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

STATEMENT OF BASIS

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT MODIFICATION TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO.: **MA0004341**

NAME AND ADDRESS OF APPLICANT:

Wyman Gordon Company
244 Worcester Street
North Grafton, MA 01536

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Wyman Gordon Company
244 Worcester Street
North Grafton, MA 01536

RECEIVING WATER:

Wetlands adjacent to East Brook and Quinsigamond River; the Quinsigamond River (Segment MA51-09); and Bonny Brook (Basin Code MA851050) (Blackstone River Watershed)

CLASSIFICATION: **B (Warm Water Fishery)**

I. Proposed Action

On September 28, 2006, the U.S. Environmental Protection Agency Region 1 ("Region") and the Massachusetts Department of Environmental Protection ("MassDEP") jointly issued an NPDES permit to the Wyman Gordon Company ("Permittee") for discharges from its 244 Worcester Street facility to the receiving waters referenced above ("Final Permit"). The Final Permit superseded the prior permit issued on June 30, 1997.

A petition for review of the Final Permit was timely filed with the U.S. EPA Environmental Appeals Board ("EAB") by the Permittee. The EAB directed the Region to file a response to the petition for review no later than December 19, 2006. The EAB subsequently stayed proceedings in this matter to allow the parties an opportunity to negotiate a settlement to the dispute. In accordance with applicable regulations governing EAB appeal procedures, the Region has

notified the EAB that the parties have reached a settlement and that such settlement will be implemented through the modification of certain contested conditions. *See* 40 C.F.R.§ 124.19(d) (affording the permit issuer the absolute right to withdraw and modify the permit after notification to the EAB and interested parties at any time prior to the EAB rendering a decision to grant or deny review of a permit decision). As described in Section II below, the Region agrees to modify the Final Permit to impose Best Management Practices (BMPs) relative to Outfalls 007, 008 and 009 in lieu of specified numeric effluent limits and Whole Effluent Toxicity reporting requirements. The Final Permit will remain unchanged in all other respects. Upon the effective date of the permit modification, or as soon as possible thereafter, the Permittee agrees to withdraw its appeal in its entirety.

This Statement of Basis sets forth the record basis for the new permit limits. Comments outside the scope of the modification shall not be considered. *See* 40 C.F.R. § 124.5(c).

II. Permit Basis and Explanation of Effluent Limitation Derivation

The original Fact Sheet accompanying the October 24, 2005, draft permit contains a comprehensive description of the facility, discharge history, discharge and receiving water. It is attached hereto as Attachment A, and Sections I and II are incorporated by reference.

The facility has a total of five outfalls: Outfalls 010, 001, 007, 008 and 009. In the Final Permit, EPA imposed numeric effluent limitations on all five outfalls. EPA is retaining without change the numeric effluent limits and monitoring/reporting requirements for Outfalls 001 and 010 set forth in Part I.A.1 and Part 1.A.2 of the Final Permit. Discharges from these outfalls are comprised of mixed process wastewaters, storm water and non-contact cooling water. EPA has determined, however, that certain water quality-based numeric effluent limits on Outfalls 007, 008 and 009, which discharge storm water only, are inappropriate at this time. However, EPA will require monitoring and reporting of these parameters . *See* Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits (EPA 833-D-96-001) (September 1996) (citing the challenges associated with water quality-based permitting of storm water flows given their inherent variability and intermittent volume); *see also* 61 Fed. Reg. 43,761 (August 26, 1996). Additionally, EPA has determined that the Whole Effluent Toxicity Testing reporting requirement is not appropriate for Outfalls 007, 008, and 009. EPA Region 1 typically has not required WET testing for storm water only discharges in NPDES pemits.

The Region therefore proposes to remove the following numeric water quality-based effluent limitations and WET reporting requirements:

Part 1.A.3

Total Copper	Maximum Daily Limit of 0.0074 mg/l
Total Iron	Maximum Daily Limit of 1.010 mg/l

Total Aluminum	Maximum Daily Limit of 0.760 mg/l
Whole Effluent Toxicity Testing	Report

Part 1.A.4

Total Copper	Maximum Daily Limit of 0.0074 mg/l
Total Iron	Maximum Daily Limit of 1.010 mg/l
Total Aluminum	Maximum Daily Limit of 0.760 mg/l
Total Zinc	Maximum Daily Limit of 0.067 mg/l
Whole Effluent Toxicity Testing	Report

Part 1.A.5

Total Copper	Maximum Daily Limit of 0.0074 mg/l
Total Iron	Maximum Daily Limit of 1.010 mg/l
Total Aluminum	Maximum Daily Limit of 0.760 mg/l
Whole Effluent Toxicity Testing	Report

In lieu of the above numeric effluent limits and WET reporting requirements, the Region will impose the following seven Best Management Practices (BMPs) related to Outfalls 007, 008 and 009. The Permittee shall modify its SWPPP to reflect the BMPs below. Any written submittal required under these BMPs is a one time submittal to document completion of the activity required in that specific BMP.

1. The Permittee shall eliminate, replace, or repair the damaged catch basin to outfall 007 as soon as practicable, but not later than thirty (30) days from the effective date of the permit modification, and shall notify EPA in writing when such work has been completed. In the event that local or state permits are required to complete this work, Permittee shall have thirty (30) days from the expiration of any applicable appeal period. In the event that weather interferes with completing this work, the Permittee shall have thirty (30) days from the resumption of suitable weather to complete the work. Where the Permittee determines that the catch basin cannot be eliminated for reasons of flooding or other safety concerns, the Permittee shall replace it with a catch basin of similar design.

2. The Permittee shall clean all storm sewer lines and appurtenances discharging to Outfalls 007, 008 and 009 as soon as practicable, but not later than thirty (30) days from the effective date of the permit modification. In the event that local or state permits are required to complete this work, the Permittee shall have thirty (30) days from the expiration of any applicable appeal

period. In the event that weather interferes with completing this work, the Permittee shall have thirty (30) days from the resumption of suitable weather to complete the work. This includes pipes, culverts, catch basins, junction boxes or other structures located along the entire alignment of each storm sewer discharging to these outfalls. The Permittee shall utilize equipment and methods designed to capture all liquids and solids generated during the cleaning process and dispose of all accumulated wastewater and solid waste in its RMF or in accordance with Massachusetts solid waste regulations. The Permittee shall notify EPA in writing when such work has been completed, and provide an accounting of the material removed from each alignment.

3. The Permittee shall install silt sacks into catch basins serving drainage areas discharging to Outfalls 007, 008 and 009 as soon as practicable, but not later than thirty (30) days from the effective date of the permit modification, and shall notify EPA in writing when such work has been completed. In the event that local or state permits are required to complete this work, the Permittee shall have thirty (30) days from the expiration of any applicable appeal period. In the event that weather interferes with completing this work, the Permittee shall have thirty (30) days from the resumption of suitable weather to complete the work. By this same date, the Permittee shall modify its SWPPP to document the inspection, cleaning and replacement practices for the installed silt sacks.

4. The Permittee shall use vacuum equipment to sweep all paved or impervious areas of its property draining to Outfalls 007, 008, 009 where solids deposition may occur, including roads, driveways, parking areas, sidewalks, loading areas. At a minimum, sweeping shall be completed monthly during Spring, Summer and Fall. During the winter months when weather conditions prevent fulfillment of the required minimum sweeping frequency, the Permittee may adjust or lengthen its scheduled frequency to accommodate sweeping during available periods of acceptable thaw. The Permittee shall ensure that sweepings collected at its facility are reused or disposed in a manner consistent with MassDEP's Policy #BWP-94—092 : Reuse & Disposal of Street Sweepings.

5. The Permittee shall use reasonable efforts to negotiate an agreement with MassHighway and any other entity involved in deicing activity on the site to mitigate potential water quality impacts of deicing chemicals. This shall include, but not be limited to, reasonable adjustments to the type and application (*i.e.*, materials, mode and timing) of deicing chemicals, and the placement of snow piles in accordance with MassDEP's Snow Disposal Guidance No. BRPG01-01. The Permittee shall provide EPA with a brief technical memorandum on the results of such discussions not later than thirty (30) days from the effective date of the permit modification. The memorandum shall include a description of the improvements to current deicing practices, and a date by which such improvements shall be implemented. The Permittee shall promptly notify EPA if any third party entity that agrees to implement improved deicing practices described above fails to do so in the future.

6. The Permittee shall replace filter cake accumulation tote boxes.

7. To the extent practicable for the Outfall 007 and 008 drainage basins, the Permittee shall store

indoors or protect with weather-resistant covers, all stock, forgings, rolloffs, etc. (to minimize exposure to rain and wind). The Permittee shall evaluate the feasibility of storing forgings in the scrap shipping area at the southeast corner of the P&M Building that drains to the RMF. Not later than thirty (30) days from the effective date of the permit modification, the Permittee shall notify EPA in writing to describe the circumstances, if any, in which indoor storage or coverage of such materials is deemed to be impracticable or inadvisable. By this same date, the Permittee shall modify its SWPPP to include this practice and described related procedures, materials and methods.

Upon successful and timely completion of these BMPs, the Permittee may seek authorization under the Multi-Sector General Permit, whose reissuance is pending, or any other current or future program or regulatory scheme for storm water discharges associated with industrial activities from Outfalls 007, 008 and 009. Whether such authorization will be granted will depend on the facts and circumstances in existence at the time of application, including specific legal requirements of the particular program under which coverage is sought. The Region has not prejudged the outcome of these future deliberations.

III. State Certification Requirements

The staff of the Massachusetts Department of Environmental Protection has reviewed this draft permit modification. EPA has requested permit certification by the State pursuant to CWA § 401(a)(1) and 40 C.F.R. § 124.53 and expects that the draft permit modification will be certified.

IV. Public Comment Period, Public Hearing, and Procedures for Final Decision

All persons, including the applicant, who believe the draft permit modification is inappropriate must raise all issues and submit all reasonably available arguments and all supporting material for their arguments in full before the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection (CMP), Region 1, 1 Congress Street, Suite 1100, Boston, MA 02114-2023. Any person, prior to such date, may submit a request in writing to EPA and the state agency for a public hearing to consider the draft permit modification. Such requests shall state the nature of the issues proposed to be raised in the hearing.

A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office. Following the close of the comment period, and after 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. Permits may be appealed to the Environmental Appeals Board in the manner described at 40 C.F.R. § 124.19.

