DRAFT

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.;the "CWA" , and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26- 53) ,

Wyman Gordon Company

is authorized to discharge from a facility located at

Wyman Gordon Company
244 Worcester Street
North Grafton, MA 01536

to receiving waters named

Quinsigamond River via East Brook (Segment MA51-09)
and
Flint Pond via Bonny Brook (Basin Code MA851050)
(Blackstone River Watershed)

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

This permit shall become effective (see *** below)

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

This permit supersedes the permit issued on June 30, 1997.

This permit consists of 11 pages in Part I including effluent limitations, attachments, monitoring requirements, etc., and 27 pages in Part II including General Conditions and Definitions.

Signed this day of

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA

Glenn Haas, Director
Division of Watershed Management
Massachusetts Department of Environmental Protection
Boston, MA

*** This permit will become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will become effective 60 days after signature.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge various process waste waters, non-contact cooling water and storm water from outfall serial number **001** to East Brook, a tributary to the Quinsigamond River. The discharges will occur if there is a hydraulic overflow of the Runoff Management Facility (RMF), occurring first at outfall 010 for overflows up to 1.4 cfs and then at outfall 001 for higher flows. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/overflow	Estimate
pH[2], S.U.	see PART I.A.6		1/overflow	Grab
Oil and Grease, mg/l	----	15	1/overflow	Grab
TSS[6], mg/l	----	62	1/overflow	Grab
Copper, Total, mg/l	----	.0073	1/overflow	Grab
Trichloroethylene, mg/l	Report	Report	1/overflow	Grab
Tetrachloroethylene, mg/l	Report	Report	1/overflow	Grab
Whole Effluent Toxicity Testing				
LC_{50}[3]	----	$\geq$ 100%	1/overflow[4, 5]	Composite[4]

Footnotes are listed on Page 8.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge various process waste waters, non-contact cooling water and storm water from outfall serial number **010** to the Quinsigamond River. The discharges will occur if there is a hydraulic overflow of the Runoff Management Facility (RMF). Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/overflow	Estimate
pH[2], S.U.	see PART I.A.6		1/overflow	Grab
Oil and Grease, mg/l	----	15	1/overflow	Grab
TSS[6], mg/l	----	62	1/overflow	Grab
Copper, Total, mg/l	----	.0098	1/overflow	Grab
Trichloroethylene, mg/l	Report	Report	1/overflow	Grab
Tetrachloroethylene, mg/l	Report	Report	1/overflow	Grab
Whole Effluent Toxicity Testing				
LC_{50}[3]	----	$\geq$ 100%	1/overflow[4, 5]	Composite[4]

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

3. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number **007** to Flint Pond via Bonny Brook. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/quarter	Estimate
pH[2], S.U.	see PART I.A.6		1/quarter	Grab
Oil and Grease, mg/l	---	15	1/quarter	Grab
TSS[6], mg/l	Report	Report	1/quarter	Grab
Copper, Total, mg/l	----	.0074	1/quarter	Grab
Aluminum, Total, mg/l	----	.760	1/quarter	Grab
Iron, Total, mg/l	----	1.010	1/quarter	Grab
Whole Effluent Toxicity Testing				
LC_{50}	----	Report	1/year[5,7]	Composite[4]

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

4. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number **008** to Flint Pond via Bonny Brook. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/quarter	Estimate
pH,[2] S.U.	see PART I.A.6		1/quarter	Grab
Oil and Grease, mg/l	----	15	1/quarter	Grab
TSS,[6] mg/l	Report	Report	1/quarter	Grab
Copper, Total, mg/l	----	.0074	1/quarter	Grab
Iron, Total, mg/l	----	1.010	1/quarter	Grab
Zinc, Total, mg/l	----	.067	1/quarter	Grab
Whole Effluent Toxicity Testing				
LC_{50}	----	Report	1/year[5,7]	Composite[4]

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

5. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number **009** to East Brook to the Quinsigamond River. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow	Report	Report	1/quarter	Estimate
pH[2]	see PART I.A.6		1/quarter	Grab
Oil and Grease, mg/l	----	15	1/quarter	Grab
TSS[6], mg/l	Report	Report	1/quarter	Grab
Copper, Total, mg/l	----	.0073	1/quarter	Grab
Aluminum, Total, mg/l	----	.750	1/quarter	Grab
Iron, Total, mg/l	----	1.000	1/quarter	Grab
Whole Effluent Toxicity Testing				
LC_{50}	----	Report	1/year[5,7]	Composite[4]

Footnotes:

(1) Storm water runoff samples will be collected and analyzed in accordance with 40 CFR Part 136 and EPA's **NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001, July, 1992.** All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. A "representative storm" is defined as a "typical" storm for the area in terms of intensity, volume, and duration, roughly a storm not varying by more than 50 percent from the average rainfall volume and duration. The grab sample shall be taken during the first thirty minutes of the discharge; if this is not feasible, it may be taken within the first few hours of discharge and noted. The composite sample shall either be flow-weighted or time-weighted. Composite samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes. For those months where there is "no discharge" during the monitoring period, the permittee shall check the box in the upper right hand corner of the DMR form labeled "Check here for No Discharge" and insert the NODI code "C", which indicates no discharge, anywhere on the report/parameter line and do not fill in anything else.

(2) Required for state certification.

(3) The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

(4) The permittee shall conduct an acute, whole effluent toxicity (WET) toxicity test on only one overflow that occurs in any calendar quarter (up to four per year) for both outfalls 001 and 010. The permittee shall test the invertebrate, Ceriodaphnia dubia only, as it has been determined to be the more sensitive test species compared to the fathead minnow, Pimephales promelas. A composite sample is preferable, but if this is not possible, a grab sample may be used. Results are to be submitted by the 15th day of the month following the end of the quarter. See Permit Attachment A, Acute Toxicity Test Procedure and Protocol.

(5) After four toxicity tests for any outfall are conducted and acceptable, the permittee may request a reduction in the testing requirements for any or all outfalls. A determination on any such reduction will be made by the EPA and DEP after considering test results.

(6) If the permittee reports TSS results approaching or exceeding 100 mg/l, it shall evaluate what caused such a level, review its SWPPP and revise it as necessary to minimize solids runoff.

(7) The permittee shall conduct an acceptable 24 hour static acute toxicity test once per year on outfalls 007, 008 and 009. This test shall be conducted during the period of April through June and the results will be due by the 15th of August. For the invertebrate species, the permittee shall test the daphnid, Ceriodaphnia dubia and for the vertebrate species, testing shall be conducted for the fathead minnow, Pimephales promelas. See Permit Attachment B, Stormwater Toxicity Test Procedure and Protocol.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont.)

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

7. The pH of the effluent shall be monitored on a quarterly basis for outfalls 007, 008 and 009. Also, for the first year only, the permittee shall monitor and report the instream pH, immediately upstream and downstream of each of these three outfalls. This shall be done concurrently with the quarterly, effluent pH monitoring. For outfalls 001 and 010, the pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units and not more than 0.5 units outside of the naturally occurring range.

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

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

10. Samples taken in compliance with the monitoring requirements specified above shall be taken at each of the outfalls above prior to mixing with any other stream.

11. After submitting 8 consecutive (quarterly) tests for any of the different metals or volatile organics for any outfall, demonstrating the absence of any such parameters from the particular outfall(s), the permittee may request a reduction in the frequency or the elimination of such testing. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the frequency for a particular parameter has been changed.

12. The permittee shall maintain the following:

(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 intake structure with the bottom of the intake pipe a minimum of one foot higher than the bottom of the inlet.

13. The permittee shall update and continue to implement the Storm Water Pollution Prevention Plan (SWPPP) for this facility developed under previous permits and shall provide for compliance with the terms of the permit and the SWPPP no later than 180 days after the effective date of this permit. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity at the facility and mitigate these where possible. This plan shall specifically address runoff mitigation from outdoor storage areas containing spare parts and part dies. The SWPPP shall incorporate all existing and appropriate BMPs, SPCC plan elements and other measures taken by the permittee which satisfy the SWPPP requirements.

14. This permit may be modified, or revoked and reissued, on the basis of new information in accordance with 40 CFR 122.62

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

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

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

(2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2- methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

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

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

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

(1) Five hundred micrograms per liter (500 ug/l)

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

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

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

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application and which is not limited under Part I.A.1.a and I.A.2.a of the permit. Part I.A.1.a and I.A.2.a pertain to the sampling locations of 001 and 002 respectively, not pollutants limited.

B. STORM WATER BEST MANAGEMENT PRACTICES

The permittee shall maintain, update and implement the Storm Water Pollution Prevention Plan (SWPPP) to account for any changes which might occur at the facility which could impact the plan. The permittee shall be required to provide annual certification to EPA and the MADEP documenting that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with the SWPPP. The certification shall be signed in accordance with the requirements identified in 40 CFR §122.22 and a copy of the certification will be sent each year to EPA and MADEP as well as appended to the SWPPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. The permittee shall keep a copy of the most recent SWPPP at the facility and shall make it available for inspection by EPA and MADEP.

C. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) **postmarked no later than the 15th day of the month following the effective date of the permit.**

Original, signed and dated copies of these, and all other reports required herein, shall be submitted to the Director and the state at the following addresses:

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

The State Agency is:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Central Regional Office
627 Main street
Worcester, MA 01608

Additionally, signed and dated copies of all monitoring reports, other notifications and reports required by this permit shall be submitted to the State at:

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

D. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this Permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MA DEP pursuant to M.G.L. Chap. 21 §43.

Each agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is declared, invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this Permit is declared invalid, illegal or otherwise issued in violation of federal law, this Permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

Bowditch & Dewey
ATTORNEYS

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Direct facsimile: (508) 929-3080
Email: nbartlett@bowditch.com

November 21, 2005

Via Federal Express – 7925 8617 2928
Office of Ecosystem Protection (OEP)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023
Attn: Ms. Linda M. Murphy, Director

Via Federal Express - 7902 2807 7967
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
One Winter Street
Boston, MA 02108
Attn: Mr. Glen Haas, Director

Re: NPDES Application No. MA0004341
Comments on Draft Permit and Fact Sheet
Wyman Gordon Company
244 Worcester Street
North Grafton, MA 01536-8001

Dear Ms. Murphy and Mr. Haas:

On behalf of the Wyman Gordon Company, ("Wyman Gordon") we respectfully submit the following comments on the draft renewal NPDES permit ("Permit") and Fact Sheet identified above and proposed on October 19, 2005 by the U.S. Environmental Protection Agency ("EPA" or the "Agency") and the Massachusetts Department of Environmental Protection ("DEP") concerning its facility located in North Grafton, Massachusetts ("Facility").

At the outset, Wyman Gordon is pleased to continue its work with both the EPA and DEP in creating sound science and cost-effective procedures and practices that will result in actual environmental benefits to adjoining watersheds and environment. However, for reasons discussed more fully below, Wyman Gordon takes issue with specific assumptions and methodology utilized by EPA and DEP in setting limitations and monitoring requirements.

Resolution of these issues is critically important to Wyman Gordon. As you know, Wyman Gordon has worked closely with both EPA and DEP in effectively managing stormwater and process water discharges. Particularly, Wyman Gordon has embarked on extensive and costly efforts including the following: construction of a Runoff Management Facility ("RMF"); construction of an Oily Wastewater Pretreatment System ("OWPS"); the closing of impoundments; implementing a wide-ranging Storm Water Pollution Prevention Plan ("SWPPP") including Best Management Practices ("BMPs"); and thorough testing, maintenance and monitoring. As we move forward, it is important that permit limits and requirements are based upon sound scientific criteria, data and modeling.

A. Preliminary Comments.

As each of these comments is significant, we look forward to your responses to our general comments and to each of the itemized paragraphs contained herein as required by 40 C.F.R. § 124.17(a)(2) and 314 C.M.R. § 2.09. Each of the facts found anywhere in these comments, the exhibits to these comments, or the administrative record should be considered in support of each particular comment, even if not specifically identified in the comment.

