02	140	32
5/31/2007	3.4	2.6	65	57	1.52	1.36	150	45
6/30/2007	3	2.5	92	75	1.92	1.55	145	38
7/31/2007	3.8	2.2	142	99	3.2	2.09	140	36
8/31/2007	4.1	2.7	98	66	1.96	1.35	180	55
9/30/2007	3	2.4	33	21	0.63	0.36	140	42
10/31/2007	2.9	2.2	41	34	0.51	0.43	135	54
11/30/2007	3.9	2.2	34	17	0.77	0.38	130	38
12/31/2007	3.5	2	43	37	0.82	0.74	83	23
1/31/2008	3.4	2.3	74	73	1.5	1.37	113	47
2/29/2008	3.5	2.5	98	66	1.8	1.35	117	36
3/31/2008	3.1	2.6	49	42	1.16	0.91	168	49
4/30/2008	3.3	2.6	62	54	1.29	1.17	100	28
5/31/2008	3.3	2.7	90	70	1.88	1.37	135	32
6/30/2008	3	2.3	72	65	1.5	1.36	140	33
7/31/2008	2.7	1.9	48	42	1.08	0.9	120	46
8/31/2008	4.2	2.7	81	62	1.35	1.1	160	30
9/30/2008	3.3	2.4	38	25	0.7	0	125	26
10/31/2008	3.2	2.3	56	44	1.03	1	90	21
11/30/2008	2.9	1.4	40	33	0.6	0	125	11
12/31/2008	2.6	1.5	128	84	1.28	1	65	13
1/31/2009	3.2	2.1	68	57	1.81	1.3	125	27
2/28/2009	2.6	2	81	67	1.69	1	110	33
3/31/2009	2.8	1.9	55	44	0.69	0.69	73	20
4/30/2009	3.1	2.5	150	104	3.75	2.6	52	20
5/31/2009	3.3	2.4	39	38	0.94	0.8	103	20
6/30/2009	3.6	2.6	24	19	0.66	0.5	160	37

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MONITORING PERIOD END DATE	Lead, total (as Pb) (ug/L)*	Aluminum, total (as Al) (lb/d)*	pH (s.u.)		BOD, 5-day, 20 deg. C (lb/d)		LC50 Static 48Hr Acute Ceriodaphnia (%)	Noel Statre 7Day Chronic Ceriodaphnia (%)
	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum	Monthly Average	Daily Minimum	Daily Minimum
1/31/2003	0	-	6.3	7.4	184	146	-	-
2/28/2003	0	-	6.4	7.5	152	132	-	-
3/31/2003	0	0	6.3	7.3	293	223	100%	75%
4/30/2003	0	0	6.5	7.5	150	125	-	-
5/31/2003	0	0	6.5	7.3	149	117	-	-
6/30/2003	0	-	6.6	7.1	248	169	100%	6.25%
7/31/2003	0	-	6.7	7.8	385	167	-	-
8/31/2003	0	-	6.4	7.3	143	93	-	-
9/30/2003	0	-	6.4	7.3	301	207	100%	100%
10/31/2003	0	-	6.4	7.2	203	129	-	-
11/30/2003	0	-	6.4	7.9	168	115	-	-
12/31/2003	0	-	6.3	7.3	154	103	100%	100%
1/31/2004	0	-	6.3	7.4	170	116	-	-
2/29/2004	0	-	6.5	7.4	185	143	-	-
3/31/2004	0	-	6.3	7.2	180	144	100%	100%
4/30/2004	0	-	6.6	7.6	163	116	-	-
5/31/2004	0	-	6.6	7.7	140	117	-	-
6/30/2004	0	-	6.3	7.9	142	121	-	-
7/31/2004	0	-	6.5	7.3	193	148	-	-
8/31/2004	0	0	6.5	7.3	144	124	-	-
9/30/2004	0	0	6.6	7.4	147	111	-	-
10/31/2004	0	0	6.6	7.4	178	113	-	-
11/30/2004	0	0	6.4	7.2	325	169	-	-
12/31/2004	0	0	6.5	7.4	267	199	100%	-
1/31/2005	0	0	6.4	7.3	397	200	-	-
2/28/2005	0	0	6.2	7.4	204	141	-	-
3/31/2005	0	0	4.2	8.9	148	103	100%	100%
4/30/2005	0	0	6.6	7.8	145	103	-	-
5/31/2005	0	0	6.3	7.8	203	119	-	-
6/30/2005	0	0	6.9	7.6	142	98	100%	100%
7/31/2005	0	0	6.8	7.6	83	76	-	-
8/31/2005	0	0	6.9	7.7	161	103	-	-
9/30/2005	0	0	7	7.5	120	80	100%	100%
10/31/2005	0	0	6.2	7.6	48	23	-	-
11/30/2005	0	0	6.5	7.5	270	118	-	-
12/31/2005	0	0	6.2	7.6	111	66	100%	100%
1/31/2006	0	0	6.7	7.5	154	68	-	-