V. 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:

Damien Houlihan (CIP)
Industrial Permits Branch
Office Of Ecosystem Protection
US Environmental Protection Agency
Congress Street, Suite 1100
Boston, MA 02114-2023
Tele: (617) 918-1586

Paul Hogan, Chief
Surface Water Permit Program
Division of Watershed Management
Department of Environmental Protection
627 Main Street, Second Floor
Worcester, MA 01608
Tele: (508) 767-2796

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Date

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

ATTACHMENT A TO STATEMENT OF BASIS

Original Fact Sheet (10/24/05) for Wyman Gordon Draft Permit MA0004341

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02114

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

DATE OF PUBLIC NOTICE: October 24, 2005

NPDES PERMIT NO.: **MA0004341**

NAME AND ADDRESS OF APPLICANT:

WYMAN GORDON COMPANY
244 Worcester Street
North Grafton, MA 01536

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

WYMAN GORDON COMPANY
244 Worcester Street
North Grafton, MA 01536

RECEIVING WATER: **Quinsigamond River (Segment MA51-09) via East Brook & Flint Pond (North Basin - MA851050) via Bonny Brook**

CLASSIFICATION: **Class B, Warm Water Fishery**

I. Proposed Action, Type of Facility and Discharge Location

a. History of Discharges
September 29, 1983 - Permit first issued to facility

September 29, 1989 - Permit reissued

June 5, 1990 - EPA Administrative Order issued (Docket No. 90-22) requiring permittee to submit a Best Management Practices (BMP) plan and perform a Toxicity Reduction Evaluation (TRE). The permittee failed to develop and submit a Best Management Practices plan within 120 days of effective date of the permit and failed to provide the sampling results from the discharge at outfall 003 and violation of effluent limits contained in the permit. This resulted in an Administrative Order being issued by EPA.

November 22, 1991 - EPA Administrative Order issued (Docket No. 92-05) requiring permittee to comply with permit effluent limitations.

1993 - EPA Administrative Order issued (Docket No. 93-04) requiring permittee to submit plans, complete construction of Runoff Management Facility (RMF) and new Oily Wastewater Pretreatment System (OWPS) and close Impoundment 001, existing OWPS and API Oil/Water Separator.

1995 - Construction of RMF complete, outfalls 003 and 011 eliminated, impoundment 001 backfilled and outfall 001 reconfigured to be used with RMF

June 30, 1997 - Permit reissued

Note: Outfall 003 and 011 located on the west side of the site, discharged into Bonny Brook which flows into Flint Pond. These outfalls were abandoned and the flow from outfall 003 was split. A portion of the flow went to outfall 008 which discharges into Bonny Brook and the majority went to outfall 010/001, which discharges to the Quinsigamond River. Past monitoring of outfall 003 revealed traces of Volatile Organic Compounds (VOCs). This monitoring requirement has been retained for outfalls 008 and 010/001 in the draft permit to protect against the possibility of rebound of contaminant levels following cleanup activities performed on the site.

b. Facility Overview

The Wyman Gordon Company, located in North Grafton, Massachusetts, manufactures ferrous and non-ferrous metal forgings. These products are used primarily as structural members or engine components for military and commercial aircraft applications.

The company has applied to the U.S. Environmental Protection Agency for the reissuance of its NPDES permit to discharge storm water, non-contact cooling water and process wastewater.

The water used in the manufacturing process is taken from the following sources: 1) process wastewater, non-contact cooling water and storm water that is treated and stored for recycle; 2) on-site wells; 3) water from the Quinsigamond River; and, 4) town water supplies. The amount of water used from the river and on-site wells was minimal in comparison to yearly total water use. Total river withdrawal for 2004 was 110,200 gallons and total water withdrawn from the on-site wells for 2004 was 768,440 gallons. Water pumped from the river and wells goes directly to the water towers for use as process water and fire water. The average rate for process water use is approximately 100,000 to 150,000 gallons per day. The permittee's application for permit renewal in January 2002 indicated an approximate flow rate of process wastewater to the RMF of 60,000 to 80,000 gpd. The remainder of the process wastewater (approx 60,000 gpd) goes to the Grafton Rinsewater Pretreatment Plant (GRPP) which then discharges into the Town of Grafton sewer and on to the Grafton Wastewater Treatment Plant.

The facility has a total of five outfalls. (See Attachment C) Outfalls 007, 008 and 009 discharge only storm water. Outfalls 007 and 008 discharge to Bonny Brook which flows into Flint Pond.

Outfall 009 discharges to an unnamed tributary of the East Brook which flows to the Quinsigamond River.
There is also the possibility of discharge of mixed process wastewaters, storm water and non-contact cooling water from outfalls 001 and 010 to the Quinsigamond River. These discharges only occur during times of hydraulic overloading of the Runoff Management Facility (RMF) as described below.

II. Description of Discharge

The site is divided up into four separate storm water drainage areas (See Attachment H). The runoff from Drainage Area A (approx. 22.5 acres) mixes with process waste water and non-contact cooling water prior to draining into the RMF. The mixed waste stream is treated, and, during certain rain events, discharges from outfall 010 and possibly 001, depending on the volume of flow from the rainfall event. Outfall 010, located on the east side of the facility, discharges into the Quinsigamond River. Outfall 001, also located on the east side of the facility and south of the RMF, discharges into East Brook which flows into the Quinsigamond River.

Effluent monitoring data from August 1997 through April 2004 are summarized in Attachment D (outfalls 007, 008, 009, 001 and 010). This data summary was reviewed and used to develop this permit. The data was collected under the terms of the 1997 permit.

a. Outfall 001 and 010

The process wastewater stream going to the RMF for treatment consists of forge process and miscellaneous wastewater, production non-contact cooling water, blowdown/overfill, storm water from drainage Area A, forge shop sonic stock inspection wastewater, forge shop boiler and water treatment blow down. In addition, the oily wastewater pretreatment system (OWPS) discharges pretreated heat treatment operations wastewater and hydraulic wastewater from the forge presses to the RMF. These wastewaters flow into the RMF for treatment prior to storage in two (2) - 1.5 million gallon storage tanks. This wastewater is then recycled for use as process water for the facility's operations.

The RMF is comprised of a grit chamber, a sedimentation basin (with oil and grease skimming), a rapid sand filter, and storage. (See Attachment F) During dry periods there is no discharge from the RMF as all process wastewater is treated, stored and reused. The RMF has been designed for maximum flow from a 25 year 24 hour storm event. Rain events in excess of that may result in a discharge from outfall 010 up to a flow rate of 1.4 cfs, with any flow in excess of that rate discharging from outfall 001.

b. Outfalls 007, 008 and 009

Outfall 007

Drainage area B (approximately 2.6 acres) discharges through outfall 007 into Bonny Brook and on to Flint Pond. Outfall 007 is located on the west side of the facility. Discharge monitoring report (DMR) data from August 1997 to April 2004 indicate an average flow of approximately 20,000 gallons per day (gpd). The entire discharge consists of storm water flow.

Outfall 008
Drainage area C (approximately 19.7 acres) discharges through outfall 008 into Bonny Brook and on to Flint Pond. Outfall 008 is located on the west side of the facility. DMR sampling results from August 1997 to April 2004 indicate an average flow of approximately 67,000 gpd. The entire discharge consists of storm water flow.

Outfall 009
Drainage area D (approximately 30.1 acres) from the Wyman Gordon facility and additional acres from a tie in of the catch basins in the surrounding neighborhood and Route 122, discharges through outfall 009 to an unnamed tributary to East Brook to the Quinsigamond River. Outfall 009 is located on the southeast corner of the property. DMR sampling results from August 1997 to April 2004 indicate an average flow of approximately 167,000 gpd. The entire discharge consists of storm water flow.

c. Receiving Water Description
The facility discharges into three different waterways, Bonny Brook, East Brook and the Quinsigamond River. Bonny Brook flows along the western edge of the property to Flint Pond. East Brook, located on the east side of the plant, flows to the Quinsigamond River. The 1998 Water Quality Assessment Report for the Blackstone River Basin (MA DEP Report Number: 51-AC) does not address Bonny Brook or the East Brook which receive the discharge of outfalls 007/008 and 009/001 respectively. The downstream receiving water bodies, Flint Pond and the Quinsigamond River, were listed in the State of Massachusetts Year 2002 Integrated List of Waters (MA DEP, CN:125.2, September, 2003) as described below. Outfall 010 discharges directly into the Quinsigamond River.

d. Receiving Water Classification
Flint Pond (north basin)(Basin Code MA851050) is approximately 84 acres in size. It is listed in the Massachusetts Year 2002 Integrated List of Waters (September, 2003) under 303(d) List of Impaired Waters as a Category 4c water. Category 4c, which are waters with "Impairment not caused by a pollutant." The list contains those water bodies that are impaired by factors such as flow modification or habitat alteration that are not subjected to TMDL calculations because the impairment is not related to one or more pollutants. Section 305(b) of the Federal Clean Water Act (CWA) requires states to prepare and submit a biennial report to EPA which describes the water quality of all navigable waters in their state. Flint Pond has been identified as being impaired for noxious aquatic plants, non-native plants and turbidity.

Quinsigamond River (Stream Segment MA51-09) is approximately 5.3 miles in length. It is listed in the Massachusetts Year 2002 Integrated List of Waters (September, 2003) under 305(b) List of Impaired Waters as a Category 3 water, which are waters with "no uses assessed." Category 3 contains those waters for which insufficient or no information was available to assess any uses.

In the 1998 Water Quality Assessment Report for the Blackstone River Watershed, both Quinsigamond River and Flint Pond have been listed as Class B waters under the Massachusetts Surface Water Quality Standards. Title 314 Code of Massachusetts Regulations ("CMR")

4.05(3)(b) states that Class B waters have the following designated uses: *These waters are designated as habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment, They 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.*

In February of 2002, the permittee received a letter from EPA stating that its reapplication for a NPDES permit was complete. Since then, a family of beavers has constructed a dam which has restricted the flow of Bonny Brook and created an impoundment. This impoundment has submerged outfalls 007 and 008 and completely flooded the drainage system associated with outfall 008. During most rain events, the parking lot which comprises the majority of the drainage area for outfall 008 is submerged. The permittee has stated that they have been unable to get representative samples for the monitoring required for outfalls 007 and 008 since at least spring of 2005. The permittee has been working with the Town of Grafton's Conservation Commission and Board of Health in an effort to reduce the impact of the beavers' dam building activities. They have recently received permission for a partial breach of the dam using only hand tools and they are unsure as to what effect the breach will have on the current water levels.

e. Receiving Water and Dilution

When establishing water quality based effluent limits and where water quality standards allow, a dilution factor may be applied based on the 7Q10 flow of the receiving stream where appropriate. (40 CFR 122.44(d)(2) In Massachusetts the 7Q10 flow for rivers and streams is defined as the lowest flow condition at and above which criteria must be met and is the lowest mean flow for seven consecutive days to be expected once in ten years. (314 CMR 4.03(3)(a))

Outfall 010

Outfall 010 discharges at a max rate of 1.4 cfs into the Quinsigamond River. When calculating dilution associated with the discharge into a stream, critical flow (7Q10) is used. The 7Q10 flow for this stretch of the Quinsigamond River is 0.48 cfs. This information was gathered from the Gazeteer of Hydrologic Characteristics of Streams in Massachusetts - Blackstone River Basin; U.S. Geological Survey - Water Resources Investigations Report 84-4286. USGS flow data from a gage station located approximately 800 feet downstream from Hovey Pond. If part or all of the water supply is taken from any other location (Qo) is discharged in the effluent, then the formula used is:

$DF = (Qs + Qo)/Qe$
Qs = 7Q10 flow = 0.48 cfs
Qo = stormwater discharge=effluent flow = 1.4 cfs
Qe = effluent flow = 1.4 cfs
$DF = (0.48 + 1.4)/1.4 = 1.34$

The resultant dilution factor is 1.34.