Wyman Gordon's comments are based upon relevant information known and available to it as of the date of this submission. Wyman Gordon reserves any rights it may have to revise or update these comments, or submit further comments upon the draft permit in the event that further information is developed or obtained by Wyman Gordon either independently or through the public comment process and/or the facilities planning process.

B. General Comments Applicable to All Effluent Limitations and Methodologies.

In the following section, Wyman Gordon provides itemized comments on the draft permit. This section provides an overview of Wyman Gordon's concerns regarding the methodology and assumptions used to develop the draft permit.

As mentioned above, Wyman Gordon's primary objection to the draft permit concerns the underlying scientific criteria, data and modeling used to develop the proposed imposition of unnecessary numerical limitations and monitoring requirements as explained more fully below.

1. Calculation of Dilution and Flow Factors.

Wyman Gordon objects to the methodology and underlying assumptions used in deriving dilution and flow factors for each of the five (5) Outfalls originating from the facility. EPA consistently undervalues and overlooks viable flow rates for the three receiving water bodies. These inaccurate flow rates become a critical component of the dilution calculation with respect to the discharge point and the receiving water. The incorrect dilution value subsequently has a substantial and direct impact on the final effluent limitations for all five Outfalls, particularly for each of the metals limits proposed by EPA. As a result, Wyman Gordon is contesting all effluent

limitations for metals proposed by EPA in the Draft Permit as well as Whole Effluent Testing ("WET") and pH monitoring and reporting.

2. Evaluation of Hardness and Translators.

The hardness calculations utilized by EPA are entirely dependant upon the above analysis. Specifically, EPA indicated "it was reasonable to simply use the hardness of the effluent which was reported in the WET reports." *See* Fact Sheet Attachment "J." However, EPA in the Fact Sheet states that this conclusion assumes a "great disparity between the stream flow and the maximum daily flow." *See id.* As outlined above, Wyman Gordon contests that such a disparity exists between the stream flow and maximum daily flow. The flow levels assumed by EPA are not reflective of actual conditions and underestimate the volume of water in the receiving body. These inaccuracies directly impact the final hardness calculation. As a result, it is Wyman Gordon's position that the use of such a hardness factor is overly conservative and an unrealistic evaluation of water hardness.

With regards to calculating hardness, Wyman Gordon contests various assumptions and calculation methodologies utilized by EPA with respect to final derivations. Particularly, Wyman Gordon objects to the translator used in developing a total recoverable permit limit from dissolved criteria. Despite the absence of site specific data to derive a translator, given the nature of the receiving waters and effluent flows, the utilization of a translator equivalent to the criteria conversion factor is not necessary. The utilization of such a translator represents a worst case scenario not indicative of the particular discharge to the specific receiving water body.

3. Testing and Monitoring Requirements.

Wyman Gordon contests the dilution factors and respectfully requests inclusion of dilution factors more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters. Wyman Gordon contends that there is no reasonable potential for excursions over any relative water quality standard based upon the current pollution prevention controls in place and the nature of the specific receiving water bodies. As a result, Wyman Gordon maintains that the effluent limitations and testing and monitoring requirements contained within the draft permit are excessive.

C. Specific Comments on Effluent Limitations.

1. Flow Rate, Dilution Factors and Effluent Limits for Outfalls 007 and 008

Wyman Gordon disputes EPA's classification regarding flow rates for Bonny Brook as they relate to Outfalls 007 and 008. EPA notes a critical flow of approximately .003 cfs for the Brook. However, the environment immediately upstream of Bonny Brook consists of neighborhoods and roadways, including Route 122. As documented on the relevant United States Geological Survey ("USGS") topographic maps, Bonny Brook extends several thousand

feet upstream of the Facility to its ponded headwaters. *See* Exhibit "A," USGS Topographic Map. The actual flow to Bonny Brook is greater than the worst case scenario imposed by EPA's alleged flow and proposed dilution factor of 1.01. Wyman Gordon contests the dilution factors and respectfully requests inclusion of dilution factors more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

2. Flow Rate, Dilution Factors and Effluent Limits for Outfalls 001 and 009.

Wyman Gordon respectfully disagrees with EPA's determination regarding dilution factors for Outfalls 001 and 009. Further, Wyman Gordon disagrees with the assertion in the Fact Sheet that Outfalls 001 and 009 discharge to wetlands.

Pursuant to the Draft Permit, EPA categorizes the particular discharge region in East Brook as "a slow moving lowland stream that meanders through a wetland with little velocity and flow." *See* Fact Sheet, page 6. The particular outfalls, however, discharge into two separate manmade unnamed channels, rather than wetlands. These channels are discrete conveyances through the wetlands that discharge primarily into the East Brook. As EPA notes in the Fact Sheet at page 6, East Brook is in fact a stream with a consistent flow. As documented on the relevant USGS topographic maps, East Brook extends several thousand feet upstream of the Facility to its headwaters. *See* Exhibit "A". As a result, East Brook does in fact generate dilution which is not reflected in the dilution factor of 0.0 proposed by EPA for Outfalls 001 and 009 in the Draft Permit. Thus, Wyman Gordon contests the dilution factors and respectfully requests inclusion of dilution factors more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

3. Flow Rate, Dilution Factor, and Effluent Limits for Outfall 010.

In arriving at a flow rate and dilution factor for Outfall 010, EPA erroneously relied upon USGS flow data from a gage station located downstream from Hovey Pond. Said data indicate a flow rate for the Quinsigamond River equal to .48 cfs. However, the discharge into the River from outfall 010 occurs several hundred feet upstream of this station and Hovey Pond. As acknowledged by EPA in the Draft Permit, Hovey Pond is a man-made impoundment utilizing a dam at its downstream end. As a result, the flow out of the Pond does not accurately represent the upstream conditions present at Outfall 010. These upstream conditions involve a considerable increase in flow and correspondingly a far greater rate of dilution at Outfall 010. In order to properly reflect actual conditions and flow patterns, the flow at the point of discharge of Outfall 010 is the accurate measure. *See* Exhibit "B," USGS Topographic Map and Stream Gauging Station Information. As the dilution factor and the final effluent limitations are directly proportional to this derivation, they too should be adequately adjusted. Wyman Gordon contests the dilution factor and respectfully requests inclusion of a dilution factor more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

4. Catalysts for Effluent Levels in Outfall 009.

Pursuant to its prior monitoring efforts, Wyman Gordon contends that metals from Outfall 009 discussed by EPA in the Draft Permit originate in the neighborhoods and roads upstream of the discharge point in East Brook. Drainage systems for the neighborhood and Route 122 tie into the system located at Wyman Gordon draining into Outfall 009. Likely catalysts for elevated metals and contaminants thus include oil and other materials from motor vehicles, and sand and salt used to treat roadway surfaces. As these elements migrate onto the Wyman Gordon property, it is impossible for Wyman Gordon to curtail their generation and Wyman Gordon would be unable to satisfy the effluent limitations proposed in the Draft Permit. Additionally, the stormwater system could not be separated without considerable expense to both the Commonwealth of Massachusetts and the local community. As stated in Section C:2., Wyman Gordon contests the dilution factor and respectfully requests inclusion of a dilution factor more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

5. pH Testing.

Pursuant to the Draft Permit, Wyman Gordon is obligated to conduct periodic pH testing. The draft Permit allows "for the pH limits to be exceeded when the ambient pH in rainwater exceeds the mandated range with the pH of discharge not altered by the Facilities activities by more than .5 S.U." As past Facility discharge data indicate, any variation from acceptable pH limitations at the Facility results from naturally occurring low storm water pH. As such, Wyman Gordon requests the removal of pH testing from the final permit for all Outfalls.

6. WET Testing.

The imposition of WET testing on Outfalls conveying solely storm water (Outfalls 007, 008 and 009) is over burdensome and is no longer warranted at the Facility. Outfall 008 data from June 1999-June 2003 showed five (5) consecutive results satisfying the criteria to remove WET testing under the existing permit. Unfortunately, subsequent data from June 04-June 05 indicated toxicity. As discussed with the permit writer, Mr. Stuart Gray, Wyman Gordon investigated these subsequent exceedences and attributed the toxicity to off-site contaminants since there was no discharge from Outfall 008 due to flooding caused by beaver damming. The beaver damming has since ceased and the receiving water is again free flowing. Wyman Gordon respectfully requests the removal of WET testing for Outfalls 007, 008 and 009 from the final permit.

7. Cooling Water Intake Structure Requirements.

The Cooling Water Intake Structure ("CWIS") Requirements issued in the Draft Permit are unnecessary and overbroad. Pursuant to the Clean Water Act ("CWA") § 316 (b), EPA must consider, among others, the cost of implementing CWIS technology options, legal issues, engineering issues, economic issues, and policy issues with respect to regulatory implementation.

As noted in the Draft Permit, Wyman Gordon has taken considerable steps towards minimizing environmental impacts from the CWIS withdrawing water from the Quinsigamond River, particularly the EPA's primary concern regarding entrainment and impingement of aquatic life. Within the Draft Permit, EPA acknowledges the following particular actions implemented by Wyman Gordon in minimizing impacts: use of a large wetted cross section reducing velocity through screen; effective intake structure design; intermittent and infrequent utilization of pumps; and a continuing trend towards minimizing the utilization of water from the Quinsigamond River through recycling and reuse of water. Moreover, as noted by EPA, the CWIS is located in an unnamed "low energy backwater" of the Quinsigamond River, an unlikely viable habitat for the species in question.

As EPA states in the Draft Permit, the compliance requirements of the CWA, particularly Phase I and II rules, are inapplicable to Wyman Gordon based on the facility size and nature. As EPA further states, the proposed Phase III rules are not in effect at this time and irrelevant for current permitting purposes. Thus, EPA is left with an individual site-specific analysis based on best professional judgment ("BPJ"). Nevertheless, EPA seeks to impose unnecessary monitoring requirements after each utilization of the intake pumps. These pumps are unmanned automated pumps triggered by RMF storage tank levels, and as a result, can turn on at any time. In fact, the only justification offered by EPA related to the conclusion is that the "design components of BTA do not directly prevent fish eggs and larvae from being entrained in the facility's CWIS." This statement is contrary to the numerous additional statements by EPA in the Fact Sheet directly linking Wyman Gordon's current efforts and reduction in the possibility of entrainment and impingement of aquatic species. As a result, Wyman Gordon is requesting the removal of CWIS requirements and limitations from the final permit.

D. Correct Contact Information for Final Permit.

Please amend the Final Permit concerning the "Name and Mailing Address of the Applicant" as follows:

Wyman-Gordon Company
C/O Bradford C. Middlesworth, P.E., Division Environmental Manager
244 Worcester Street
P.O. Box 8001
North Grafton, MA 01536-8001

Should additional contact information be required please contact the Company using the information above.

E. Conclusion.

In closing, Wyman Gordon respectfully requests that the EPA and the Commonwealth incorporate the comments provided above into the final permit for the reasons set forth above. Wyman Gordon contests the utilized dilution factors and respectfully requests inclusion of dilution factors more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters. Additionally, Wyman Gordon requests the removal of WET testing on Outfalls 007,008 and 009, removal of the CWIS operational requirements and limitations described in the Draft Permit and Fact Sheet and the pH testing and monitoring requirements proposed for all five Facility Outfalls.

Best Regards,

Norman E. Bartlett, II

NEB:mst

cc: Bradford C. Middlesworth, P.E.

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.;the "CWA" , and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26- 53) ,

Wyman Gordon Company

is authorized to discharge from a facility located at

Wyman Gordon Company
244 Worcester Street
North Grafton, MA 01536

to receiving waters named

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

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

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

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

This permit supersedes the permit issued on June 30, 1997.