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MONITORING PERIOD END DATE	Lead, total (as Pb) (ug/L)*	Aluminum, total (as Al) (lb/d)*	pH (s.u.)		BOD, 5-day, 20 deg. C (lb/d)		LC50 Static 48Hr Acute Ceriodaphnia (%)	Noel Statre 7Day Chronic Ceriodaphnia (%)
	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum	Monthly Average	Daily Minimum	Daily Minimum
2/28/2006	0	0	6.3	7.8	460	282	-	-
3/31/2006	0	0	6.4	7.8	228	78	100%	100%
4/30/2006	0	0	7.2	8	116	70	-	-
5/31/2006	0	0	7.2	7.9	409	102	-	-
6/30/2006	0	0	7.1	8	213	105	100%	100%
7/31/2006	0	0	6.9	7.9	142	56	-	-
8/31/2006	0	0	6.5	8	282	145	-	-
9/30/2006	0	0	6.8	7.8	197	86	100%	100%
10/31/2006	1	0	6.7	7.8	75	33	-	-
11/30/2006	1	0	6.2	8.1	288	102	-	-
12/31/2006	0	0	6.9	7.7	154	83	100%	100%
1/31/2007	0	0	7.1	7.7	63	29	-	-
2/28/2007	0	0	7	7.8	122	54	-	-
3/31/2007	0	0	6.7	7.5	178	68	100%	100%
4/30/2007	0	0	6.7	7.6	167	64	-	-
5/31/2007	1	0	6.3	7.5	150	45	-	-
6/30/2007	1	0	6.3	7.6	95	59	100%	75%
7/31/2007	0	0	6.8	8.2	128	66	-	-
8/31/2007	0	0	6.9	8.1	250	99	-	-
9/30/2007	0	0	7.2	7.8	189	78	100%	100%
10/31/2007	0	0	7	7.9	425	185	-	-
11/30/2007	0	0	5	7.7	68	37	-	-
12/31/2007	0	0	6.1	7.6	249	163	100%	75%
1/31/2008	0	0	6	7.6	156	48	-	-
2/29/2008	0	0	4.5	7.3	145	71	-	-
3/31/2008	5	0	7	7.5	186	76	100%	100%
4/30/2008	0	0	6.4	7.6	170	110	-	-
5/31/2008	0	0	6	7.7	223	113	-	-
6/30/2008	0	0	6.2	9.5	92	50	100%	100%
7/31/2008	0	0	6.6	7.8	240	48	-	-
8/31/2008	0	0	6.4	8.2	130	47	-	-
9/30/2008	0	0	6.3	8	167	57	100%	100%
10/31/2008	0	0	6.3	7.5	145	50	-	-
11/30/2008	0	0	6.2	7.5	62	21	-	-
12/31/2008	1	0	6.9	7.4	102	42	100%	75%
1/31/2009	0	0	7	7.6	350	161	-	-
2/28/2009	0	0	6.7	7.4	56	37	-	-

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MONITORING PERIOD END DATE	Lead, total (as Pb) (ug/L)*	Aluminum, total (as Al) (lb/d)*	pH (s.u.)		BOD, 5-day, 20 deg. C (lb/d)		LC50 Static 48Hr Acute Ceriodaphnia (%)	Noel Statre 7Day Chronic Ceriodaphnia (%)
	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum	Monthly Average	Daily Minimum	Daily Minimum
3/31/2009	0	0	7	7.4	177	63	100%	100%
4/30/2009	0	0	5	7.3	182	50	-	-
5/31/2009	0	1	6.8	7.5	123	97	-	-
6/30/2009	0	0	6.6	7.3	667	206	-	-

2003 Permit Limits	Lead, total (as Pb) (ug/L)*	Aluminum, total (as Al) (ug/L)*	pH (s.u.)		BOD, 5-day, 20 deg. C (lb/d)		LC50 Static 48Hr Acute Ceriodaphnia (%)	Noel Statre 7Day Chronic Ceriodaphnia (%)
	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum	Monthly Average	Daily Minimum	Daily Minimum
	Report	Report	6	8.3	480	240	100	60
Minimum	0	0	4.2	7.1	48	21	100	6
Maximum	5	1	7.2	9.5	667	282	100	100
Average	0	0	6.5	7.6	192	104	100	91
Standard Deviation	1	0	0.5	0.4	102	52	0	0
# Measurements	78	62	78	78	78	78	23	22
# Exceeds Limits	N/A	N/A	4	2	1	1	0	1

*Note: Any “0” value indicates that depending on the test method, the value is below the minimum level of detection.