Outfalls 001 and 009

The discharges from outfalls 001 and 009 flow into East Brook. East Brook is a slow moving lowland stream that meanders through a wetland with very little velocity and flow. The State of Massachusetts Water Quality Standards (314 CMR 4.03(2)) and common practice do not allow the use of a dilution factor in calculating effluent limits when the discharge is into a wetland or marsh environment. Therefore, no dilution factor will be used in the determination of the effluent limits for the discharge from outfalls 009 and 001 into East Brook.

Outfalls 007 and 008

Discharges from outfalls 007 and 008 only occur during a rainfall event. EPA guidance requires the use of the critical flow (7Q10 flow) for calculation of the dilution factor. The fact sheet from the previous permit listed the 7Q10 flow for Bonny Brook as 2,000 gpd or .003 cfs. (See Attachment E) The maximum combined daily storm water flow from outfalls 007 and 008 is 356,500 gpd or 0.552 cfs. The ratio of storm water flow to stream flow is approximately 178 to 1. Under this scenario, the streamflow is almost entirely made up of storm water.

$DF = (Qs + Qo)/Qe$
Qs = 7Q10 flow = 0.003 cfs
Qo = stormwater discharge=effluent flow = 0.552 cfs
Qe = effluent flow = 0.552 cfs
$DF = (0.003 + 0.552)/0.552 = 1.01$

The resultant dilution factor is 1.01.

III. Limitations and Conditions

Effluent limitations, monitoring requirements, and implementation schedule (if required) may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limit Derivation

a. 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.

EPA is required to consider (a) technology-based requirements, (b) water quality-based requirements, and (c) all limitations and requirements in the current existing permit, when developing permit limits. These requirements are described in the following paragraphs.

b. Technology-Based Requirements

Section 301(b)(2)(A) and (E) of the CWA provided that by July 1, 1984, industry must have met limitations based on Best Available Technology Economically Achievable (BAT) for toxic pollutants and Best Conventional Pollutant Control Technology (BCT) for conventional pollutants (BOD, TSS, pH, Oil & Grease and Fecal Coliform). In the absence of technology-based guidelines, EPA is authorized to use Best Professional Judgement (BPJ) to establish effluent limitations, in accordance with Section 402(a)(1) of the CWA.

Best Professional Judgement (BPJ)

EPA can impose technology based treatment requirements on a case-by-case basis under Best Professional Judgement (BPJ) to the extent that EPA-promulgated effluent limitations are inapplicable. The authority for BPJ is contained in Section 402(a)(1) of the CWA, which authorizes the EPA Administrator to issue a permit containing "such conditions as the Administrator determines are necessary to carry out the provisions of the Act." The NPDES regulations in 40 CFR §125.3(c)(2) state that permits developed on a case-by-case basis under Section 402(a)(1) of the CWA must consider (*i*) the appropriate technology for the category class of point sources of which the applicant is a member, based on available information, and (*ii*) any unique factors relating to the applicant.

c. Water Quality-Based Requirements

Section 301(b)(1(C) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water. This is necessary when technology based limitations would interfere with the attainment or maintenance of water quality in the receiving water.

Under Section 301(b)(1)(C) of the CWA and EPA regulations, NPDES permits must contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards.

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 criteria is established.

The draft permit must limit 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 permit's re-issuance application, monthly discharge monitoring reports (DMRs), 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.

d. Anti-backsliding

Anti-backsliding as defined at 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. As explained above, anti-backsliding applies to limits contained in this permit and, therefore, these limits are continued in the draft permit.

e. Anti-degradation

The Commonwealth of Massachusetts' anti-degradation provisions found in 314 CMR 4.04 ensure that provisions in 40 CFR Section 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. This draft permit is being reissued with effluent limits that are stricter than the current permit. The State is also asked to certify the anti-degradation provisions in State law are met.

f. Facility Information

Up until early in 1995, the permittee discharged various process wastewater, non contact cooling water and storm water runoff into impoundment 001 prior to discharge through outfall 001. Outfall 001 discharged into East Brook to the Quinsigamond River. Under an EPA Administrative Order (Docket No. 93-04), the permittee constructed a new Oily Wastewater Pretreatment System (OWPS) and a Runoff Management Facility (RMF). This resulted in a reduction in the number of discharges of process wastewater mixed with storm water and reduced the amount of water withdrawn for process water supplies. The RMF, which became operational in January of 1995, replaced the impoundment and associated discharge at Outfall 001.

Storm water runoff flow to the RMF averages about 36,000 gallons per day (gpd). For design flow purposes, a 25-year, 24-hour rain event was used to size the sedimentation tank. Based on information submitted by the permittee, the peak flow rate from such an event would be approximately 70 cfs or 45.2 mgd. This is the maximum design capacity of the existing drains. The RMF influent piping is based on this flow.

The RMF collects and treats storm water and process wastewater for recycle to the manufacturing facility. The RMF is designed for the following operations:

1.) Combine existing storm sewers which had discharged to Impoundment 001 via a junction chamber and route their flows to the RMF;

2.) Remove grit and floating oil in a grit chamber through the use of an underflow weir. In the event of a spill in the RMF drainage basin, divert the RMF influent to a separate 180,000 gallon spill collection tank at the RMF;

3.) Collect storm water and process wastewater in an in-ground sedimentation tank;

4.) Treat storm water and process wastewater in the RMF using sedimentation (in-tank), oil skimming and sand filtration;

5.) Store treated storm water and process wastewater in aboveground water recycle tanks (2 - 1.5 million gallon tanks); and

6.) Distribute recycle water (treated storm water and process wastewater) through the existing process water supply system. The existing Quinsigamond River Pump House fire water supply system will remain independent of the recycle (process) water system.

The sedimentation basin was sized to retain the design storm volume (25 year, 24 hour storm event) and process water flows as well as to provide adequate surface area and retention time for solids settling and to serve as an equalization tank.

g. Site Remediation

The site is classified under the Massachusetts Contingency Plan (MCP) as a Tier IA site. A Tier IA site is an oil or hazardous waste site that has received a high enough score on the MCP's Numerical Ranking System (M.G.L. c. 21E 310 CMR 40) to merit direct MA DEP oversight of the cleanup. The permittee has several remediation sites on the facility's property. Several of these sites have reached closure status. The current permit requires the permittee to sample outfalls 001,010 and 008 and report for tetrachloroethylene and trichloroethylene. These particular contaminants have been discovered in the discharge from the RMF (outfalls 001 and 010) and outfall 008. The permittee has indicated that these contaminants were seeping in from groundwater infiltration and were showing up in the effluent several years ago. The permittee has stated that several cleanup activities performed on the site appear to have lowered the levels of VOCs in the groundwater to such an extent that there has been low to no VOC discharges from outfalls 001, 010 and 008 since 1999. (See Attachment D) The permittee also stated that these chemicals are not used in any of their processes and that the contamination was from previous processes no longer performed at this site.

h. Derivation of Effluent Limits

Currently the requirements for the outfalls 007, 008 and 009 require the permittee to monitor and report their findings. A review of the discharge monitoring report summary submitted by the permittee for this facility indicate several elevated levels for the screened pollutants sampled for in the storm water discharges that are well above the State's water quality criteria. EPA determined that strict adherence to the procedures outlined in the permittee's Storm Water Pollution

Prevention Plan (SWPPP) should help to reduce the pollutant levels currently found in the discharge from these outfalls.

However, the current levels of pollutants detected in the outfalls (See Attachment D) indicate that there is "reasonable potential" for some of the criteria to exceed the surface water quality standards of the Commonwealth of Massachusetts. Therefore, EPA believes there is sufficient cause to include new effluent limits for some pollutants on several outfalls that previously had monitor only requirements. The draft permit also reduces some of the monitoring requirements for several of the criteria at each of the outfalls because reported sample results indicated no "reasonable potential" to exceed the water quality standards. Only the criteria that showed no "reasonable potential" to exceed surface water quality standards are being reduced in frequency or eliminated from the monitoring requirements of this draft permit.

A review of the permit application, past monitoring data, and the manufacturing process, indicates that the following pollutants are anticipated to be present in the discharge: Copper, Nickel, Aluminum, Lead, Iron, Trichloroethylene, Tetrachloroethylene, Arsenic, Zinc, Mercury, Total Suspended Solids (TSS), pH, and Oil and Grease. The effluent limits and monitoring requirements are described below.

Outfall 007

Flow - Report (mgd)

Discharge to Bonny Brook, which flows to Flint Pond, occurs only during periods of wet weather and consists of storm water flow. The permittee shall continue to monitor and report flow measurement results.

pH - range 6.5 - 8.3 standard units (S.U.)

The MA Surface Water Quality Standards (314 CMR 4.05(3)(a)3) for a Class B water requires a pH limit range of "between 6.5 and 8.3 S.U., or shall be within 0.5 units of the background level" in order to account for the low pH of storm water. This limit remains unchanged in the draft permit.

If the permittee's reported pH results are outside the range of 6.5 - 8.3 S.U. due to background conditions (rainfall), the permittee shall indicate on the DMR that the rainfall pH was outside the range of 6.5 - 8.3 S. U. and that the pH of the outfall's discharge was within 0.5 S.U. of the rainfall's pH level. The Draft Permit allows for the pH limits to be exceeded when the ambient pH in the rainwater is outside of the required range and the pH of the discharge is not altered by the facility's activities by more than 0.5 S.U..

Oil and Grease - 15 mg/l

The maximum daily limit for oil and grease is based on Massachusetts Water Quality Standards. The Massachusetts Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b)(7), state: *These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.* A concentration of 15 mg/l is

recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish (EPA Water Quality Criteria, 1972). The maximum daily limit for oil and grease of 15 mg/l is included to ensure compliance with state water quality standards. This limit has been included for similar facilities in Massachusetts. This limit remains unchanged in the draft permit from the existing permit's limit.

TSS - Report (mg/l)

Flint Pond has been identified by the MA DEP (Massachusetts Year 2002 Integrated List of Waters, Part 2 - Final Listing of Individual Categories of Waters/CN:125.2/September 2003) as having an impairment not caused by a pollutant. One of the impairments is turbidity. The current permit requires the permittee to monitor and report Total Suspended Solids measurements.

This outfall discharges storm water only. In developing the Storm Water Multi-Sector General Permit, EPA established benchmark levels to compare each industry averages to determine which industries would be required to monitor its storm water. The general permit states, "The benchmarks are the pollutant concentrations above which EPA determined represents a level of concern. The level of concern is a concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmarks are also viewed by EPA as a level that, if below, a facility presents little potential for water quality concerns." These water quality based levels represent the maximum concentration to be discharged.