This permit consists of 11 pages in Part I including effluent limitations, attachments, monitoring requirements, etc., 11 pages in Attachment A, 1 page in Attachment B, and 27 pages in Part II including General Conditions and Definitions.

Signed this 28 day of SEPTEMBER 2006

Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA

Glenn Haas, Director
Division of Watershed Management
Massachusetts Department of Environmental Protection
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge various process waste waters, non-contact cooling water and storm water from outfall serial number **001** to wetlands adjacent to East Brook and Quinsigamond River. The discharges will occur if there is a hydraulic overflow of the Runoff Management Facility (RMF), occurring first at outfall 010 for overflows up to 1.4 cfs and then at outfall 001 for higher flows. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/overflow	Estimate
pH[2], S.U.	see PART I.A.7		1/overflow	Grab
Oil and Grease, mg/l	----	15	1/overflow	Grab
TSS[6], mg/l	----	62	1/overflow	Grab
Copper, Total, mg/l	----	.0073	1/overflow	Grab
Trichloroethylene, mg/l	Report	Report	1/overflow	Grab
Tetrachloroethylene, mg/l	Report	Report	1/overflow	Grab
Whole Effluent Toxicity Testing				
LC_{50}[3]	----	$\geq$ 100%	1/overflow[4, 5]	Composite[4]

Footnotes are listed on Page 8.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge various process waste waters, non-contact cooling water and storm water from outfall serial number **010** to the Quinsigamond River. The discharges will occur if there is a hydraulic overflow of the Runoff Management Facility (RMF). Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/overflow	Estimate
pH[2], S.U.	see PART I.A.7		1/overflow	Grab
Oil and Grease, mg/l	----	15	1/overflow	Grab
TSS[6], mg/l	----	62	1/overflow	Grab
Copper, Total, mg/l	----	.0098	1/overflow	Grab
Trichloroethylene, mg/l	Report	Report	1/overflow	Grab
Tetrachloroethylene, mg/l	Report	Report	1/overflow	Grab
Whole Effluent Toxicity Testing				
LC_{50}[3]	----	$\geq$ 100%	1/overflow[4, 5]	Composite[4]

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

3. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number 007 to Bonny Brook. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/quarter	Estimate
pH[2], S.U.	see PART I.A.7		1/quarter	Grab
Oil and Grease, mg/l	---	15	1/quarter	Grab
TSS[6], mg/l	Report	Report	1/quarter	Grab
Copper, Total, mg/l	----	.0074	1/quarter	Grab
Aluminum, Total, mg/l	----	.760	1/quarter	Grab
Iron, Total, mg/l	----	1.010	1/quarter	Grab
Whole Effluent Toxicity Testing				
LC_{50}	----	Report	1/year[5,7]	Composite[4]

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

4. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number 008 to Bonny Brook. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, mgd	Report	Report	1/quarter	Estimate
pH,[2] S.U.	see PART I.A.7		1/quarter	Grab
Oil and Grease, mg/l	----	15	1/quarter	Grab
TSS,[6] mg/l	Report	Report	1/quarter	Grab
Copper, Total, mg/l	----	.0074	1/quarter	Grab
Iron, Total, mg/l	----	1.010	1/quarter	Grab
Aluminum, Total, mg/l	----	.760	1/quarter	Grab
Zinc, Total, mg/l	----	.067	1/quarter	Grab
Whole Effluent Toxicity Testing				
LC_{50}	----	Report	1/year[5,7]	Composite[4]

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

5. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number **009** to wetlands adjacent to East Brook and Quinsigamond River. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow	Report	Report	1/quarter	Estimate
pH[2]	see PART I.A.7		1/quarter	Grab
Oil and Grease, mg/l	----	15	1/quarter	Grab
TSS[6], mg/l	Report	Report	1/quarter	Grab
Copper, Total, mg/l	----	.0073	1/quarter	Grab
Aluminum, Total, mg/l	----	.750	1/quarter	Grab
Iron, Total, mg/l	----	1.000	1/quarter	Grab
Whole Effluent Toxicity Testing				
LC_{50}	----	Report	1/year[5,7]	Composite[4]

Footnotes:

(1) Storm water runoff samples will be collected and analyzed in accordance with 40 CFR Part 136 and EPA's NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001, July, 1992. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. A "representative storm" is defined as a "typical" storm for the area in terms of intensity, volume, and duration, roughly a storm not varying by more than 50 percent from the average rainfall volume and duration. The grab sample shall be taken during the first thirty minutes of the discharge; if this is not feasible, it may be taken within the first few hours of discharge and noted. The composite sample shall either be flow-weighted or time-weighted. Composite samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes. For those months where there is "no discharge" during the monitoring period, the permittee shall check the box in the upper right hand corner of the DMR form labeled "Check here for No Discharge" and insert the NODI code "C", which indicates no discharge, anywhere on the report/parameter line and do not fill in anything else.

(2) Required for state certification.

(3) The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

(4) The permittee shall conduct an acute, whole effluent toxicity (WET) toxicity test on only one overflow that occurs in any calendar quarter (up to four per year) for both outfalls 001 and 010. The permittee shall test the invertebrate, Ceriodaphnia dubia only, as it has been determined to be the more sensitive test species compared to the fathead minnow, Pimephales promelas. A composite sample is preferable, but if this is not possible, a grab sample may be used. Results are to be submitted by the 15th day of the month following the end of the quarter. See Permit Attachment A, Acute Toxicity Test Procedure and Protocol.

(5) After four toxicity tests for any outfall are conducted and acceptable, the permittee may request a reduction in the testing requirements for any or all outfalls. A determination on any such reduction will be made by the EPA and DEP after considering test results.

(6) If the permittee reports TSS results that exceed 100 mg/l, it shall evaluate what caused such a level, review its SWPPP and revise it as necessary to minimize solids runoff.

(7) The permittee shall conduct an acceptable 24 hour static acute toxicity test once per year on outfalls 007, 008 and 009. This test shall be conducted during the period of April 1st and June 30th, and the results shall be due by the 15th of August. The permittee shall test the daphnid, Ceriodaphnia dubia. See Permit Attachment B, Stormwater Toxicity Test Procedure and Protocol. After three consecutive toxicity tests for outfalls 007, 008 and 009 are conducted and acceptable, the permittee may request a reducyion or elimination of the toxicity testing requirement for the outfalls. A determination on any such reduction or elimnation will be made by the EPA and MA DEP after considering test results.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont.)

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

7. The pH of the effluent shall be monitored on a quarterly basis for outfalls 007, 008 and 009. Also, for the first year only, the permittee shall monitor and report the instream pH, immediately upstream and downstream of each of these three outfalls. This shall be done concurrently with the quarterly, effluent pH monitoring. The results of this monitoring shall be included as an attachment with the DMR for that reporting period. For outfalls 001 and 010, the pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units.

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

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

10. Samples taken in compliance with the monitoring requirements specified above shall be taken at each of the outfalls above prior to mixing with any other stream.

11. After submitting 8 consecutive (quarterly) tests for any of the different metals or volatile organics for any outfall, demonstrating the absence of any such parameters from the particular outfall(s), the permittee may request a reduction in the frequency or the elimination of such testing. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the frequency for a particular parameter has been changed.

12. The permittee shall maintain the following:

(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 intake structure with the bottom of the intake pipe a minimum of one foot higher than the bottom of the inlet.

13. The permittee shall update and continue to implement the Storm Water Pollution Prevention Plan (SWPPP) for this facility developed under previous permits and shall provide for compliance with the terms of the permit and the SWPPP no later than 180 days after the effective date of this permit. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity at the facility and mitigate these where possible. This plan shall specifically address runoff mitigation from outdoor storage areas containing spare parts and part dies. The SWPPP shall incorporate all existing and appropriate BMPs, SPCC plan elements and other measures taken by the permittee which satisfy the SWPPP requirements.

14. This permit may be modified, or revoked and reissued, on the basis of new information in accordance with 40 CFR 122.62

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

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

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

(2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2- methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

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

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

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

(1) Five hundred micrograms per liter (500 ug/l)

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

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

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

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application and which is not limited under Part I.A.1.a and I.A.2.a of the permit. Part I.A.1.a and I.A.2.a pertain to the sampling locations of 001 and 002 respectively, not pollutants limited.

B. STORM WATER BEST MANAGEMENT PRACTICES

The permittee shall maintain, update and implement the Storm Water Pollution Prevention Plan (SWPPP) to account for any changes which might occur at the facility which could impact the plan. The permittee shall be required to provide annual certification to EPA and the MADEP documenting that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with the SWPPP. The certification shall be signed in accordance with the requirements identified in 40 CFR §122.22 and a copy of the certification will be sent each year to EPA and MADEP as well as appended to the SWPPP within thirty (30) days of the annual anniversary of the effective date of the Draft Permit. The permittee shall keep a copy of the most recent SWPPP at the facility and shall make it available for inspection by EPA and MADEP.

C. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) **postmarked no later than the 15th day of the month following the effective date of the permit.**

Original, signed and dated copies of these, and all other reports required herein, shall be submitted to the Director and the state at the following addresses:

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

The State Agency is:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Central Regional Office
627 Main street
Worcester, MA 01608

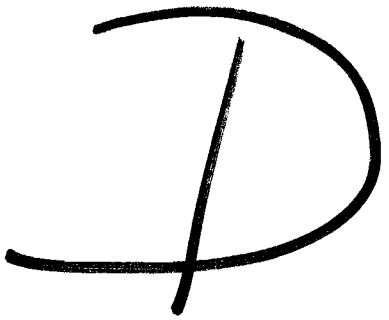
Additionally, signed and dated copies of all monitoring reports, other notifications and reports required by this permit shall be submitted to the State at:

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

D. STATE PERMIT CONDITIONS

This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this Permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MA DEP pursuant to M.G.L. Chap. 21 §43.

Each agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is declared, invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this Permit is declared invalid, illegal or otherwise issued in violation of federal law, this Permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.



SWPPP Due Date 1-26-98

State Permit No.
Permit No. MA0004341

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA", and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

WYMAN GORDON COMPANY

is authorized to discharge from a facility located at

Grafton facility
Worcester Street
North Grafton, MA 01536

to receiving waters named

Quinsigamond River via unnamed tributaries and Flint Pond via Bonny Brook

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

This permit shall become effective thirty (30) days after the date of signature.

This permit and the authorization to discharge expire at midnight, five (5) years from the effective date. July 30, 2002

This permit supersedes the permit issued on September 29, 1989.

This permit consists of 10 pages in Part I including effluent limitations, monitoring requirements, etc., and 35 pages in Part II including General Conditions and Definitions.

Signed this 30th day of June, 1997 Effective July 30, 1997

David Fierra
Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA

Director, Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge various process wastewaters, non-contact cooling water and storm water from outfall serial number 001 to an unnamed tributary to the Quinsigamond River and from Outfall 010 to the Quinsigamond River. These discharges will occur if there is a hydraulic overflow of the Runoff Management Facility (RMF), occurring first at Outfall 010 for overflows up to 1.4 cfs and then at Outfall 001 for higher flows. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations (mg/l or as specified) Average Monthly	Maximum Daily	Monitoring Requirement Measurement Frequency	Sample Type[1]
Flow, GPD	----	----	1/Overflow	Estimate
pH[2], s.u.	see Page 6		1/Overflow	Grab
Oil & Grease	----	15	1/Overflow	Grab
TSS	Report	Report	1/Overflow	Grab
Copper, Total	Report	Report	1/Overflow	Grab
Nickel, Total	Report	Report	1/Overflow	Grab
Aluminum, Total	Report	Report	1/Overflow	Grab
Lead, Total	Report	Report	1/Overflow	Grab
Iron, Total	Report	Report	1/Overflow	Grab
Trichloroethylene, ug/l	Report	Report	1/Overflow	Grab
Tetrachloroethylene, ug/l	Report	Report	1/Overflow	Grab
Whole Effluent Toxicity Testing				
LC_{50}[3]	----	$\geq$ 100 %	1/Overflow[4,5]	Composite[4]

Footnotes are listed on Pages 6 and 7. If discharges occur at both locations, Outfalls 001 and 010, in the same month, the permittee shall sample both locations for the parameters above.