Proper implementation of the Storm Water Pollution Prevention Plan (SWPPP), which is a condition of this draft permit, should properly control the levels of TSS in the discharge to below the benchmark level of 100 mg/l (Source: National Urban Runoff Program - NURP). Based on a review of the DMR data submitted by the permittee, EPA does not anticipate that this discharge will approach the benchmark levels for TSS or significantly contribute to the impairment of Flint Pond. The draft permit will continue the monitoring of this criteria. However, should the TSS levels approach or exceed the 100 mg/l benchmark level, the draft permit requires that the permittee evaluate and revise, if necessary, its SWPPP to minimize solids runoff.

Copper - 0.0074 mg/l

Monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for copper.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10,1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047), as revised in the Federal Register on: December 27, 2002, Volume 67, Number 249) and as adopted by the MA DEP into the Massachusetts *Surface Water Quality Standards* (314 CMR 4.00). The acute criteria was used because it was more applicable to the type of flow that results from intermittent storm water flow. The permit limit for copper represents a total recoverable criteria, whereas the EPA National Recommended Water Quality Criteria for copper is a dissolved criteria. Therefore, to calculate a permit limit for copper, a translator must be used. (See Attachment J)

Copper is a hardness dependent metal. Therefore, the concentration of available copper in the receiving water is dependent on the receiving water's hardness. EPA's Health and Ecological Criteria Division affirms that the concentration of the hardness downstream of the permittee's discharge is to be used in the calculation of permit limits for hardness dependent metals. (See Attachment J for a sample calculation)

A dilution factor of 1.01 will be used in the calculation of effluent limits for this outfall as explained in Section II (page 6) of this fact sheet.

The acute (Maximum Daily) water quality based limitation for Total Recoverable Copper is 7.3 µg/l. Multiplying 7.3 µg/l by the dilution factor of 1.01 results in a new maximum daily limit of 7.4 µg/l for Copper, which would be protective of the water resource and is included in the draft permit.

Aluminum - 0.750 mg/l

Monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for aluminum.

The limit will be based on the acute ambient freshwater water quality criteria for aluminum which is 750 µg/l. (State of Massachusetts Surface Water Quality Standards 314 CMR 4.00) The acute criteria was used because it was more applicable to the type of flow coming from intermittent storm water flow.

Aluminum is not a hardness dependent metal.

The acute (Maximum Daily) water quality based limitation for Total Aluminum is 750 µg/l. A new maximum daily limit of 750 µg/l for Aluminum would be protective of the water resource and is included in this draft permit.

Iron - 1.0 mg/l

Recent monitoring data (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for iron. A new effluent limit will be placed on iron based on the State of MA Water Quality Standards. In determining the effluent limit for iron, EPA has no recommended acute water quality criteria for iron, but does have a recommended value for chronic criteria. The EPA recommended chronic water quality standard for iron is 1000 µg/l. The permittee has had numerous effluent concentration excursions above the chronic criteria for iron. EPA believes, that based on past reported iron levels and to be protective of the water resource, that it is appropriate to use the chronic number for an effluent limit for iron. Iron is not a hardness based metal. The draft permit includes a new maximum daily limit of 1000 µg/l for iron.

Nickel

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Lead

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Whole Effluent Toxicity

Whole effluent toxicity testing is conducted to try and assess whether or not certain effluents, often containing potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Thus, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

There are two specific sources of legal authority which explain how regulatory authorities have the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Sections 402(a) (2) and 308(a) of the Clean Water Act provide EPA and States with the authority to require toxicity testing data. Section 308 specifically describes biological monitoring methods as techniques which may be used to carry out objectives of the Act. Under certain State narrative 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."

40 CFR Part 122.44(d) (ii) states, " When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution ...(including) the sensitivity of the species to toxicity testing...."

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, WET is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Because of the number of toxics and the fluctuations of their pollutant levels in the discharge from the facility, the draft permit includes a new requirement of an annual WET test for this outfall.

Outfall 008

Flow - Report (mgd)
Discharge to Bonny Brook, which flows to Flint Pond, occurs only during periods of wet weather and consists of storm water flow. The permittee shall continue to monitor and report flow measurement results.

pH - range 6.5 - 8.3 standard units (S.U.)
The MA Surface Water Quality Standards (314 CMR 4.05(3)(a)3) for a Class B water requires a pH limit range of "between 6.5 and 8.3 S.U., or shall be within 0.5 units of the background level" in order to account for the low pH of storm water. This limit remains unchanged in the draft permit.

If the permittee's reported pH results are outside the range of 6.5 - 8.3 S.U. due to background conditions (rainfall), the permittee shall indicate on the DMR that the rainfall pH was outside the range of 6.5 - 8.3 S. U. and that the pH of the outfall's discharge was within 0.5 S.U. of the rainfall's pH level. The Draft Permit allows for the pH limits to be exceeded when the ambient pH in the rainwater is outside of the required range and the pH of the discharge is not altered by the facilities activities by more than 0.5 S.U..

Oil and Grease - 15 mg/l
The maximum daily limit for oil and grease is based on Massachusetts Water Quality Standards. The Massachusetts Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b)(7), state: *These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.* A concentration of 15 mg/l is recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish (EPA Water Quality Criteria, 1972). The maximum daily limit for oil and grease of 15 mg/l is included to ensure compliance with state water quality standards. This limit has been included for similar facilities in Massachusetts. This limit remains unchanged in the draft permit.

TSS - Report (mg/l)
Flint Pond has been identified by the MA DEP (Massachusetts Year 2002 Integrated List of Waters, Part 2 - Final Listing of Individual Categories of Waters/CN:125.2/September 2003) as having an impairment not caused by a pollutant. One of the impairments is turbidity. The current permit requires the permittee to monitor and report Total Suspended Solids measurements.

This outfall discharges storm water only. In developing the Storm Water Multi-Sector General Permit, EPA established benchmark levels to compare each industry averages to determine which industries would be required to monitor its storm water. The general permit states, "The benchmarks are the pollutant concentrations above which EPA determined represents a level of concern. The level of concern is a concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The benchmarks are also viewed by EPA as a level that, if below, a facility presents little potential for water quality concerns." These water quality based levels represent the maximum concentration to be discharged.

Proper implementation of the Storm Water Pollution Prevention Plan (SWPPP), which is a condition of this draft permit, should properly control the levels of TSS in the discharge to below the benchmark level of 100 mg/l (Source: National Urban Runoff Program - NURP). Based on a review of the DMR data submitted by the permittee, EPA does not anticipate that this discharge will approach the benchmark levels for TSS or significantly contribute to the impairment of Flint Pond. The draft permit will continue the monitoring of this criteria. However, should the TSS levels approach or exceed the 100 mg/l benchmark level, the draft permit requires that the permittee evaluate and revise, if necessary, its SWPPP to minimize solids runoff.

Copper - 0.0074 mg/l

Monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for copper.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10,1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047), as revised in the Federal Register on: December 27, 2002, Volume 67, Number 249) and as adopted by the MA DEP into the Massachusetts *Surface Water Quality Standards* (314 CMR 4.00). The acute criteria was used because it was more applicable to the type of flow that results from intermittent storm water flow. The permit limit for copper represents a total recoverable criteria, whereas the EPA National Recommended Water Quality Criteria for copper is a dissolved criteria. Therefore, to calculate a permit limit for copper, a translator must be used. (See Attachment J)

Copper is a hardness dependent metal. The concentration of available copper is dependent on the hardness of the water it is contained in. EPA's Health and Ecological Criteria Division affirms that the concentration of the hardness downstream of the permittee's discharge is to be used in the calculation of permit limits for hardness dependent metals. (See Attachment J for a sample calculation)

A dilution factor of 1.01 will be used in the calculation of effluent limits for this outfall as explained in Section II (page 6) of this fact sheet.

The acute (Maximum Daily) water quality based limitation for Total Recoverable Copper is 7.3 µg/l. Multiplying 7.3 µg/l by the dilution factor of 1.01 results in a new maximum daily limit of 7.4 µg/l for Copper, which would be protective of the water resource and is included in the draft permit.

Iron - 1.0 mg/l

Recent monitoring data (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for iron. A new effluent limit will be placed on iron based on the State of MA Water Quality Standards. In determining the effluent limit for iron, EPA has no recommended acute water quality criteria for iron, but does have a recommended value for chronic criteria. The EPA recommended chronic water quality standard for iron is 1000 µg/l. The permittee has had numerous effluent concentration excursions above the chronic criteria

for iron. EPA believes, that based on past reported iron levels and to be protective of the water resource, that it is appropriate to use the chronic number for an effluent limit for iron. Iron is not a hardness based metal. The draft permit includes a new maximum daily limit of 1000 µg/l for iron.

Zinc - 0.067 mg/l

Monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for zinc.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10,1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047), as revised in the Federal Register on: December 27, 2002, Volume 67, Number 249) and as adopted by the MA DEP into the Massachusetts *Surface Water Quality Standards* (314 CMR 4.00). The acute criteria was used because it was more applicable to the type of flow that results from intermittent storm water flow. The permit limit for zinc represents a total recoverable criteria, whereas the EPA National Recommended Water Quality Criteria for zinc is a dissolved criteria. Therefore, to calculate a permit limit for zinc, a translator must be used. (See Attachment J)

Zinc is a hardness dependent metal. The concentration of available zinc is dependent on the hardness of the water it is contained in. EPA's Health and Ecological Criteria Division affirms that the concentration of the hardness downstream of the permittee's discharge is to be used in the calculation of permit limits for hardness dependent metals. (See Attachment J for a sample calculation)

A dilution factor of 1.01 will be used in the calculation of effluent limits for this outfall as explained in Section II (page 7) of this fact sheet.

The acute (Maximum Daily) water quality based limitation for Total Recoverable Zinc is 66.6 µg/l. Multiplying 66.6 µg/l by the dilution factor of 1.01 results in a new maximum daily limit of 67.3 µg/l for Zinc, which would be protective of the water resource and is included in the draft permit.

Aluminum

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Nickel

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Lead

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Arsenic
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Mercury
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts due to this discharge. The draft permit removes the previous requirement for monitoring of this criteria.

Trichloroethylene
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Tetrachloroethylene
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Toxicity Testing
Under the current permit, the permittee is required to perform an annual toxicity test on the discharge from outfall 008. The last time the LC50 limit was exceeded was in June of 1998. All test results since then have shown no toxicity. EPA believes that this testing should continue in spite of that, due to the fluctuations of other toxic contaminant levels. There does not seem to be any kind of pattern for rising or falling toxic pollutant levels in the discharge. The draft permit requires the continued annual WET testing as exists in the current permit with proper chemistry per testing protocol. (see Attachments A & B)

Outfall 009
Flow - Report (mgd)
Discharge to East Brook, which flows to the Quinsigamond River, occurs only during periods of wet weather and consists of storm water flow. The permittee shall continue to monitor and report flow measurement results.

pH - range 6.5 - 8.3 standard units (S.U.)
The MA Surface Water Quality Standards (314 CMR 4.05(3)(a)3) for a Class B water requires a pH limit range of "between 6.5 and 8.3 S.U., or shall be within 0.5 units of the background level" In order to account for the low pH of storm water. This limit remains unchanged in the draft permit.

If the permittee's reported pH results are outside the range of 6.5 - 8.3 S.U. due to background conditions (rainfall), the permittee shall indicate on the DMR that the rainfall pH was outside the range of 6.5 - 8.3 S. U. and that the pH of the outfall's discharge was within 0.5 S.U. of the rainfall's pH level. The Draft Permit allows for the pH limits to be exceeded when the ambient pH in the rainwater is outside of the required range and the pH of the discharge is not altered by the facilities activities by more than 0.5 S.U..

Oil and Grease - 15 mg/l

The maximum daily limit for oil and grease is based on Massachusetts Water Quality Standards. The Massachusetts Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b)(7), state: *These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.* A concentration of 15 mg/l is recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish (EPA Water Quality Criteria, 1972). The maximum daily limit for oil and grease of 15 mg/l is included to ensure compliance with state water quality standards. This limit has been included for similar facilities in Massachusetts. This limit remains unchanged in the draft permit.

TSS - Report (mg/l)

The current permit requires the permittee to monitor and report Total Suspended Solids measurements.

Proper implementation of the Storm Water Pollution Prevention Plan (SWPPP), which is a condition of this draft permit, should properly control the levels of TSS in the discharge to below the benchmark level of 100 mg/l (Source: National Urban Runoff Program - NURP). Based on a review of the DMR data submitted by the permittee, EPA does not anticipate that this discharge will approach the benchmark levels for TSS. The draft permit will continue the monitoring of this criteria. However, should the TSS levels approach or exceed the 100 mg/l benchmark level, the draft permit requires that the permittee evaluate and revise, if necessary, its SWPPP to minimize solids runoff.

Copper - 0.0073 mg/l

Monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for copper.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10,1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047), as revised in the Federal Register on: December 27, 2002, Volume 67, Number 249) and as adopted by the MA DEP into the Massachusetts *Surface Water Quality Standards* (314 CMR 4.00). The acute criteria was used because it was more applicable to the type of flow that results from intermittent storm water flow. The permit limit for copper represents a total recoverable criteria, whereas the EPA National Recommended Water Quality Criteria for copper is a dissolved

criteria. Therefore, to calculate a permit limit for copper, a translator must be used. (See Attachment J)

Copper is a hardness dependent metal. The concentration of available copper is dependent on the hardness of the water it is contained in. EPA's Health and Ecological Criteria Division affirms that the concentration of the hardness downstream of the permittee's discharge is to be used in the calculation of permit limits for hardness dependent metals. (See Attachment J for a sample calculation)

The acute (Maximum Daily) water quality based limitation for Total Recoverable Copper is 7.3 µg/l. A new maximum daily limit of 7.3 µg/l for Copper would be protective of the water resource and is included in the draft permit.

Aluminum - 0.750 mg/l

Monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for aluminum.

The limit will be based on the acute ambient water quality criteria for aluminum which is 750 µg/l. (State of Massachusetts Surface Water Quality Standards 314 CMR 4.00) The acute criteria was used because it was more applicable to the type of flow coming from intermittent storm water flow.

Aluminum is not a hardness dependent metal.

The acute (Maximum Daily) water quality based limitation for Total Aluminum is 750 µg/l. A new maximum daily limit of 750 µg/l for Aluminum would be protective of the water resource and is included in the draft permit.

Iron - 1.0 mg/l

Recent monitoring data (DMR summary 1997-2004 - Attachment D) indicate the "reasonable potential" to exceed the water quality standards for iron. A new effluent limit will be placed on iron based on the State of MA Water Quality Standards. In determining the effluent limit for Iron, EPA has no recommended acute water quality criteria for iron, but does have a recommended value for chronic criteria. The EPA recommended chronic water quality standard for iron is 1000 µg/l. The permittee has had numerous effluent concentration excursions above the chronic criteria for iron. EPA believes, that based on past reported iron levels and to be protective of the water resource, that it is appropriate to use the chronic number for an effluent limit for iron. Iron is not a hardness based metal. The draft permit includes a new maximum daily limit of 1000 µg/l for Iron.

Nickel

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Lead

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Whole Effluent Toxicity

Whole effluent toxicity testing is conducted to try and assess whether or not certain effluents, often containing potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Thus, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

There are two specific sources of legal authority which explain how regulatory authorities have the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Sections 402(a) (2) and 308(a) of the Clean Water Act provide EPA and States with the authority to require toxicity testing data. Section 308 specifically describes biological monitoring methods as techniques which may be used to carry out objectives of the Act. Under certain State narrative 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."

40 CFR Part 122.44(d) (ii) states, " When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution ...(including) the sensitivity of the species to toxicity testing...."

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, WET is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Because of the number of toxics and the fluctuations of their pollutant levels in the discharge from the facility, the draft permit includes a new requirement of an annual WET test for this outfall.

Outfall 001

Flow - Report (MGD)

Wyman Gordon draws its process water from two 1.5 million gallon storage tanks that contain recycled process wastewater and storm water at a flow rate of approximately 100,000 - 150,000 gallons per day. Approximately half of this flow discharges, following pretreatment, to the Town of Grafton WWTP. Since discharges from outfall 001 only occur during rainfall events, the flow rates vary widely. The draft permit requires the permittee to monitor and report flow from all outfalls.

Oil and Grease - 15 mg/l

The applicable ELGs found in 40 CFR Part 438 - Metal Products and Machinery Point Source Category require an effluent limit of 46 mg/l for Oil and Grease.

However, the current permit includes an effluent limit for Oil and Grease of 15 mg/l. The maximum daily limit for oil and grease is based on Massachusetts Water Quality Standards. The Massachusetts Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b)(7), state: *These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.* A concentration of 15 mg/l is recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish (EPA Water Quality Criteria, 1972). The maximum daily limit for oil and grease of 15 mg/l is included to ensure compliance with state water quality standards. This limit has been included for similar facilities in Massachusetts.

When the ELG based limits differ from the water quality based limits, the more stringent limits apply. Also, since the more stringent limit was included in the last permit, to avoid backsliding, this limit remains unchanged in the draft permit.

pH - range 6.5 - 8.3 standard units (S.U.)

The applicable ELGs found in 40 CFR Part 438 - Metal Products and Machinery Point Source Category require a pH limit range of 6.0 to 9.0 S.U., However, the MA Surface Water Quality Standards (314 CMR 4.05(3)(a)3) for a Class B water requires a pH limit range of "between 6.5 and 8.3 S.U., or shall be within 0.5 units of the background level" In order to account for the low pH of storm water. This limit remains unchanged in the draft permit.

If the permittee's reported pH results are outside the range of 6.5 - 8.3 S.U. due to background conditions (rainfall), the permittee shall indicate on the DMR that the rainfall pH was outside the range of 6.5 - 8.3 S. U. and that the pH of the outfall's discharge was within 0.5 S.U. of the rainfall's pH level. The Draft Permit allows for the pH limits to be exceeded when the ambient pH in the rainwater is outside of the required range and the pH of the discharge is not altered by the facilities activities by more than 0.5 S.U..

TSS - 62 mg/l

The current permit requires the permittee to monitor and report Total Suspended Solids measurements. The applicable ELGs found in 40 CFR Part 438 - Metal Products and Machinery Point Source Category require an effluent limit of 62 mg/l for Total Suspended Solids (TSS).

Proper implementation of the Storm Water Pollution Prevention Plan (SWPPP), which is a condition of this draft permit, should help maintain the current low levels of TSS in the discharge. Reducing the TSS levels in the discharge should result in a corresponding reduction in the levels of turbidity. It is not anticipated by EPA that this discharge will not cause a violation of the MA State Surface Water Quality Standards. The draft permit will add a new effluent limit for TSS.

Temperature -

A portion of the discharge from outfall 001 consists of non contact cooling water. This introduces the possibility of temperature differentials between the discharge and the receiving waters. The MA Surface Water Quality Standards require that "the temperature shall not exceed 83^0 F (28.3^0 C) in warm water fisheries, and the rise in temperature due to a discharge shall not exceed 5^0 F (2.8^0 C) in rivers and streams designated as warm water fisheries...." The mixed process wastewater, non-contact cooling water and storm water discharges that occur during high rainfall events from outfalls 010 and 001 involve significant storm water dilution. The ratio of storm water flow (>70 cfs) to wastewater (0.09 - 0.12 cfs) is approximately 700 to 1. Based on the dilution, EPA believes that the discharge from the RMF through outfalls 001 and 010, will be approximately the same temperature as the ambient temperature of the storm water. There is no discharge during dry periods and minor rain events.

The discharge should not exceed the maximum temperature requirement of 83^0 F (28.3^0 C), nor should it cause a change in the receiving stream temperature of more than 5^0 F (2.8^0 C) as required by the State of Massachusetts Water Quality Standards for a Class B Warm Water Fishery, (314 CMR 4.05 (3)). Therefore, no temperature monitoring requirements are included in this draft permit.

Copper - 0.0073 mg/l

The permittee has taken steps over the last several years to reroute the flow through the sand filters and storage tank prior to discharge. The rerouting of the flow has resulted in fewer discharges overall from outfall 001. However, monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) still indicate the "reasonable potential" to exceed the water quality standards for copper.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10,1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047), as revised in the Federal Register on: December 27, 2002, Volume 67, Number 249) and as adopted by the MA DEP into the Massachusetts *Surface Water Quality Standards* (314 CMR 4.00). The acute criteria was used because it was more applicable to the type of flow that results from intermittent storm water flow. The permit limit for copper represents a total recoverable criteria, whereas the EPA National Recommended Water Quality Criteria for copper is a dissolved criteria. Therefore, to calculate a permit limit for copper, a translator must be used. (See Attachment J)

Copper is a hardness dependent metal. The concentration of available copper is dependent on the hardness of the water in which it is contained. EPA's Health and Ecological Criteria Division affirms that the concentration of the hardness downstream of the permittee's discharge is to be used in the calculation of permit limits for hardness dependent metals. (See Attachment J for a sample calculation)

The acute (Maximum Daily) water quality based limitation for Total Recoverable Copper is 7.3 μg/l. A new maximum daily limit of 7.3 μg/l for Copper would be protective of the water resource and is included in the draft permit.

Nickel

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Aluminum

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Lead

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Iron

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Volatile Organic Compounds (VOCs)

The last few years of sampling results for Outfall 001 have shown a significant reduction in the discharge of VOCs. This has resulted from two specific actions taken by the permittee. First, the permittee's efforts at remediating the site have lowered the levels of VOCs in the groundwater. Second, the permittee has rerouted wastewater flows so that discharges go through the treatment building (sand filters) and storage tanks prior to discharge and this has resulted in fewer discharges through outfall 001. The draft permit will not include new effluent limits for VOCs for either of the outfalls. However, to ensure against the possibility of rebound, the draft permit will continue to require the monitoring for tetrachloroethylene and trichloroethylene.