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number 007 to Flint Pond via Bonny Brook. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations (mg/l or as specified)		Monitoring Requirement	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, GPD	Report	Report	1/Month	Estimate
TSS[6]	Report	Report	1/Month	Grab
pH, s.u.	see Page 6		1/Quarter	Grab
Oil & Grease	----	15	1/Month	Grab
Copper, Total	Report	Report	1/Quarter	Grab
Nickel, Total	Report	Report	1/Quarter	Grab
Aluminum, Total	Report	Report	1/Quarter	Grab
Lead, Total	Report	Report	1/Quarter	Grab
Iron, Total	Report	Report	1/Quarter	Grab

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

Footnotes are listed on Pages 6 and 7.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

3. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number 008 to Flint Pond via Bonny Brook. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations (mg/l or as specified)		Monitoring Requirement	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, GPD	Report	Report	1/Month	Estimate
TSS[6]	Report	Report	1/Month	Grab
pH, s.u.	see page 6		1/Quarter	Grab
Oil & Grease	----	15	1/Month	Grab
Copper, Total	Report	Report	1/Quarter	Grab
Nickel, Total	Report	Report	1/Quarter	Grab
Aluminum, Total	Report	Report	1/Quarter	Grab
Lead, Total	Report	Report	1/Quarter	Grab
Iron, Total	Report	Report	1/Quarter	Grab
Arsenic, Total	Report	Report	1/Quarter	Grab
Zinc, Total	Report	Report	1/Quarter	Grab
Mercury, Total	Report	Report	1/Quarter	Grab
Trichloroethylene, ug/l	Report	Report	1/Quarter	Grab
Tetrachloroethylene,ug/l	Report	Report	1/Quarter	Grab
Whole Effluent Toxicity Testing				
See Attachment B	----	Monitor	1/Year[5,7]	Grab

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

Footnotes are listed on Pages 6 and 7.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

4. During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge storm water from outfall serial number 009, an unnamed tributary to the Quinsigamond River. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations (mg/l or as specified)		Monitoring Requirement	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow, GPD	Report	Report	1/Month	Estimate
TSS[6]	Report	Report	1/Month	Grab
pH, s.u.	See Page 6		1/Quarter	Grab
Oil & Grease	----	15	1/Month	Grab
Copper, Total	Report	Report	1/Quarter	Grab
Nickel, Total	Report	Report	1/Quarter	Grab
Aluminum, Total	Report	Report	1/Quarter	Grab
Lead, Total	Report	Report	1/Quarter	Grab
Iron, total	Report	Report	1/Quarter	Grab

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

Footnotes are listed on Pages 6 and 7.

a. The pH of the effluent shall be monitored on a quarterly basis for Outfalls 007, 008 and 009. Also, for the first year only, the permittee shall monitor and report the instream pH, immediately upstream and downstream of each of these three outfalls. This shall be done concurrently with the quarterly, effluent pH monitoring. For Outfalls 001 and 010, the pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units and not more than 0.5 units outside of the naturally occurring range.

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

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

d. Samples taken in compliance with the monitoring requirements specified above shall be taken at each of the outfalls above prior to mixing with any other stream.

e. After submitting 8 consecutive (quarterly) tests for any of the different metals or volatile organics for any outfall, demonstrating the absence of any such parameters from the particular outfall(s), the permittee may request a reduction in the frequency or the elimination of such testing. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the frequency for a particular parameter has been changed.

Footnotes:

(1) Storm water runoff samples will be collected and analyzed in accordance with 40 CFR Part 136 and EPA's **NPDES Storm Water Sampling Guidance Document**, **EPA 833-B-92-001, July, 1992** . All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. A "representative storm" is defined as a "typical" storm for the area in terms of intensity, volume, and duration, roughly a storm not varying by more than 50 percent from the average rainfall volume and duration. The grab sample shall be taken during the first thirty minutes of the discharge; if this is not feasible, it may be taken within the first few hours of discharge and noted. The composite sample shall either be flow-weighted or time-weighted. Composite samples may be taken with a continuous sampler or as a combination of

a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes.

(2) Required for State certification.

(3) The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

(4) The permittee shall conduct an acute, whole effluent toxicity (WET) toxicity test on only one overflow that occurs in any calendar quarter (up to four per year) for both Outfalls 001 and 010. The permittee shall test the invertebrate, Ceriodaphnia dubia only, as it has been determined to be the more sensitive test species compared to the fathead minnow, Pimephales promelas. A composite sample is preferable, but if this is not possible, a grab sample may be used. Results are to be submitted by the 15th day of the month following the end of the quarter. See Permit Attachment A, Acute Toxicity Test Procedure and Protocol.

(5) After four toxicity tests for any outfall are conducted and acceptable, the permittee may request a reduction in the testing requirements for any or all outfalls. A determination on any such reduction will be made by the EPA and DEP after considering test results.

(6) It has been recognized that 100 mg/l for TSS is a benchmark which should not be exceeded for a storm water discharge if a facility has a properly implemented storm water pollution prevention plan (SWPPP). If the permittee reports TSS results approaching or exceeding 100 mg/l, it should evaluate what caused such a level and review its SWPPP and revise it as necessary to minimize solids runoff.

(7) The permittee shall conduct an acceptable 24 hour static acute toxicity test once per year on Outfall 008. This test shall be conducted during the period of April through June and the results will be due by the 15th of August. For the invertebrate species, the permittee shall test the daphnid, Ceriodaphnia dubia and for the vertebrate species, testing shall be conducted for the fathead minnow, Pimephales promelas. See Permit Attachment B, Stormwater Toxicity Test Procedure and Protocol.

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

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

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

      (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

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

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

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

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

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

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

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

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

6. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for this facility and shall provide for compliance with the terms of the permit and the SWPPP no later than 180 days after the effective date of this permit. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity at the facility and mitigate these where possible. This plan shall specifically address runoff mitigation from outdoor storage areas containing spare parts and part dies. Attachment C provides the minimum requirements of a SWPPP for this facility. The SWPPP shall incorporate all existing and appropriate BMPs, SPCC plan elements and other measures taken by the permittee which satisfy the SWPPP requirements.

7. This permit may be modified, or revoked and reissued, on the basis of new information in accordance with 40 CFR 122.62.

B. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the month following the effective date of the permit.

Original, signed copies of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

U.S. Environmental Protection Agency
NPDES PROGRAMS (SPA)
P.O. Box 8127
Boston, Massachusetts 02114

The State Agency is:

Massachusetts Department of Environmental Protection
Central Regional Office
627 Main Street
Worcester, MA 01608

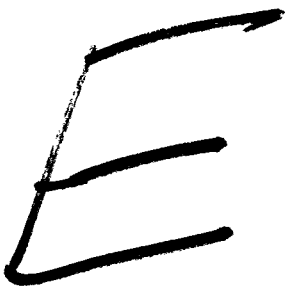
Signed copies of all other notifications and toxicity test reports required by this permit shall be submitted to the State at:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Watershed Planning and Permitting Section
627 Main Street
Worcester, Massachusetts 01608

C. STATE PERMIT CONDITIONS

1. This Discharge Permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the DEP pursuant to M.G.L. Chap. 21, §43.

2. Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of this Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this Permit is declared, invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as an NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this Permit is declared invalid, illegal or otherwise issued in violation of Federal law, this Permit shall remain in full force and effect under State law as a Permit issued by the Commonwealth of Massachusetts.



Wyman-Gordon, Inc. Response to Comments on Draft National Pollutant Discharge Elimination System (NPDES) Permit No. MA0004341

Introduction:

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit (MA0004341). The responses to comments (RTC) explain and support the EPA determinations that form the basis of the Final Permit. The Wyman-Gordon, Inc. draft permit public comment period began October 24, 2005 and ended on November 22, 2005. Comments were received from the permittee's counsel, Bowditch & Dewey, Attorneys, in a letter dated November 21, 2005 and Commonwealth of Massachusetts Riverways Program in a letter dated November 18, 2005. The comments raised concerns regarding the methodology and assumptions used to develop the permit and requested clarifications and further explanations of information in the fact sheet. Since the fact sheet is a final document, no changes were made. Instead, the comments were noted and a response to them is included in this document.

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

1. The cover page clarifies that the facility is authorized to discharge to receiving waters named "Wetlands adjacent to East Brook and Quinsigamond River; the Quinsigamond River (Segment MA51-09); and Bonny Brook (Basin Code MA851050) (Blackstone River Watershed). Part I.A.1 on page 2 clarifies that the permittee is authorized to discharge from outfall serial number 001 to "wetlands adjacent to East Brook and Quinsigamond River"; Part I.A.3 on page 4 clarifies that the permittee is authorized to discharge from outfall serial number 007 to "Bonny Brook"; Part I.A.4 on page 5 clarifies that the permittee is authorized to discharge from outfall serial number 008 to "Bonny Brook"; Part I.A.5 on page 6 clarifies that the permittee is authorized to discharge from serial outfall number 009 to "wetlands adjacent to East Brook and Quinsigamond River

2. The wording of footnote #6 in the permit has been amended to read, "If the permittee reports TSS results that exceed 100 mg/l, the permittee shall evaluate what caused such a level and review the permittee's SWPPP and revise it as necessary to minimize solids runoff."

3. A new Maximum Daily Effluent Limit of 0.760 for Total Aluminum as measured in mg/l, has been added for outfall # 008.

4. The wording of footnote # 7 shall be changed to read the following: "The permittee shall conduct an acceptable 24 hour static acute toxicity test once per year on outfalls 007, 008 and 009. This test shall be conducted during the period between April 1st and June 30th, and the

results shall be due by the 15th of August. The permittee shall test the daphnid, Ceriodaphnia dubia. See Permit Attachment B, Stormwater Toxicity Test Procedure and Protocol. After three consecutive toxicity tests for outfalls 007, 008 or 009 are conducted and acceptable, the permittee may request a reduction or elimination of the toxicity testing requirement for the outfalls. A determination on any such reduction or elimination will be made by the EPA and MA DEP after considering test results."

5. The pH discharge limits contained in the tables in Part I.A.1 (page 2), Part I.A.2 (page 3), Part I.A.3 (page 4), Part I.A.4 (page 5), and Part I.A.5 (page 6), has been changed from "see Part I.A.6" to "see Part I.A.7."

6. The requirement in Part I.A.7 that the pH of outfalls 001 and 010 be not more than 0.5 standard units outside of the naturally occurring range has been deleted. Part I.A.7 includes language clarifying the reporting of the instream pH monitoring. The pH requirements in Part I.A.7 on page 5 have been changed from "The pH of the effluent shall be monitored on a quarterly basis for outfalls 007, 008 and 009. Also, for the first year only, the permittee shall monitor and report the instream pH, immediately upstream and downstream of each of these three outfalls. This shall be done concurrently with the quarterly, effluent pH monitoring. For outfalls 001 and 010, the pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units and not more than 0.5 units outside of the naturally occurring range" to "The pH of the effluent shall be monitored on a quarterly basis for outfalls 007, 008 and 009. Also, for the first year only, the permittee shall monitor and report the instream pH, immediately upstream and downstream of each of these three outfalls. This shall be done concurrently with the quarterly, effluent pH monitoring. The results of this monitoring shall be included as an attachment with the DMR for that reporting period. For outfalls 001 and 010, the pH of the effluent shall not be less than 6.5 nor greater than 8.3 standard units."