Whole Effluent Toxicity

Whole effluent toxicity testing is conducted to try and assess whether or not certain effluents, often containing potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Thus, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

There are two specific sources of legal authority which explain how regulatory authorities have the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Sections 402(a) (2) and 308(a) of the Clean Water Act provide EPA and States with the authority to require toxicity testing data. Section 308 specifically describes biological monitoring methods as techniques which may be used to carry out objectives of the Act. Under certain State narrative 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."

40 CFR Part 122.44(d) (ii) states, " When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in stream excursion above a narrative or numeric criteria within a state water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution ...(including) the sensitivity of the species to toxicity testing...."

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, WET is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Based on DMR test results, the draft permit requires that the company continue WET testing once per overflow of the RMF for outfall 001 and that each test include the use of daphnids in accordance with EPA Region I protocol. Compliance with the LC50 limit of 100% requires that neither of the test species show any acute effect (mortality to 50 percent of the test species) after exposure to 100% effluent. See Permit Attachments A and B in the draft permit for a description of toxicity testing requirements.

Outfall 010

Flow - Report (MGD)

Wyman Gordon draws its process water from two 1.5 million gallon storage tanks that contain recycled process wastewater and storm water at a flow rate of approximately 100,000 - 150,000 gallons per day. Approximately half of this flow discharges, following pretreatment, to the Town of Grafton WWTP. Since discharges from outfall 010 only occur during rainfall events, the flow rates vary widely. The draft permit requires the permittee to monitor and report flow from all outfalls.

Oil and Grease - 15 mg/l

The applicable ELGs found in 40 CFR Part 438 - Metal Products and Machinery Point Source Category require an effluent limit of 46 mg/l for Oil and Grease.

However, the current permit includes an effluent limit for Oil and Grease of 15 mg/l. The maximum daily limit for oil and grease is based on Massachusetts Water Quality Standards. The Massachusetts Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b)(7), state: *These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.* A concentration of 15 mg/l is recognized as the level at which many oils produce a visible sheen and/or cause an undesirable taste in fish (EPA Water Quality Criteria, 1972). The maximum daily limit for oil and grease of 15 mg/l is included to ensure compliance with state water quality standards. This limit has been included for similar facilities in Massachusetts.

When the ELG based limits differ from the water quality based limits, the more stringent limits apply. Also, since the more stringent limit was included in the last permit, to avoid backsliding, this limit remains unchanged in the draft permit.

pH - range 6.5 - 8.3 standard units (S.U.)
The applicable ELGs found in 40 CFR Part 438 - Metal Products and Machinery Point Source Category require a pH limit range of 6.0 to 9.0 S.U.. However, the MA Surface Water Quality Standards (314 CMR 4.05(3)(a)3) for a Class B water requires a pH limit range of "between 6.5 and 8.3 S.U., or shall be within 0.5 units of the background level" In order to account for the low pH of storm water. This limit remains unchanged in the draft permit.

If the permittee's reported pH results are outside the range of 6.5 - 8.3 S.U. due to background conditions (rainfall), the permittee shall indicate on the DMR that the rainfall pH was outside the range of 6.5 - 8.3 S. U. and that the pH of the outfall's discharge was within 0.5 S.U. of the rainfall's pH level. The Draft Permit allows for the pH limits to be exceeded when the ambient pH in the rainwater is outside of the required range and the pH of the discharge is not altered by the facilities activities by more than 0.5 S.U..

TSS - 62 mg/l
The current permit requires the permittee to monitor and report Total Suspended Solids measurements. The applicable ELGs found in 40 CFR Part 438 - Metal Products and Machinery Point Source Category require an effluent limit of 62 mg/l for Total Suspended Solids.

Proper implementation of the Storm Water Pollution Prevention Plan (SWPPP), which is a condition of this draft permit, should help maintain the current low levels of TSS in the discharge. Reducing the TSS levels in the discharge should result in a corresponding reduction in the levels of turbidity. It is not anticipated by EPA that this discharge will cause a violation of the MA State Surface Water Quality Standards. The draft permit will add a new effluent limit for TSS.

Temperature -
A portion of the discharge from outfall 010 consists of non contact cooling water. This introduces the possibility of temperature differentials between the discharge and the receiving waters. The MA Surface Water Quality Standards (314 CMR 4.05(3)(b)2) require that "the temperature shall not exceed 83^0 F (28.3^0 C) in warm water fisheries, and the rise in temperature due to a discharge shall not exceed 5^0 F (2.8^0 C) in rivers and streams designated as warm water fisheries...." The mixed process wastewater, non-contact cooling water and storm water discharges that occur during high rainfall events from outfalls 010 and 001 involve significant storm water dilution. The dilution ratio of storm water flow (>70 cfs) to wastewater (0.09 - 0.12 cfs) is approximately 700 to 1. Based on the dilution, EPA believes that the discharge from the RMF through outfalls 001 and 010, will be approximately the same temperature as the ambient temperature of the storm water. There is no discharge during dry periods and minor rain events.

The discharge should not exceed the maximum temperature requirement of 83^0 F (28.3^0 C), nor should it cause a change in the receiving stream temperature of more than 5^0 F (2.8^0 C) as required by the State of Massachusetts Water Quality Standards for a Class B Warm Water Fishery, (314

CMR 4.05 (3)). Therefore, no temperature monitoring requirements are included in this draft permit.

Copper - 0.0098 mg/l

The permittee has taken steps over the last several years to reroute the flow through the sand filters and storage tank prior to discharge. The rerouting of the flow has resulted in fewer discharges overall from outfalls 010 and 001. However, monitoring data collected under the terms of the current permit (DMR summary 1997-2004 - Attachment D) still indicate the "reasonable potential" to exceed the water quality standards for copper.

The criteria found in EPA's *National Recommended Water Quality Criteria* was published in the Federal Register on December 10,1998 (63 FR 68354) and updated November 2002 (EPA-822-R-02-047), as revised in the Federal Register on: December 27, 2002, Volume 67, Number 249) and as adopted by the MA DEP into the Massachusetts *Surface Water Quality Standards* (314 CMR 4.00). The acute criteria was used because it was more applicable to the type of flow that results from intermittent storm water flow. The permit limit for copper represents a total recoverable criteria, whereas the EPA National Recommended Water Quality Criteria for copper is a dissolved criteria. Therefore, to calculate a permit limit for copper, a translator must be used. (See Attachment J)

Copper is a hardness dependent metal. The concentration of available copper is dependent on the hardness of the water in which it is contained. EPA's Health and Ecological Criteria Division affirms that the concentration of the hardness downstream of the permittee's discharge is to be used in the calculation of permit limits for hardness dependent metals. (See Attachment J for a sample calculation)

A dilution factor of 1.34 will be used in the calculation of effluent limits for this outfall as explained in Section II (page 6) of this fact sheet.

The acute (Maximum Daily) water quality based limitation for Total Recoverable Copper is 7.3 µg/l. Multiplying 7.3 µg/l by the dilution factor of 1.34 results in a new maximum daily limit of 9.8 µg/l for Copper, which would be protective of the water resource and is included in the draft permit.

The acute (Maximum Daily) water quality based limitation for Total Recoverable Copper is 9.8 µg/l. A new maximum daily limit of 9.8 µg/l for Copper would be protective of the water resource and is included in the draft permit.

Nickel

Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Aluminum
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Lead
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Iron
Based on the data submitted under the terms of the 1997 permit, (See Attachment D) there is no "reasonable potential" to exceed the water quality standards for the State of Massachusetts. The draft permit removes the previous requirement for monitoring of this criteria.

Volatile Organic Compounds (VOCs)
The last few years of sampling results for Outfall 010 have shown a significant reduction in the discharge of VOCs. This has resulted from two specific actions taken by the permittee. First, the permittee's efforts at remediating the site have lowered the levels of VOCs in the groundwater. Second, the permittee has rerouted wastewater flows so that discharges go through the treatment building (sand filters) and storage tanks prior to discharge and this has resulted in fewer discharges through outfall 010. The draft permit will not include new effluent limits for VOCs for either of the outfalls. However, to ensure against the possibility of rebound, the draft permit will continue to require the monitoring for tetrachloroethylene and trichloroethylene.

Whole Effluent Toxicity
Based on DMR test results, the draft permit requires that the company continue WET testing once per overflow of the RMF for outfall 010 and that each test include the use of daphnids in accordance with EPA Region I protocol. Compliance with the LC50 limit of 100% requires that neither of the test species show any acute effect (mortality to 50 percent of the test species) after exposure to 100% effluent. See Permit Attachments A and B in the draft permit for a description of toxicity testing requirements.

V. Storm water

A majority of the discharges from the site are comprised solely of storm water runoff. As mentioned above, the permittee needs to revisit its SWPPP and formulate a plan that will result in lower contaminant levels from their storm water discharges. Failure to reduce the current pollutant levels in the storm water could result in EPA requiring the permitttee to conduct a comprehensive study of the storm water collection system and develop and implement remedies to ensure that discharges show no reasonable potential to violate water quality standards of the receiving streams and water bodies.

Storm Water Pollution Prevention Plan

The permittee is required to review and amend its Storm Water Pollution Prevention Plan (SWPPP) within 90 days after the effective date of this permit. The SWPPP shall refer to all of the outfalls and the Priority Pollutants and Conventional Pollutants monitoring requirements at each outfall. Additionally, the SWPPP shall include the best management practices (BMPs) appropriate for this specific facility to control storm water discharges from activities that could contribute pollutants to waters of the United States through storm water.

The permittee shall assure that the SWPPP is consistent with the requirements outlined in Part II of this Fact Sheet and Part 4 of EPA's NPDES Storm Water Multi-Sector General Permit for Industrial Activities. (See 65 FR 64,745 (2000)). The SWPPP shall include, at a minimum, the elements identified in the Permit under Section B. Finally, the permittee is required to fully implement the SWPPP for all outfalls. The original SWPPP and the amended SWPPP become enforceable elements on and after the effective date of the permit. Consequently, the SWPPP is as enforceable as any effluent limit.

The SWPPP for the discharge should address all potential sources of pollutants in the facility's site including, but not limited to, any chemicals stored on-site, fuels and oils stored in above ground storage tanks, and materials stored on the site including scrap metal piles, the storage of molds or forms, chemicals in tanks, and all other materials stored outside that have the potential to spill or could contribute to the discharges.

The draft permit continues to ensure that the SWPPP is kept current and adhered to, by requiring the permittee to maintain and update the SWPPP as changes occur at the facility. In addition, the draft permit requires the permittee to provide an annual report that certifies to EPA and the MADEP that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with its SWPPP. A signed copy of the report with the proper certification will be sent each year to EPA and MADEP within thirty (30) days of the annual anniversary of the effective date of the draft permit. This report with the proper certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the most recent SWPPP shall be kept at the facility and be available for inspection by EPA and MADEP.

VI. Derivation of Cooling Water Intake Requirements Under Section 316(b) of the Clean Water Act

a. Introduction and Regulatory Background

With any NPDES permit issuance or reissuance, EPA is required to evaluate or re-evaluate compliance with applicable standards, including those stated in Clean Water Act (CWA) § 316(b) regarding cooling water intake structures. CWA § 316(b) applies if the permit applicant seeks to withdraw cooling water from a water of the United States. To satisfy § 316(b) the permit applicant must demonstrate to the satisfaction of the EPA that the location, design, construction, and capacity of the facility's cooling water intake structure(s) (CWIS) reflect the Best Technology Available (BTA) for minimizing adverse environmental impacts. CWA § 316(b) applies to this permit due to the presence and operation of a cooling water intake structure.

CWA §316(b) governs requirements related to CWISs and requires "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." The operation of CWISs can cause or contribute to a variety of adverse environmental effects, such as killing or injuring fish larvae and eggs by entraining them in the water withdrawn from a water body and sending them through the facility's cooling system, or by killing or injuring fish and other organisms by impinging them against the intake structure's screens.

In the absence of detailed applicable regulations, for many years EPA has made CWA § 316(b) determinations on a case-by-case basis based on best professional judgment (BPJ), both for new and existing facilities with regulated CWISs. Then, in December 2001, EPA promulgated new final § 316(b) regulations providing specific technology standard requirements for *new* power plants and other types of *new* facilities with CWISs. 66 Fed. Reg. 65255 (Dec. 18, 2001) (the Phase I Regulations).

In July 2004, EPA also published final regulations applying CWA §316(b) to large, existing power plants (referred to hereinafter as either the "Phase II Rule" or the "Phase II Regulations"). EPA's new Final CWA §316(b) Phase II Rule for existing facilities was signed by the Administrator on February 16, 2004, published in the Federal Register on July 9, 2004, and became effective on September 7, 2004. (See 69 Fed. Reg. 41576, July 9, 2004, regulations promulgated at 40 CFR Part 125, Subpart J.)

The compliance alternatives of the Phase I and Phase II rules, however, do not apply to the Wyman Gordon North Grafton facility. There are several reasons why this facility does not fit the criteria for Phase I or Phase II applicability found at 40 CFR § 125.91(a)(2). First, the Wyman Gordon North Grafton facility is not a power plant. Second, Phase I applies to new facilities and the Wyman Gordon North Grafton facility has been in existence for a long time. Third, the compliance alternatives of the Phase II Rule apply to a facility if it "uses or proposes to use cooling water intake structures with a total design intake flow of 50 million gallons per day (mgd) or more to withdraw cooling water from waters of the United States." The design intake flow at the Wyman Gordon North Grafton facility, utilizing both 750 gallons per minute (gpm) pumps, is 2.16 mgd.

Nor would Wyman Gordon North Grafton facility be covered under the recently proposed Phase III regulations. EPA has now proposed the Phase III Rule which applies CWA §316(b) to certain facilities not covered by either the Phase I Rule or the Phase II Rule (referred to hereinafter as either the "Phase III Rule" or the "Phase III Regulations"). This proposed Phase III Rule was published in the Federal Register on November 24 , 2004 (Federal Register, Vol. 69, No. 226, November 24, 2004). After examining the November 24, 2004 proposed Phase III Rule, it appears Wyman Gordon's North Grafton facility does not meet any of the criteria to be covered by the Phase III compliance options because it has a total design intake flow less than 50 million gallons per day (mgd). Furthermore, even if the proposed Phase III regulations did appear to cover a facility like the North Grafton site, they would not be binding on the current draft permit since the proposed regulations have yet to be finalized and are currently subject to change.

In the absence of applicable existing regulations, 40 CFR § 125.90(b) of the Phase II Rule requires that permit limits under § 316(b) be set for smaller existing facilities with CWIS such as Wyman Gordon's North Grafton facility based on best professional judgment. The regulation states that "Existing facilities that are not subject to requirements under this or another subpart of this part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis." Therefore, since the compliance standards from the Phase I and Phase II Rules do not apply to Wyman Gordon's North Grafton facility -- indeed, not even the standards from the proposed Phase III Rule would apply -- EPA is making a § 316(b) determination for this permit on a case-by-case basis based on best professional judgment.

Such a determination is not only consistent with 40 CFR 125.90(b), but it is also consistent with the preamble to the proposed Phase III Rule which indicates, "If a facility is a point source that uses a cooling water intake structure and has, or is required to have, an NPDES permit but does not meet the proposed applicable design intake flow/source water body threshold or the 25 percent cooling water use threshold, it would continue to be subject to permit conditions implementing CWA section 316(b) set by the permit director on a case-by-case, best professional judgment basis." (69 Fed. Reg. 68452)

In making determinations under CWA §316(b), EPA must consider environmental/ecological issues, engineering issues, economic issues related to the cost of implementing CWIS technology options, legal issues, and, ultimately, policy issues regarding the final choice of appropriate steps to minimize adverse environmental effects. These issues, as well as the permit conditions arising from the CWA §316(b) analysis, are addressed below.

State legal requirements, including state water quality standards, also may apply to the development of permit conditions for cooling water intake structures. State water quality standards set designated uses for water bodies within the State and specify narrative and numeric criteria that the water bodies must satisfy. The limits in EPA-issued NPDES permits that address cooling water intake structures must satisfy both CWA §316(b) and any applicable State requirements, such as appropriate water quality standards. See CWA §§ 301(b)(1)(C), 401(a)(1) and (d), and 510; 40 CFR §§ 122.4(d), 122.44(d), 125.84(e), and 125.94(e). The Massachusetts Department of Environmental Protection (DEP) has primary responsibility for determining what permit limits are necessary to achieve compliance with state law requirements. Since the NPDES permit that EPA expects to issue to Wyman Gordon North Grafton will be subject to State certification under CWA §401, the permit will also need to satisfy any DEP conditions of such a certification. See also 40 CFR §§ 124.53 and 124.55. EPA anticipates that the DEP will provide this certification before the issuance of the final permit.

b. Biological Impacts of Cooling Water Intake

Section 316(b) of the Clean Water Act addresses the adverse environmental impact of cooling water intake structures at facilities requiring NPDES permits. Adverse environmental impact by cooling water intake structures results from the entrainment of fish eggs and larvae and other aquatic life through the plant's cooling system and the impingement of fish and other aquatic life on the intake screens. Adverse impacts can also result in some areas from a facility's use of limited public water resources for its cooling system.

Impingement of organisms occurs when water is drawn into a facility through its cooling water intake structures and organisms too large to pass through the protective screens are unable to swim away. These organisms become trapped against the screens and other parts of the intake structure. The quantity of organisms impinged is a function of the intake structure's location, design, capacity and approach velocity, and the abundance of organisms of various species in the general vicinity of the cooling water intake structures. Intake structure location, including the water depth where the intake opening is located, the speed of water entering the intake structure through the screens, screening mechanisms, fish return practices, and the seasonal abundance of fish and other aquatic life affect the quantity of organisms impinged.

As explained above with respect to impingement, the location of the intake can also have a major influence on entrainment. Different types of ecosystems may have greater or lesser concentrations of entrainable fish eggs and larvae. Fish eggs and larvae, along with many other organisms, are entrained when cooling water is drawn into the facility and organisms small enough to fit through the mesh of the intake screens pass through the facility's cooling system with the cooling water flow. Organisms that transit the facility's cooling system are typically exposed to high sheer stress and other physical impacts as the water moves through the system. This water absorbs heat from the facility's heat exchangers and is mixed with storm water and process water and is stored. These stresses (physical, thermal and chemical) are easily sufficient to kill the entrained organisms. Generally, the quantity of entrained organisms is a function of cooling water flow through the facility and the concentration of organisms in the source water that are small enough to pass through the intake structure's screening system.

According to the permittee, impingement has not been observed at the intake structure at the river or at the fish screens in the pump sump, although a formalized impingement monitoring program at the intake has never been performed. EPA is not aware of environmental studies that directly document impingement and/or entrainment at Wyman Gordon's North Grafton Facility. Therefore, in assessing the impact of impingement and/or entrainment at the Wyman Gordon North Grafton facility, indirect evidence of probable impingement and/or entrainment losses due to facility operations, along with CWIS characteristics, must be used to determine BTA permit conditions. In this site-specific case, enough indirect information is available to determine permit limits under CWA § 316(b), however regular monitoring for fish impingement is included in the draft permit to confirm this evaluation. The potential components of BTA to minimize adverse impacts from impingement and entrainment for the Wyman Gordon North Grafton CWIS are addressed in the following discussion.

c. Location

The location of the intake pipe for the Wyman Gordon North Grafton facility on the Quinsigamond River is judged to be a factor that reduces the potential for impingement and entrainment at the facility. Rather than being located in the main stem of the Quinsigamond River, the facility's CWIS is located in a small inlet off the main stem of the Quinsigamond River. The inlet is a small narrow stretch of quiescent low energy "backwater", which is likely to be less attractive to certain species for spawning or as a foraging habitat.

In addition, the inlet is located just upstream from the man-made impoundment, Hovey Pond. Hovey Pond has no fish ladder structures in place to allow for the passage of anadromous fish, and as such, no anadromous fish are expected at the CWIS. This reduces the possibility of impingement of anadromous fish or the entrainment of anadromous fish eggs and larvae.

d. Design

The Wyman Gordon North Grafton facility's CWIS includes an initial intake structure on the Quinsigamond River inlet. The facility's intake structure on the river consists of concrete wingwalls and a bottom apron which enclose two bar racks with 2 inch spacings. The bar racks serve as screens to prevent floating debris from entering a 24" pipe behind the bar racks. River water, passing through the bar racks, enters the 24" pipe by gravity flow. Once in the 24" pipe, the river water is transported by gravity approximately 2,000 feet from the river to the pump sump. This sump can hold approximately 80,000 gallons of water. This sump has 2 submersible pumps, each with a capacity of 750 gpm. These pumps are manually switched on and off, independent of each other.

Once in the sump, the water velocity is reduced because the cross sectional area of the sump is greater than that of the 24" pipe. Within the sump, the water passes through two, back-to-back metal fish screens, each with ½ inch openings, before it is pumped into the plant for cooling water and process water. These fish screens reduce or eliminate the presence of adult and juvenile fish, as well as large debris, at the inlets of the sump pumps. The facility's intake structure does not have a fish return system. The wetted portion of the fish screens measures approximately 5.5 feet by 9 feet. This creates a large wetted cross sectional area at the screens resulting in a low through screen velocity. Under present operations, the pumps are not used continuously. When neither of the two pumps is in use, no current is expected in either the sump or the 24" pipe.

Several aspects of the design of the CWIS at the Wyman Gordon North Grafton facility reduce the adverse impacts of impingement and/or entrainment.

First, the design of the intake structure on the Quinsigamond River minimizes impacts because the bottom of the intake pipe is approximately 1 foot higher than the bottom of the inlet where water is withdrawn from the river. This design feature would likely reduce the risk of entrainment of demersal eggs and larvae or other benthic organisms that may be present in the vicinity of the river inlet. This is a component of BTA for the Wyman Gordon North Grafton facility to minimize entrainment and impingement.