Bowditch & Dewey, Counsel for Wyman-Gordon, comments:

General Comment 1 – Wyman-Gordon objects to the methodology and underlying assumptions used in deriving dilution and flow factors for each of the five (5) outfalls originating from the facility. EPA consistently undervalues and overlooks viable flow rates for the three receiving water bodies. These inaccurate flow rates become a critical component of the dilution calculation with respect to the discharge point and the receiving water. The incorrect dilution value subsequently has a substantial and direct impact on the final effluent limitations for all five Outfalls, particularly for each of the metals limits proposed by EPA. As a result, Wyman-Gordon is contesting all effluent limitations for metals proposed by EPA in the Draft Permit as well as Whole Effluent Testing ("WET") and pH monitoring and reporting.

Response to General Comment 1 - The permittee objected to the methodology and underlying assumptions used in deriving dilution and flow factors. The permittee maintains that EPA consistently "undervalues and overlooks viable flow rates ..." Since this comment is general in nature and the permittee does not provide specific numerical data to support its argument here, EPA provides the following general response on the methodology and assumptions used to derive the dilution, flow factors, and subsequent final effluent limitations.

1. Dilution

In determining whether water-quality based effluent limits are needed in a permit, the permit writer is required to consider a number of factors, including the dilution of the effluent in the receiving water, where appropriate (See 40 CFR Section 122.44(d)(ii) and U.S. EPA NPDES Permit Writers' Manual, EPA-833-B-96-003, December 1996, pg. 101).

When conducting an effluent characterization to determine if water-quality based effluent limits are needed for specific chemicals, the permit writer projects the receiving water concentration of pollutants(s) contained in the effluent once that effluent enters the receiving water (U.S. EPA NPDES Permit Writers' Manual, EPA-833-B-96-003, December 1996, pg. 100). EPA may use a simple water-quality model when performing this analysis (See U.S. EPA NPDES Permit Writers' Manual, EPA-833-B-96-003, December 1996, pgs. 101-102). The water-quality model (or basic mass balance water-quality equation) is as follows:

$$Q_dC_d + Q_sC_s = Q_rC_r \qquad (1)$$

where:

Q_d = discharge flow
C_d = pollutant concentration in effluent
Q_s = background stream flow above point of discharge
C_s = background in-stream pollutant concentration
Q_r = resultant in-stream flow, after discharge = $Q_d + Q_s$
C_r = resultant in-stream pollutant concentration in the stream (after complete mixing)

For this permit, EPA assumed that the term representing background in-stream pollutant concentration (C_s) equals zero, so the product of the stream flow above the point of discharge and background pollutant concentration (Q_sC_s) also equals zero. Therefore, for this permit, the above equation can be rearranged algebraically as follows:

$$Q_dC_d = (Q_d + Q_s)Cr$$

$$C_r = Q_dC_d/(Q_d + Q_s) \qquad (2)$$

In the above equation, the term "$Q_d + Q_s$" represents the dilution provided by the receiving water. As can be seen from this equation, the term Q_s is inversely proportional to the term C_r. In other words, as the background stream flow increases, the resultant in-stream pollutant concentration decreases. Therefore, the background stream flow is an important factor in determining whether a discharge has a "reasonable potential" to violate water quality standards, and in establishing the appropriate effluent limit.

The term Q_s in the above equation is determined by using the lowest mean flow for seven consecutive days to be expected once in ten years (this is referred to as the receiving water "7Q10"). This value is selected in accordance with 314 CMR 4.03(3)(a), which states, in pertinent part, that "For rivers and streams, the lowest flow conditions at and above which

criteria must be met is the lowest mean flow for seven consecutive days to be expected once in ten years."

With regard to the permittee's comment concerning the methods used to determine (or calculate) the 7Q10 low flow for NPDES permits, the following information is provided. In general, EPA uses streamflow data collected and compiled by the U.S. Geological Survey. If other streamflow information is available for the site, EPA may consider using that data, depending on its accuracy.

Selecting the method to define the 7Q10 low flow for the site depends on the streamflow data available near the site. Streamflow data from the USGS's data collection network include daily flow records at gaging stations and discharge measurements at partial-record (or miscellaneous) stations. These daily flow data are compiled in the USGS National Water Information System (NWIS). See http://waterdata.usgs.gov/ma/nwis/sw . Data for the partial-record stations are available in separate reports by the USGS.

The following methods are commonly applied to determine the 7Q10 low flow and the following discussion provides a general overview. Responses to the derivation of the specific 7Q10 values used for this permit are addressed later in this response to comments.

A. Daily flow records: The 7Q10 low flow is calculated for a nearby gaging station located on the receiving water using several years of daily streamflow records. EPA's DFLOW program provides the 7Q10 flow using the daily flow data with a Log Pearson Type III distribution. These daily flow data are found in the NWIS data base. Information on DFLOW, including the program download, is available at http://epa.gov/waterscience/dflow . This 7Q10 low flow value is then translated upstream or downstream to the site using the drainage areas for each location.

Some drainage basins, where the site is located, contain multiple gaging stations. The computed 7Q10 values for each gage and all the drainage areas are used to determine the 7Q10 low flow at the site.

If adequate daily streamflow data are not available for that section of the receiving water, a "flow factor" is determined by using data selected from a nearby gaged stream with similar hydrologic characteristics. The method of using a flow factor is a simple process by which EPA first determines a value of the ratio of a known 7Q10 (as reported using a USGS gauge station) to its drainage area. After determining this "flow factor", one can compute an unknown 7Q10 by first determining the drainage area of the unknown 7Q10 and then applying the flow factor. EPA addresses the determination used in developing 7Q10 values using a "flow factor" later in this response to comments.

Where appropriate, adjustments may be made to the computed 7Q10 value for surface water alterations (impoundments) including water diversions and transfers, and other point source discharges from treatment facilities. For certain river systems, these adjusted annual low flow data are used to define a graphical low flow frequency curve to determine the 7Q10 value.

B. Partial-Record Stations: The 7Q10 low flow value for the nearby partial-record (or miscellaneous) station is used and transferred to the site using the drainage areas for each location.

C. Unavailable Streamflow Data: For sites without streamflow data available, EPA may use USGS's STREAMSTATS software to obtain the 7Q10 flow for rivers and streams in Massachusetts.

Finally, in some instances EPA may believe that the 7Q10 value used to develop the previous permit limits is still a valid value and therefore, EPA may simply use the same 7Q10 value to develop the new permit limits.

The commenter states that EPA "consistently undervalues and overlooks viable flow rates for the three receiving water bodies" and that the use of an incorrect dilution value "subsequently has a substantial and direct impact on the final effluent limitation for all five Outfalls, particularly for each of the metals ..."

While EPA agrees generally, as demonstrated and stated above, that the use of incorrect dilution values may affect the permit's final effluent limits, in this case the dilution values were correct. The derivation of the actual flow values used in developing the permit's final effluent limits are discussed in response to the commenter's specific comments. See "Response to Specific Comment 1" below. Dilution is discussed in more detail per outfall in later responses to Specific Comments.

Additionally, the permittee has not provided alternative methods or calculations to support its statements. Therefore; based on the review of its methodology, EPA has not modified the assumptions used in the derivation of flows and dilution in the draft permit.

General Comment 2 - The hardness calculations utilized by EPA are entirely dependant upon the above analysis. Specifically, EPA indicated "it was reasonable to simply use the hardness of the effluent which was reported in the WET reports." *See* Fact Sheet Attachment "J." However, EPA in the Fact Sheet states that this conclusion assumes a "great disparity between the stream flow and the maximum daily flow." *See id.* As outlined above, Wyman-Gordon contests that such a disparity exists between the stream flow and maximum daily flow. The flow levels assumed by EPA are not reflective of actual conditions and underestimate the volume of water in the receiving body. These inaccuracies directly impact the final hardness calculation. As a result, it is Wyman-Gordon's position that the use of such a hardness factor is overly conservative and an unrealistic evaluation of water hardness.

With regards to calculating hardness, Wyman-Gordon contests various assumptions and calculation methodologies utilized by EPA with respect to final derivations. Particularly, Wyman-Gordon objects to the translator used in developing a total recoverable permit limit from dissolved criteria. Despite the absence of site specific data to derive a translator, given the nature of the receiving waters and effluent flows, the utilization of a translator equivalent to the criteria

conversion factor is not necessary. The utilization of such a translator represents a worst case scenario not indicative of the particular discharge to the specific receiving water body.

Response to General Comment 2 - In response to the permittee's comment, EPA has reviewed the guidance and regulations used to develop hardness dependent metal permit limits. EPA has also re-examined the translator(s) used to develop total recoverable metal permit limits. EPA offers the following general response to the commenter's general comments. Specific values used and their rationale are explained in response to specific comments.

1. Hardness:

Freshwater aquatic life criteria for certain metals are expressed as a function of hardness because hardness can affect the toxicities of these metals (See National Recommended Water Quality Criteria: 2002, November 2002, EPA-822-R-02-047). EPA determined that two hardness dependent metals, namely copper and zinc, were of concern when developing permit limits (based on past monitoring results from the facility's discharge, See Attachment D to the Fact Sheet). Therefore, EPA used the equation for the highest concentration of a pollutant in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect (CMC) as provided in Appendix B of the National Recommended Water Quality Criteria: 2002, November 2002, EPA-822-R-02-047 in order to determine the appropriate criteria to use in developing potential permit limits for copper and zinc (See pgs. 11,12, 15, 16, 18,19, 22, 26, and Attachment J of the Fact Sheet). This equation shows that a metals dissolved criteria is proportional to the exponent of the natural log of the hardness. This is expressed mathematically as follows:

$$\text{CMC (dissolved)} = \exp\{m_A[\ln(\text{hardness})] + b_A\}\ (\text{CF}) \qquad (3)$$

The permittee contends in its comments that the flow levels assumed by EPA are not reflective of actual conditions and underestimate the volume of water in the receiving body and that these "inaccuracies" directly impact the final hardness calculation.

EPA agrees that the value determined for hardness and used in the above equation impacts the dissolved criteria used in the development of permit limits for certain hardness dependant metals (copper and zinc). Increasing the hardness has the effect of decreasing the toxicity of metals (See pg. 7, National Recommended Water Quality Criteria: 2002, November 2002, EPA-822-R-02-047).

EPA's rationales for choosing the flow levels and specific hardness values for the receiving water are discussed in response to specific comments on this issue by the permittee.

2. Translator

40 CFR Section 122.45(c) states that: " All permit effluent limitations, standards, or prohibitions for a metal shall be expressed in terms of "total recoverable metal" as defined in 40 CFR part 136..." To determine the ""total recoverable metal" limits for this permit, EPA used The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from

a Dissolved Criterion, EPA Document # EPA-823-B-96-007, 1996. The metals translator is a tool for environmental scientists and permit writers to use in calculating the amount of a metal that may be discharged from a facility to a surface water body based on how the metal is distributed (partitioned) between water and sediments in the receiving stream.

The above referenced guidance document (the "Metals Translator") states that the translator may take three forms. (1) It may be assumed to be equivalent to the criteria conversion factors; (2) It may be developed directly as the ratio of dissolved to total recoverable metal; or (3) it may be developed through the use of a partition coefficient that is functionally related to the number of metal binding sites on the adsorbent in the water column (i.e., concentrations of TSS, TOC, or humic substances).

For this permit, EPA assumed the translator to be equivalent to the criteria conversion factors (as given in Appendix B of National Recommended Water Quality Criteria: 2002). This decision was based in part on the lack of site specific data that would be necessary to develop a translator based on either a direct ratio of dissolved to total recoverable metal or through the use of a partition coefficient. Therefore, EPA disagrees with the commenter that "despite the absence of site specific data to derive a translator ... a translator equivalent to the criteria conversion factor is not necessary." No change to the method of choosing the appropriate translator has been made in response to this comment.

The permittee has the option of performing additional sampling of the effluent, receiving waters and effluent/receiving water mixtures in order to develop site-specific ratio and/or partition coefficients for any metal(s) using the procedures described in the guidance document cited above. If the permittee chooses to do so, it may seek a permit modification based on the results of such efforts in the future.

Regarding hardness, the concentration of available metal is dependent on the hardness of the water it is contained in. As mentioned in Attachment J, the permittee did not either perform or report a site control or chemical analysis for the receiving stream as required in the WET testing protocols. This would have given EPA a direct hardness number for the stream.

EPA determined that the hardness factor to be used in setting an effluent limit for hardness dependent metals would be the average hardness of the effluent (50 mg/l) reported in the WET reports. During rain events, Bonny Brook tends to be dominated by the facility's effluent. In fact, using the 7Q10 value (0.003 cubic feet per second equals approximately 1932 gallons per day) and the maximum daily storm water flow (356,500 gpd), one sees that Bonny Brook consists of approximately 99.5% effluent (356,500/358,435 = 0.995). Therefore, EPA believes that use of the hardness value of the effluent in lieu of the hardness of the stream is appropriate.

EPA finds that the procedures followed are correct and no changes relating to hardness based effluent limits have been made in the final permit relating to this comment.

The permittee contests EPA's use of "various assumptions and calculation methodologies" and disputes the hardness number used in the calculation of a total recoverable permit limit, but fails to specifically identify what assumptions and methodologies it disagrees with and why, nor did it provide alternative calculations or a hardness number which would allow EPA the opportunity to evaluate the permittee's contention.

General Comment 3 – Wyman-Gordon contests the dilution factors and respectfully requests inclusion of dilution factors more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters. Wyman-Gordon contends that there is no reasonable potential for excursions over any relative water quality standard based upon the current pollution prevention controls in place and the nature of the specific receiving water bodies. As a result, Wyman-Gordon maintains that the effluent limitations and testing and monitoring requirements contained within the draft permit are excessive.

Response to General Comment 3 – The use of dilution to calculate permit limits is discussed in general terms above. Specific responses to the permittee's specific comments are provided below.

The permittee contends that "there is no reasonable potential for excursions over any relative water quality standard based upon the current pollution prevention controls in place and the nature of the specific receiving water bodies."

The permittee's statement is very general, but monitoring data reported by the permittee to EPA as required under the existing permit, clearly show "excursions" over water quality criteria. As an example, EPA's National Recommended Water Quality Criteria for Aluminum and Iron are 0.750 mg/l and 1.000 mg/l respectively. In June of 2001 the Discharge Monitoring Reports (DMRs) indicated an Aluminum level of 0.79 mg/l for outfall 007, and in December of 2003, the DMRs indicated an Iron level of 1.9 mg/l for outfall 009. Thus, both of these results exceed the recommended water quality criteria levels as well as the new effluent limits in the final permit. In these cases where the detected concentrations exceed the applicable numeric water quality criteria for these specific pollutants and receiving stream dilution is so small, EPA concludes that there is reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standards, and therefore EPA must develop effluent limitations. Therefore, EPA has included several new effluent limits in the final permit.

Specific Comment 1 – Wyman-Gordon disputes EPA's classification regarding flow rates for Bonny Brook as they relate to Outfalls 007 and 008. EPA notes a critical flow of approximately .003 cfs for the Brook. However, the environment immediately upstream of Bonny Brook consists of neighborhoods and roadways, including Route 122. As documented on the relevant United States Geological Survey ("USGS") topographic maps, Bonny Brook extends several thousand feet upstream of the Facility to its ponded headwaters. *See* Exhibit "A," USGS Topographic Map. The actual flow to Bonny Brook is greater than the worst case scenario imposed by EPA's alleged flow and proposed dilution factor of 1.01. Wyman-Gordon contests the dilution factors and respectfully requests inclusion of dilution factors more representative of

actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

Response to Specific Comment 1 – EPA agrees that the "actual flow to Bonny Brook" may be greater than "the worst case scenario imposed by EPA's alleged flow and proposed dilution factor of 1.01." However, as explained in response to general comment 1 above, EPA determines permit limits based on a 7Q10 value in accordance with 314 CMR 4.03(3)(a), which states, in pertinent part, that "For rivers and streams, the lowest flow conditions at and above which criteria must be met is the lowest mean flow for seven consecutive days to be expected once in ten years." While EPA agrees that the "actual flow" may in fact be greater than the 7Q10 at certain times, it is inappropriate for EPA to use the "actual flow" when developing permit limits.

In response to this comment, EPA has re-examined the methodology used to calculate the 7Q10 for Bonny Brook and offers the following response:

As stated on page 6 of the Fact Sheet, the 7Q10 flow for Bonny Brook was taken from data used to develop the previous ("existing") permit. This value was derived using a "flow factor" (see Attachment E to the Fact Sheet) and was calculated to be 0.0034 (rounded to 0.003) cubic feet per second (cfs).

As stated in response to general comment one above, estimating a 7Q10 value using a "flow factor" is a technique in which the ratio of a river or stream's known 7Q10 to its drainage area is applied to an unknown river or stream's 7Q10 to its known drainage area. Mathematically, this is expressed as follows:

$$7Q10_{known}/\text{Drainage Area}_A = 7Q10_{unknown}/\text{Drainage Area}_B \qquad (4)$$

where:

$7Q10_{known}$ = Value determined from USGS gauge station on river in proximity of receiving water
Drainage Area_A = Drainage area for river with known 7Q10 as determined from USGS quadrangular map
$7Q10_{unknown}$ = Receiving water low flow value at point of discharge
Draingage Area_B = Drainage area for receiving water as determined from USGS quadrangular map

As stated in response to general comment one above, an assumption used in equation 4 above is that the hydrological low flow value of Drainage Area_A is similar to Drainage Area_B. Although the commenter seems to dispute this assumption by stating that the environment above Bonny Brook consists "... of neighborhoods and roadways, including Route 122," EPA maintains that this is a valid assumption since both areas consist of similar land uses and would result in similar flow factors. The drainage area for Bonny Brook is included in the drainage area for the known 7Q10 and includes land uses consistent with what uses are found in the drainage area for the known 7Q10.

EPA has determined that an appropriate nearby gage station to use to determine a known 7Q10 is located on the Quinsigamond River (USGS Gazeteer of Hydrologic Characteristics of Streams in Massachusetts – Blackstone River Basin, U.S. Geological Survey Water Resources Investigation Report 84.4286 (Gazeteer), See Table 4, Page 20). The gage station is located approximately 800 feet downstream of Hovey Pond. The known 7Q10 for this location is 0.48 cfs. The drainage area for this gauge station river location is estimated to be 25.6 sq mi. Per the Gazeteer mentioned above, drainage area is defined as the area, in square miles, as measured on the most recent 1:24,000 scale topographic quadrangle maps. Drainage area as defined by the "National Handbook of Recommended Methods for Water Data Acquisition" (U.S. Geological Survey, 1977) is "...the area of a river basin, measured in a horizontal plane, that is enclosed by a topographic divide such that direct surface runoff from precipitation normally would drain by gravity into the river basin." Drainage area boundary lines are traced on topographic maps along divides indicated by contour elevations, starting at the point on the stream for which the drainage area is desired. These lines are drawn to cross a contour at right angles.

An estimate of the sub-basin drainage area for Bonny Brook was calculated utilizing two measurement methods. In the first method, transparent grids were laid over the topographical maps of the area. The number of squares and partial squares were then counted to estimate the area for Bonny Brook. The estimated drainage area for Bonny Brook using this method was 0.38 square miles versus 0.17 square miles as calculated in the current permit's fact sheet. The second method involved plotting points on a GIS system, which in turn calculates the area of the watershed. The GIS method enlarges the topographic map of the watershed area allowing for a more accurate placement of the points used to measure the drainage area. This method calculated a drainage area for Bonny Brook of 0.77 square miles. EPA believes this to be the more accurate of the values calculated for the drainage area.

Using the equation 4 above with the values determined above results in the following:

$$0.48 \text{ cfs}/25.6 \text{ sq. mi.} = 7Q10_{unknown}/0.77 \text{ sq. mi.}$$

$$7Q10_{unknown} = (0.48 \text{ cfs})(0.77 \text{ sq. mi.})/25.6 \text{ sq. mi.}$$

$$7Q10_{unknown} = 0.014 \text{ cfs}$$

Therefore, EPA agrees that the newly calculated 7Q10 for Bonny Brook be used in the development of a dilution factor in the final permit (recalculated 7Q10 of 0.014 cfs versus the 7Q10 of 0.003 cfs used for the draft permit).

Using the new value in equation 2 (see also pg. 6 of the fact sheet) above results in:

$$C_r = Q_d C_d/(Q_d + Q_s) \text{ or}$$

$$C_d = C_r(Q_d + Q_s)/Q_d$$

where:

$(Q_d + Q_s)/Q_d$ = Dilution Factor (see also pg. 7, Massachusetts Water Quality Standards, Implementation Policy for the Control of Toxic Pollutants in Surface Waters, February 23, 1990)
Q_d = discharge flow = 0.552 cfs
Q_s = 7Q10 stream flow = 0.014 cfs
therefore:

Dilution Factor = (0.552 cfs + 0.014 cfs)/0.552 cfs

Dilution Factor = 1.025 rounded up to 1.02; therefore

$$C_d = C_r(1.02)$$

As can be seen from above, using the updated value that includes the larger drainage area does not result in any appreciable change in the dilution factor. Therefore, no changes have been made to the permit limits based on this recalculated dilution factor.

Specific Comment 2 – Wyman-Gordon respectfully disagrees with EPA's determination regarding dilution factors for Outfalls 001 and 009. Further, Wyman-Gordon disagrees with the assertion in the Fact Sheet that Outfalls 001 and 009 discharge to wetlands.

Pursuant to the Draft Permit, EPA categorizes the particular discharge region in East Brook as "a slow moving lowland stream that meanders through a wetland with little velocity and flow." *See* Fact Sheet, page 6. The particular outfalls, however, discharge into two separate manmade unnamed channels, rather than wetlands. These channels are discrete conveyances through the wetlands that discharge primarily into the East Brook. As EPA notes in the Fact Sheet at page 6, East Brook is in fact a stream with a consistent flow. As documented on the relevant USGS topographic maps, East Brook extends several thousand feet upstream of the Facility to its headwaters. *See* Exhibit "A". As a result, East Brook does in fact generate dilution which is not reflected in the dilution factor of 0.0 proposed by EPA for Outfalls 001 and 009 in the Draft Permit. Thus, Wyman-Gordon contests the dilution factors and respectfully requests inclusion of dilution factors more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

Response to Specific Comment 2 - In response to the permittee's comment, EPA conducted a site visit to determine exactly where each outfall is located and what type of water body each outfall discharges its effluent into. Based on that site visit, as described below, EPA disagrees with the permittee's factual contentions. Rather, EPA has concluded that outfalls 001 and 009 discharge to the wetland (or, in the case of 009, into a small stream within the wetland) that is adjacent to East Brook and not directly into East Brook itself. EPA's observations are consistent with information obtained from the Commonwealth of Massachusetts, which indicates that the outfalls discharge into an area designated as a shrub swamp and a deciduous wooded swamp (see http://maps.massgis.state.ma.us).

On Wednesday, April 19, 2006, permit writer Stuart F. Gray visited the site and viewed the outfalls at the facility. It was clear from the site visit that outfall 001 did in fact discharge into a manmade channel that was created in an upland area and is approximately 150 to 200 feet in length. However, at the end of that channel, the effluent entered the wetland at a point several hundred yards from the East Brook streambed.

Outfall 009 discharged directly into a small meandering stream that is surrounded by the wetland and flows into East Brook several hundred yards downstream of the discharge point. The stream appears to be natural. Even if it were man-made, it would have been created by altering the wetland and could not be considered a man-made upland ditch. The stream is not simply a conveyance of effluent to East Brook, as the commenter contends, but rather is, itself, a receiving water within the wetland.

Based on the permit writer's observations made during the site visit in response to the permittee's comments, no changes have been made to the dilution determination or the subsequently derived permit limits.

Additionally, as a practical matter, it makes little difference in regard to deriving permit limits if one uses the potential dilution of East Brook rather than the zero dilution afforded by the wetland. This is demonstrated below.

EPA agrees with the permittee's comment that East Brook is a stream with a consistent flow. EPA also agrees that the relevant USGS maps show East Brook extends several thousand feet upstream to its headwaters. EPA notes here that this is demonstrated both in Exhibit A as submitted by the commenter as well as on the 1982 USGS Milford, MA quadrant map. Using the methodology and nearby gage station located on the Quinsigamond River explained in the Response to Specific Comment 1, the 7Q10 for East Brook is calculated as follows:

The drainage area of East Brook is calculated to be 0.69 square miles based on the GIS method explained in the Response to Specific Comment 1. As in the Response to Specific Comment 1, the nearby gage station on the Quinsigamond River is used to calculate the 7Q10 for East Brook, using a flow factor, as follows:

7Q10 Known/Drainage Area Known = 7Q10, East Brook/Drainage Area, East Brook

0.48 cfs/25.6 sq. miles = 7Q10 East Brook/ (0.69 sq. miles)

$$7Q10 \text{ of East Brook} = \frac{(0.48)\,(0.69)}{(25.6)} = 0.013 \text{ cfs}$$

As in Response to Specific Comment 1 and on page 7 of the Massachusetts Water Quality Standards, and the Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990), the dilution factor is derived from the formula:

Dilution Factor = DF = (Qd + Qs)/ Qd

Where Qd = the discharge flow = 5.98 cfs, and
Qs = the 7Q10 for East Brook = 0.013 cfs, calculated above.

DF = (Qd + Qs)/ Qd = (5.98 + 0.013) / 5.98 = 1.002

As can be seen from above, factoring in the flow from East Brook does not result in an appreciable change in the dilution factor, even though EPA maintains that for this receiving water, the fact sheet's calculation of effluent limits for Outfall 001 and 009 were correct in assuming no dilution (a dilution factor of 1.0). Therefore, no changes have been made to the permit limits for Outfall 001 and 009.

Specific Comment 3 - In arriving at a flow rate and dilution factor for Outfall 010, EPA erroneously relied upon USGS flow data from a gage station located downstream from Hovey Pond. Said data indicate a flow rate for the Quinsigamond River equal to .48 cfs. However, the discharge into the River from outfall 010 occurs several hundred feet upstream of this station and Hovey Pond. As acknowledged by EPA in the Draft Permit, Hovey Pond is a man-made impoundment utilizing a dam at its downstream end. As a result, the flow out of the Pond does not accurately represent the upstream conditions present at Outfall 010. These upstream conditions involve a considerable increase in flow and correspondingly a far greater rate of dilution at Outfall 010. In order to properly reflect actual conditions and flow patterns, the flow at the point of discharge of Outfall 010 is the accurate measure. *See* Exhibit "B," USGS Topographic Map and Stream Gauging Station Information. As the dilution factor and the final effluent limitations are directly proportional to this derivation, they too should be adequately adjusted. Wyman-Gordon contests the dilution factor and respectfully requests inclusion of a dilution factor more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

Response to Specific Comment 3 – EPA disagrees with the permittee's contentions that: 1) "... the flow out of the Pond does not accurately represent the upstream conditions ...", and; 2) "These upstream conditions involve a *considerable increase* (emphasis added) in flow and correspondingly a far greater rate of dilution ..." EPA believes the downstream gage station represents an appropriate flow value to use in calculating the dilution factor and therefore disagrees that it erred by relying upon the downstream USGS gage station.

Hovey Pond is a manmade impoundment with a dam at its outlet. The dam is not "operated," or regulated, meaning that outlet water is free to flow uninterrupted over "spillway," the height of which controls the water level in the impoundment. A dam which functions in this way is commonly referred to as a "run-of-river" dam, meaning that the flow into the impoundment equals the flow out of the impoundment, assuming that there are not any significant water withdrawals. EPA has found no evidence of any water withdrawals from Hovey Pond nor has the commenter provided any information supporting such an activity.

Absent any significant water withdrawals, EPA believes that the gauge located downstream of the pond outlet actually reflects a higher flow than exists in the river at the point of discharge from outfall 010. This is due to the fact that the downstream gauge station measures a small amount of additional flow due to the increased watershed area.

EPA understands that, as a general matter, it may be possible for certain anomalous conditions to exist which would allow the inflow to Hovey Pond to exceed the outflow. If the inflow to Hovey Pond was ceased and the volume of water in Hovey Pond was reduced, though evaporation for example, then the water level in the pond could fall below the spillway and discharge into the Quinasigmond River would cease. In this case, the downstream gauge station would not measure any contribution from Hovey Pond. Next, water would have to begin flowing into Hovey Pond again. There would be a certain "lag" time until the pond water level returned to the height of the spillway and once again began flowing out of the pond into the Quinsigamond River. During this lag time, the flow, if measured at the inlet to Hovey Pond could exceed the downstream flow as measured at the Quinsigamond River gauge station. The permittee has not provided any information indicating that the above hypothetical situation has occurred.

The only information the permittee submitted in support of its comments is "Exhibit B." Exhibit B appears to be nothing more than data obtained from the downstream gauge that EPA in fact used (see Exhibit B, "Location ... on right bank 800 ft downstream from dam at outlet of Hovey Pond at North Grafton ..."). This data only shows that the flow of the river as recorded at the downstream gauge station was above the median daily stream flow (based on 65 years of record) for the dates of November 6, 2005 through November 13, 2005. EPA fails to understand the logic of submitting downstream flow data (unrepresentative of 7Q10 conditions) in support of a contention that the flow upstream is greater.

In conclusion, for the reasons discussed above, EPA maintains that the gauge station flow used in the fact sheet is a reasonable representation 7Q10 value used to derive permit limits at outfall 010. If an adjustment due to the different locations were made, it would be to allow less dilution, not more dilution, at the location upstream at outfall 010.

Specific Comment 4 - Pursuant to its prior monitoring efforts, Wyman-Gordon contends that metals from Outfall 009 discussed by EPA in the Draft Permit originate in the neighborhoods and roads upstream of the discharge point in East Brook. Drainage systems for the neighborhood and Route 122 tie into the system located at Wyman-Gordon draining into Outfall 009. Likely catalysts for elevated metals and contaminants thus include oil and other materials from motor vehicles, and sand and salt used to treat roadway surfaces. As these elements migrate onto the Wyman-Gordon property, it is impossible for Wyman-Gordon to curtail their generation and Wyman-Gordon would be unable to satisfy the effluent limitations proposed in the Draft Permit. Additionally, the storm water system could not be separated without considerable expense to both the Commonwealth of Massachusetts and the local community. As stated in Section C:2., Wyman-Gordon contests the dilution factor and respectfully requests inclusion of a dilution factor more representative of actual flow conditions in the final permit and the replacement of numerical effluent limitations with "report only" requirements for all parameters.

Response to Specific Comment 4 - The permittee contends that metals originate in the neighborhoods and roads upstream of the discharge point in East Brook.

However, DMR data indicate that the same metals found in the effluent at outfall 009 are also present in the facility's other outfalls' discharges. These discharges are absent any additional flow from the neighborhood or Route 122.

Furthermore, the permittee's monitoring efforts do not support its theory that metals and other pollutants can or may originate from sources "off-site" of the Wyman property. Because it sampled only at the end of the outfall and not at a point before the storm water from Wyman Gordon's property converges with the storm water from any off-site sources, the permittee has not demonstrated whether or to what degree off-site sources of pollution may contribute to the final effluent's metal concentration(s). In any event, since the permit limits are water-quality based,, the permittee must meet these limits at its outfall, regardless of where the pollutants originate from (see 40 CFR 122.44(d) and 40 CFR 122.44(d)(1)).

The permittee states that the storm water systems could not be separated "without considerable expense." Water quality based effluent limits are set irrespective of issues such as cost, logistics or available technology. While such issues may justify the establishment of a compliance schedule, the permittee failed to provide any support for its contention and has not requested or demonstrated the need for such a schedule.

Specific Comment 5 - Pursuant to the Draft Permit, Wyman-Gordon is obligated to conduct periodic pH testing. The draft Permit allows "for the pH limits to be exceeded when the ambient pH in rainwater exceeds the mandated range with the pH of discharge not altered by the facilities activities by more than 0.5 S.U." As past Facility discharge data indicate, any variation from acceptable pH limitations at the Facility results from naturally occurring low storm water pH. As such, Wyman-Gordon requests the removal of pH testing from the final permit for all Outfalls.

Response to Specific Comment 5 - No change in pH testing has been made in the final permit based on the permittee's comment. However, EPA has made minor clarifications on the pH requirements for outfalls 001 and 010 as well as the permit's pH reporting requirements.

Part I.A.7 of the final permit specifies the pH requirements (EPA notes here that the draft permit incorrectly referenced the pH requirements in the tables on pages 2-6 as "see PART I.A.6" when in fact it should have referenced the requirements as "see Part I.A.7." This typographically error is corrected in the final permit).

For outfalls 007, 008, and 009, (storm water only) Part I.A.7 requires that the permittee monitor the effluent's pH on a quarterly basis. The sample shall be a "grab" and shall be collected as specified in footnote 1 on page 7 of the final permit. The permittee shall report this value in the monthly DMR following the quarter in which the sample was taken. If no sample is taken during the quarter, the permittee shall follow the reporting procedures specified in footnote 1 on page 7 of the final permit ("no discharge"). Additionally, Part I.A.7 of the permit requires the permittee to collect concurrently one in-stream pH sample "upstream" and another in-stream sample "downstream" during the first year of the permit. These are monitoring requirements only and are for the purpose of verifying that the runoff from WG is not altering the naturally occurring background pH. The final permit is clarified with regard to the reporting of this information.

Part I.A.7 now specifically specifies that the results of the measurements shall be reported as an attachment to the monthly DMR for that reporting period.

For outfalls 001 and 010, which contain a mixture of process water and storm water, the final permit requires that the effluent meet a pH range of between 6.5 and 8.3. Part I.A.7 of the final permit has been changed from the draft permit such that it no longer includes the "and not be more than 0.5 units outside of the naturally occurring range" requirement. This is done in recognition that the natural background conditions may drop below 6.0 and that this occurrence is out of the permittee's control.

The permittee contends that the draft permit allows "for the pH limits to be exceeded when the ambient pH in rainwater exceeds the mandated range with the pH of discharge not altered by the facilities activities by more than 0.5 S.U." The above quoted language is not found in the draft permit or the fact sheet. However, similar language is found is several places in the fact sheet (see pages 10 (outfall 007), 14 (outfall 008), 18 (outfall 009), 21 (outfall 001) and 25 (outfall outfall 010)). This fact sheet pH language states "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." However, EPA notes here that the fact sheet was in error and that this language was not included in the draft permit as an enforceable condition.

In summary, EPA has not removed pH testing from the permit for any outfalls. EPA has clarified the monitoring and reporting requirements and has changed the pH limit for outfalls 001 and 010 such that the requirement that the range be between 6.5 – 8.3 S.U. The condition in the draft permit that the pH not be more than 0.5 units outside the naturally occurring range has been deleted in the final permit.

Specific Comment 6 - The imposition of WET testing on Outfalls conveying solely storm water (Outfalls 007, 008 and 009) is over burdensome and is no longer warranted at the Facility. Outfall 008 data from June 1999-June 2003 showed five (5) consecutive results satisfying the criteria to remove WET testing under the existing permit. Unfortunately, subsequent data from June 04-June 05 indicated toxicity. As discussed with the permit writer, Mr. Stuart Gray, Wyman-Gordon investigated these subsequent exceedences and attributed the toxicity to off-site contaminants since there was no discharge from Outfall 008 due to flooding caused by beaver damming. The beaver damming has since ceased and the receiving water is again free flowing. Wyman-Gordon respectfully requests the removal of WET testing for Outfalls 007, 008 and 009 from the final permit.

Response to Specific Comment 6 - EPA reviewed the permittee's WET testing data and found that the 2003 Bio-Toxicity test report for outfall 008 failed to include a test for the fathead minnow (Pimephales promelas) as required under the current permit. The 2005 WET Report for outfall 008 exhibited some acute toxicity, but the permittee claims that the test results were not representative of the facility's discharge. During a site visit on May 10, 2005 by Stuart F. Gray, US EPA, the permittee stated that the lack of a representative sample available for WET testing was due to the presence of a downstream beaver dam which had submerged the entire drainage

system for outfall 008, thereby creating a situation in which the sample contained impounded backwater and "off-site" contamination. During the visit, the presence of a beaver dam at this location was confirmed by Stuart F. Gray, USEPA.

EPA has confirmed that the dam has since been breached and the receiving water is again free flowing. However, due to the type of discharge, the low flow of the receiving stream and the inability to determine whether the "off site" contamination contributed to the toxicity levels in the sample taken in 2005, EPA finds that continuation of WET testing at outfall 008 is necessary. The permittee shall only have to test for the daphnid, Ceriodaphnia dubia for outfalls 007, 008 and 009.

Following issuance of this permit, if the permittee can provide 3 consecutive tests showing no toxicity from outfalls 007, 008, and 009, the permittee may request in writing the elimination of the WET testing requirement for these storm water-only outfalls.

Specific Comment 7 - The Cooling Water Intake Structure ("CWIS") Requirements issued in the Draft Permit are unnecessary and overbroad. Pursuant to the Clean Water Act ("CWA") § 316 (b), EPA must consider, among others, the cost of implementing CWIS technology options, legal issues, engineering issues, economic issues, and policy issues with respect to regulatory implementation. As noted in the Draft Permit, Wyman-Gordon has taken considerable steps towards minimizing environmental impacts from the CWIS withdrawing water from the Quinsigamond River, particularly the EPA's primary concern regarding entrainment and impingement of aquatic life. Within the Draft Permit, EPA acknowledges the following particular actions implemented by Wyman-Gordon in minimizing impacts: use of a large wetted cross section reducing velocity through screen; effective intake structure design; intermittent and infrequent utilization of pumps; and a continuing trend towards minimizing the utilization of water from the Quinsigamond River through recycling and reuse of water. Moreover, as noted by EPA, the CWIS is located in an unnamed "low energy backwater" of the Quinsigamond River, an unlikely viable habitat for the species in question.

As EPA states in the Draft Permit, the compliance requirements of the CWA, particularly Phase I and II rules, are inapplicable to Wyman-Gordon based on the facility size and nature. As EPA further states, the proposed Phase III rules are not in effect at this time and irrelevant for current permitting purposes. Thus, EPA is left with an individual site-specific analysis based on best professional judgment ("BPJ"). Nevertheless, EPA seeks to impose unnecessary monitoring requirements after each utilization of the intake pumps. These pumps are unmanned automated pumps triggered by RMF storage tank levels, and as a result, can turn on at any time. In fact, the only justification offered by EPA related to the conclusion is that the "design components of BTA do not directly prevent fish eggs and larvae from being entrained in the facility's CWIS." This statement is contrary to the numerous additional statements by EPA in the Fact Sheet directly linking Wyman-Gordon's current efforts and reduction in the possibility of entrainment and impingement of aquatic species. As a result, Wyman-Gordon is requesting the removal of CWIS requirements and limitations from the final permit.

Response to Specific Comment 7 - In prior discussions with Mary Cushner, Assistant Environmental Engineer for Wyman-Gordon, Inc. and reiterated in a phone conversation with

same on December 7, 2005, EPA learned that the pumps used to withdraw water from Quinsigamond River are, in fact, manually switched on and off. Although the capability currently exists to turn on the pumps automatically, the current practice is to turn them on manually and, in any event, they still must be shut off manually. Therefore, under current practice, the permittee should readily be able to monitor after each use of the intake pumps. If the permittee decides to end its current practice of manually switching the pumps on and instead does so automatically, the permittee may fulfill the monitoring requirement by recording observations when turning off the pump.

EPA acknowledges that the permittee has taken steps to address adverse impacts of the CWIS but no data exists on the actual effects. It is reasonable for EPA to require monitoring to determine the extent of impingement effects, if any. Such data could form the basis for revised permit conditions in future permit issuance and/or modification(s). Therefore, no change has been made in the permit.

Commonwealth of Massachusetts Riverways Program Response to Comments

Comment 1: The draft NPDES permit requires the Permittee to monitor and report TSS values for both the average monthly and maximum daily value. The Permittee is also required, as outlined in footnote #6, to evaluate any TSS concentration measured in the effluent approaching or exceeding 100 mg/l. The draft permit does not specify what specific concentration is high enough to be considered approaching 100 mg/l- if approaching means a value of 90 mg/l or more? 80 mg/l or more? The wording in footnote #6 could be more precise to eliminate any confusion or contradicting interpretations. The Fact Sheet **states the TSS 'report only' requirement mirrors what is in the current permit. In reviewing the discharge monitoring report data submitted by the Permittee found in the EPA's Permit Compliance** System, the information in the data base indicates stormwater outfalls 007, 008 and 009 have a daily maximum TSS limitation of 100 mg/l in the existing permit. In fact outfall 008 had exceedances of the 100 mg/l limitation when the concentration of the effluent reached 116 mg/l in 1998. The information in the data base strongly infers there is an existing permit limit and the change to a report only requirement for daily maximum TSS concentration would be a step backward. If there is currently a TSS daily maximum limitation, it would be in the spirit of the anti-backsliding requirements of the Clean Water Act and protective of the receiving waters, which afford negligible dilution and assimilative capacity and the impaired status of Flint Pond and its known turbidity problem, if the daily maximum limitation remained at 100 mg/l and footnote #6 was amended to require the Permittee to evaluate possible TSS sources when the permit limit of 100 mg/l is exceeded or when TSS concentrations of 70 mg/l or greater were measured in the effluent.

Response to Comment 1 - The wording of footnote #6 has been amended to read, "If the permittee reports TSS results that exceed 100 mg/l, it shall evaluate what caused such a level and review its SWPPP and revise it as necessary to minimize solids runoff."

Additionally, the commenter indicated that the discharge monitoring report (DMR) data showed a limit for TSS of 100 mg/l. EPA has reviewed the current permit and found that the current permit has a "report only" requirement for TSS monitoring at outfalls 007, 008 and 009. Further,

EPA believes that continuing the "report only" requirements for TSS in the final permit for outfalls 007, 008 and 009 would not trigger the anti-backsliding requirements of the Clean Water Act. EPA maintains that the change to the wording of footnote #6 in the final permit which requires specific action by the permittee if TSS levels exceed 100 mg/l that will serve to clarify and strengthen the current permit's TSS related reporting requirements.

Comment 2: The Fact Sheet evaluated the different outfall to determine the reasonable potential for exceedances for a given pollutant based on the available discharge monitoring data. The draft permit added permit limitations for many pollutants to the stormwater and process water outfalls. These limitations are a welcome and important addition offering a level of protection for the receiving waters that will reduce the likelihood the receiving waters violating water quality standards and impacting aquatic resources. The addition of limitations was outfall-specific and dependent on available data. Outfall 008 was determined to not constitute a reasonable potential for its effluent aluminum concentrations to exceed state water quality standards. If slightly more current information is considered, available on the PCS data base, the data strongly infers the outfall does have the potential and has exceeded water quality goals. The reported concentration in September of 2004 was 1.4 mg/l which would be significantly above the 0.760 mg/l limitation assigned to outfall 007, (an outfall sharing the same receiving water, Bonny Brook). Given Bonny Brook has two separate by proximate discharges and both appear to have reasonable potential to exceed water quality standards, outfall 008 should have a aluminum standard comparable to outfall 007 added to the permit.

Response to Comment 2 - The reported concentration of Aluminum (Al) from Outfall 008 in September 2004 was 1.4 mg/l. This indicates a "reasonable potential" to exceed EPA's National Water Quality Criteria for Al (0.750 mg/l) in light of the dilution factor of 1.02. Therefore an effluent limit for Aluminum has been added to Outfall 008 in the final permit.

Comment 3: Many of the monitoring requirements in the existing permit have been eliminated based on calculations to determine the potential or lack of potential for water quality standard exceedances. The Fact Sheet does not provide the water quality standards and the calculations used to reach these conclusions so it is hard to assess the likelihood of exceedances without access to the water quality standards. The trichloroethylene concentrations in outfall 010 have been as high as 9 mg/l (5/98), 1.2 mg/l (4/05) and 2.5 mg/l (4/01) and tetrachloroethylene has been found as high as 1.5 mg/l (4/05) and 1.6 mg/l (4/01). What are the water quality standards for these two VOCs? How is reasonable potential defined- more specifically how close must a concentration be to the standard to pose a reasonable potential for an exceedance?

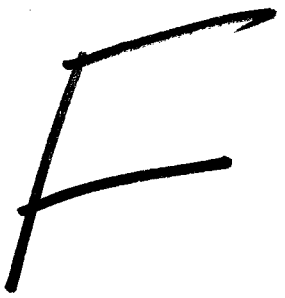
Response to Comment 3 - In a phone conversation of December 7, 2005 with Mary Cushner, Assistant Environmental Engineer of Wyman-Gordon, Inc., it was stated that the measurements for both chemicals are reported to EPA in μg/l on the DMRs for the dates in question. EPA examined copies of the submitted DMRs and verified this statement. In these cases, the DMRs were coded into the database incorrectly showing the units as mg/l. The reported Trichlorethylene (9.0 μg/l, 1.2 μg/l and 2.5 μg/l) and Tetrachloroethylene (1.5 μg/l, 1.6 μg/l) concentrations are well below EPA's National Recommended Criteria based on Human Health for Consumption of Organisms Only. The recommended levels for Trichloroethylene and

Tetrachloroethylene are 81 μg/l. and 8.85 μg/l respectively. Therefore, no change has been made in the final permit.

Comment 4: The pH of the stormwater outfalls from this facility frequently fall below the Massachusetts water quality minimum pH standard of 6.5 s.u. As noted, this excursion is often due to the acidic nature of the rain water and the permit makes the appropriate allowance for this situation. The Permittee is required to measure in stream pH values upstream and downstream of the outfalls during the first year this permit is in effect to determine the background pH of the waters. The Permittee is not required to measure the pH of the rain or melt water. What is interesting about the pH values recorded by the Permittee is the variability between the outfalls in a given month. Presumably the outfalls would have very similar pH values reflecting the pH of the rain fall during the storm(s) of that month. The data, however, shows some variability in the pH recorded between the three outfalls. For example during September of 2000 outfall 008 had very acidic average pH value or 4.4 S.U. while outfall 009 had a pH of 5.49 S.U. Given pH is measured on a logarithmic scale- this is a marked difference. Is there possible land uses within the different drainage areas that might account for the variability seen in the pHs of the different stormwater outfalls?

Response to Comment 4 - The discharge from outfalls 008 and 009 are storm water only. The drainage areas for outfalls 008 and 009 consist of building roofs, landscaping and parking areas. However, the permittee has pointed out in Specific Comment 4 that a portion of the discharge from outfall 009 includes storm water runoff from Route 122 and the neighborhood south of the facility. Therefore, there appear to be land use differences that may contribute to differences in the pH levels of the storm water discharged through outfall 008 and 009.

There may also be temporary or permanent changes in the facility's activities in these two drainage areas. In light of concerns such as this that may contribute to storm water pollution, and as part of the permit, EPA has required the implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP requires the use of Best Management Practices (BMPs) and requires the permittee to take steps adequate to address any exceedances of water quality standards in their storm water discharge.



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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Date

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