Second, while the intake velocity within the 24" pipe may be sufficient to pull fish into the 24" pipe to the sump, the expanded screen area in the sump reduces the velocity to a degree which should greatly reduce or eliminate fish impingement on the ½ inch metal fish screens. The differences in these two velocities is estimated as follows. The design flow of each of the pumps used to withdraw make up water from the river is 750 gpm. If one of the pumps is used only as back up, as is the current practice and required in the draft permit, the maximum design flow rate 750 gpm x 1 cubic foot/7.48 gallons x 1 minute/ 60 seconds = 1.67 cfs. The area of the 24" pipe is determined by using the formula $\Pi(R)^2$ where R is equal to the radius of the pipe. $3.14 \times (1)^2 =$

3.14 sq ft. Taking the maximum design flow rate and dividing it by the area of the pipe yields the maximum velocity, 1.67 cfs / 3.14 sq ft = 0.53 feet per second (fps). Thus, the maximum velocity in the 24" pipe is 0.53 fps. The through screen design velocity at the ½ inch metal fish screens is determined by using the wetted area of 49.5 square feet, 5.5 feet x 9 feet = 49.5 square feet. It is estimated that the screen bars take up about half of the wetted area, giving a wetted through screen area of approximately 25 square feet. Using the maximum design flow rate for one pump of 1.67 cfs, and dividing by the effective through screen area of 25 square feet, results in a maximum through screen velocity of 0.07 fps when one pump is in use. This maximum through screen velocity with one pump of 0.07 fps greatly reduces the impingement of any adult or juvenile fish that enter the sump because, with a lower velocity, any adult or juvenile fish in the sump has a greater chance to swim away from the screens. Thus, the CWIS design that allows for this reduced through screen velocity is an important component of BTA for this facility. To ensure this reduced velocity (as well as a reduced capacity described below), the draft permit prohibits the use of both sump pumps simultaneously as a BTA provision and limits intake flow to 1.67 cfs.

Third, the current practice of intermittent and infrequent use of the pumps to withdraw make-up water for the facilities cooling and process water, further reduces the possibility of both entrainment of aquatic species and impingement of fish. Regarding impingement, time periods when neither pump is operating should allow passage of surviving adult and juvenile fish from the sump back through the 24" pipe to the river.

Thus, the design of fish screens and velocity reductions effectively minimizes impingement at this facility. However, these design components of BTA do not directly prevent fish eggs and larvae from being entrained in the facility's CWIS. This is because the eggs and larvae are smaller than the ½ inch spacing of the fish screens. As a result, fish eggs and larvae have the potential to be entrained in the Wyman Gordon North Grafton intake system, and BTA to minimize entrainment at this facility is achieved primarily though capacity limitations.

e. Capacity

The "capacity" of the CWIS refers to the volume of cooling water that it withdraws and the velocity at which it does so. Intake flow reductions proportionally reduce any impingement or entrainment by the facility's CWIS. In the case of the Wyman Gordon North Grafton facility, the amount withdrawn (volume) varies year to year as shown below:

2004 - 110,200 gallons
2003 - 1,727,800 gallons
2002 - 2,735,100 gallons
2001 - 3,002,400 gallons
2000 - 314,000 gallons

As previously mentioned, the design flow of each of the two pumps used to withdraw make up water from the river is 750 gpm. When one of the pumps is used only as back up, the maximum design flow rate is 750 gpm x 1 cubic foot/7.48 gallons x 1 minute/ 60 seconds = 1.67 cfs. For comparison, the Quinsigamond River's mean annual flow taken from USGS Gazeteer information for this segment of the Quinsigamond River is 41.2 cfs. This means the pump's maximum design

flow (1.67 cfs) taken from the river is only 4.05% of the river's mean annual flow (41.2 cfs). This draft permit includes capacity limitations to maintain the facility's intake below a benchmark of 5% of the river's total mean annual flow. This is achieved by limiting the maximum capacity of the facility's CWIS to 1.67 cfs, the maximum design flow of one pump, which will keep the facility's water usage below 5% of the river's total mean annual flow. Thus, as a BTA requirement, the draft permit requires that only one of the pumps is run at a time to reduce capacity and lower velocities at the intake, thus reducing the possibility of entrainment and impingement. The second pump will act as back up.

The aforementioned benchmark of 5% of the river's total mean annual flow used in this draft permit's BPJ determination of BTA is also a benchmark used by EPA in the final CWA §316(b) Phase II Rule for large, existing power plants using CWISs. In the final CWA §316(b) Phase II Rule, EPA regulations excuse facilities using cooling water withdrawn from a freshwater river that have design intake flows less than or equal to five percent of the mean annual flow of the river from the entrainment reduction performance standards, but do require them to meet the impingement mortality reduction performance standards (40CFR125.94(b)(2)(ii)(B)). In general, this reflects a positive correlation between entrainment of aquatic organisms and the volume of water withdrawn at a facility's CWIS, and that a withdrawal volume representing a low percentage of a river's mean annual flow will generally have a relatively small or insignificant effect on the aquatic organisms living in the river.

The recycling and reuse of water at this facility further contribute to the minimization of CWIS capacity and resultant impingement and entrainment. The facility currently recycles all of its cooling water, discharging to the receiving stream only during rainfall events sufficient to hydraulically overload the RMF. The river water withdrawn through the CWIS is used as makeup water in a recycle/reuse system which also utilizes process water, storm water, and non-contact cooling water. This make up water withdrawn from the river typically is pumped at a rate of between 100,000 and 150,000 gallons per day. The facility has consistently reduced the use of river water for its operations over the last few years and anticipates a continuation of this trend. Since this recycle system reduces the need to withdraw more water from the river for process and cooling water purposes, and thus makes restrictions of intake flow practical, it is a component of BTA in this BPJ determination. This reduction in volume of water withdrawn, enables the use of only one of the two 750 gpm sump pumps at a time, with the other used solely as back up. This reduction also allows for the intermittent and infrequent use of the pumps to withdraw make-up water, and for the previously described benefits of this intermittent and infrequent use.

f. 316(b) Determination and Summary

This section presents EPA's determination with respect to the application of CWA §316(b), 33 U.S.C. §1326(b), to the NPDES permit for Wyman Gordon North Grafton facility. CWA §316(b) requires that the design, capacity, location and construction of cooling water intake structures reflect the BTA for minimizing adverse environmental impacts. Entrainment and impingement of aquatic life are the two key adverse environmental impacts potentially associated with cooling water intake structure operations at Wyman Gordon's North Grafton facility. Based on current operations and information available at this time, EPA regards the adverse environmental impacts of the CWIS at Wyman Gordon's North Grafton facility to be minimal, primarily considering the

facility's location, the low CWIS capacity, the CWIS's low maximum through screen velocity, and the intermittent and infrequent use of the pumps to withdraw make-up water.

While there is sufficient basis for this BTA determination, there is uncertainty regarding the actual impacts of the CWIS because no formalized impingement or entrainment monitoring program at the intake has ever been performed. Therefore, as provision of this draft permit, EPA is requiring that the permittee begin to monitor and record any observed impingement on the ½ inch metal screens located in the pump sump each time a pump is operated. The results of this monitoring will be presented with the next permit renewal application submitted to EPA and DEP. The data collected will provide useful information for further impingement evaluation and BTA determinations. The results of this monitoring will be considered by EPA and could lead to permit modifications and/or changes in future permits.

In making this §316(b) determination, EPA considered the adverse environmental effects from operation of the facility's CWIS and technologies options for minimizing these adverse effects by altering the CWIS's location, design, construction, and capacity. EPA has determined on a qualitative basis that the cost of additional technologies would be wholly disproportionate to its benefits at the facility. This conclusion is based largely on the existing low CWIS capacity and through screen velocity at this facility and EPA's experience indicating that retrofitting this facility with the latest technology to further prevent impingement and entrainment is very expensive as compared to the already low level of entrainment and impingement impacts likely to be resulting from the facility's existing CWIS.

This site-specific determination of BTA for the Wyman Gordon North Grafton facility draft permit is based on best professional judgement (BPJ). This BPJ determination for BTA consists of the following components:

<u>BTA for Wyman Gordon North Grafton Facility:</u>

1. A CWIS intake flow limit of 750 gpm or 1.08 mgd.

2. The CWIS design with an expanded screen area in the sump that, in combination with the 750 gpm flow limit, reduces the maximum through screen velocity at the ½ inch metal fish screens to 0.07 fps.

3. Maximum recycling and reuse of process water, storm water, and non-contact cooling water by the facility to result in minimum, intermittent and infrequent withdrawals of river water through the CWIS

4. The location of the intake in an inlet, outside the main flow of the river, and in an area where anadromous species are not expected to be present or spawn.

5. The design of the intake structure with the bottom of the intake pipe one foot higher than the bottom of the inlet.

VII. Essential Fish Habitat (EFH) Determination

Under the 1996 Amendments to the Magnuson-Stevens Fishery Conservation and Management Act, EPA is required to consult with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) if EPA's actions or proposed actions that it permits may adversely impact any essential fish habitat (EFH). The Amendments broadly define EFH as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Adversely impact means any impact which reduces the quality and/or quantity of EFH.

EFH is only designated for species for which federal Fisheries Management Plans exist. A NOAA Fisheries website (See http://www.nero.noaa.gov/hcd/webintro.html) contains maps of designated EFH. In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species such as Atlantic salmon.

EPA's review of available EFH information indicates that this segment of the Quinsigamond River and Flint Pond are not designated EFH for any federally managed species. As such, EFH consultation with NOAA Fisheries is not required.

VIII. Endangered Species Act (ESA)

Section 7(a) of the Endangered Species Act of 1973, as amended ("Act") 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 Act requires every Federal agency, in consultation with and with the assistance of the Secretary of the 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 results in the destruction or adverse modification of critical habitat. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species.

EPA's review of available ESA information indicates that this segment of the Quinsigamond River and Flint Pond does not contain any of the federally listed endangered species. As such, ESA consultation with NMFS or USFWS is not required.

IX. Effluent Monitoring

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

X. State Certification Requirements

EPA may not issue a permit unless the MA DEP either certifies that the effluent limitations contained in this permit are stringent enough to assure that the discharge will not cause the

receiving water to violate State Water Quality Standards or waives its right to such certification. EPA has requested that MA DEP certify the permit. Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located which determines that all water quality standards, in accordance with Section 301(b)(1)(C) of the CWA, will be satisfied. Regulations governing state certification are set forth in 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). EPA expects that the permit will be certified.

XI. Public Comment Period, Public Hearing; and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to: Mr. Stuart F. Gray, NPDES Industrial Permit Branch, U.S. Environmental Protection Agency, One Congress Street, Suite 1100 (Mail Code: CIP), Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA-New England and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Director 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-New England's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Director 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.

XII. EPA and MA DEP Contact

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:

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10/11/05

Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency