RESPONSE TO COMMENTS RECEIVED DURING PUBLIC NOTICE

From August 14, 1987 to September 12, 1987, EPA and the Massachusetts Division of Water Pollution Control solicited public comments on a draft NPDES permit (MA0004120), developed for the Foxboro Corporation for the discharge of noncontact cooling water and treated process wastewater to the Neponset Reservoir. The following is a response to the significant comments received and resulting changes. A copy of the final permit may be obtained by writing or calling the EPA Compliance Branch, JFK Federal Building, Boston, MA 02203, Telephone (617)565-3512.

Comment #1: The Foxboro Company is in the process of engineering a tie-in with the Mansfield Treatment Plant which is scheduled to be completed July 1, 1988. Therefore, we do not feel it is appropriate to modify our treatment plant to improve phosphate treatment when it will be eliminated in six to eight months. We are currently utilizing internal control methods to reduce the level of phosphorus in our discharge. Using these methods, we feel we can meet a monthly average limit of 2.0 mg/l.

Response: The proposed draft permit limits phosphorus to a monthly average concentration of 1.65 mg/l. This value was developed with the data submitted by Foxboro Company on their monthly discharge montioring reports and actually represents a numerical average of the results from November 1986 through April 1987. In light of the sensitivity of the analytical testing method for phosphorus and the fact that Foxboro Company has agreed to continue to use diligent efforts to reduce the level of phosphorus in their discharge as much as practical, EPA has changed the limit on phosphorus in the final permit to 2.0 mg/l. It is important to note that all the limits in the final permit and in particular the limit on phosphorus is based on the fact that the discharge will be eliminated by July 1, 1988. More stringent limits would be imposed by EPA if the discharge were to continue beyond July 1, 1988.

Comment #2: If phosphorus, organics and metals jeopardize water quality in the Neponset Reservoir, they must be limited so as to prevent that deterioration. The EPA should require Foxboro Company to implement all practical state of the art measures to control these discharges. While it may not make sense to require Foxboro Co. to install extensive technologies for the interim period, it makes perfect sense to require the firm to explore and implement available reductions of the polluting wastes through substitution with non-phosphorus detergents where feasible.

Response: If the discharge were to continue for an extended period of time, EPA would have to establish more stringent limits

to protect the water quality standards in the reservoir. A statement has been aded to the final permit clarifying this point and EPA's position. Foxboro Company has investigated and implemented some internal control methods to minimize the discharge of pollutants into the reservoir. The final permit has been changed to require the company to continue to use diligent efforts to reduce the concentration of pollutants particularly phosphorus in their discharge as much as practical.

Comment: #3 The Neponset Reservoir Restoration Committee formally requested a public hearing on the draft permit. This hearing request was contingent upon receipt of a letter from the Foxboro Company.

Response: Since the committee received the letter they requested and were satisfied with its contents, they decided to revoke their request. Since this was the only request; EPA has decided that a public hearing is not warranted.

ATTACHMENT 12

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE

WILLIAM F. WELD
Governor

ARGEO PAUL CELLUCCI
Lt. Governor

TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

COPY

April 8, 1997

David W. Rickard, V.P.H.R.
The Foxboro Company
33 Commercial Street, No. 5-2A
Foxborough, Massachusetts 02035

RE: FOXBOROUGH--Industrial Wastewater Branch BWP--The Foxboro Co.@ 38 Neponset Ave., Plan Approval Type I Facility (BWPIW24)

NPDES Permit No.: MA0004120

Transmittal No. 129234

Dear Mr. Rickard:

The Department of Environmental Protection, Southeast Regional Office, has completed its review of an engineering report submitted under cover of a letter dated November 20, 1996, and a plan over the seal and signature of James D. Fitzgerald, Massachusetts Registered Professional Engineer No. 35664 which is titled:

"
DRY WEATHER DISCHARGE TREATMENT SYSTEM
PROCESS & INSTRUMENTATION DIAGRAM
AND EQUIPMENT ARRANGEMENT

FOXBORO COMPANY
FOXBORO, MASSACHUSETTS

ERM-NEW ENGLAND, INC.
205 Portland Street
Boston, MA 02114

Scale: NONE
Date: 7/13/95
Drawing No. EA-1
"

The plan and report received on November 22, 1997, under Transmittal No. 129234, describe and depict a wastewater treatment system designed to remove volatile organic compounds (VOC's) from groundwater and stormwater prior to its discharge to the Neponset Reservoir. The treatment system consists of the following units:

1) 1 - 850 gallon wet well with two (2) 60 gallon per minute, 1.5 HP, 3500 RPM, 3-phase sump pumps;

2) 1 - 60 gpm stainless steel 3-tray air stripper with air blower and silencer;

3) 2 - 55-gallon vaporphase carbon drums with a duct heater for the removal of VOC's from the air stripper off-gas prior to its release to the atmosphere.

The Department hereby APPROVES the plans and report for the wastewater treatment facility located at The Foxboro Company, 38 Neponset Street, Foxborough, Massachusetts, pursuant to M.G.L., Chapter 21, Section 27(13), and Regulation 314 CMR 12.03(4), subject to the following provisions:

1. Construction shall be in strict accordance with the approved plans and no changes shall be made without the prior written approval of the Department.

2. Operation and maintenance of the proposed facility shall be in accordance with 314 CMR 12.00, "Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Discharges," and 257 CMR 2.00, "Rules and Regulations for Certification of Operators of Wastewater Treatment Facilities."

3. The operation of the proposed facility shall comply with all of the requirements contained in NPDES Permit No. MA0004120 and with any requirements imposed by the Town of Foxborough.

The granting of this approval is subject to the approval of any other local, state or federal authority that may have jurisdiction.

If you have any questions regarding the contents of this letter, please contact June Mahala at the letterhead address or (508) 946-2822.

Very truly yours,

John K. Winkler, Chief
Permit Section
Bureau of Waste Prevention

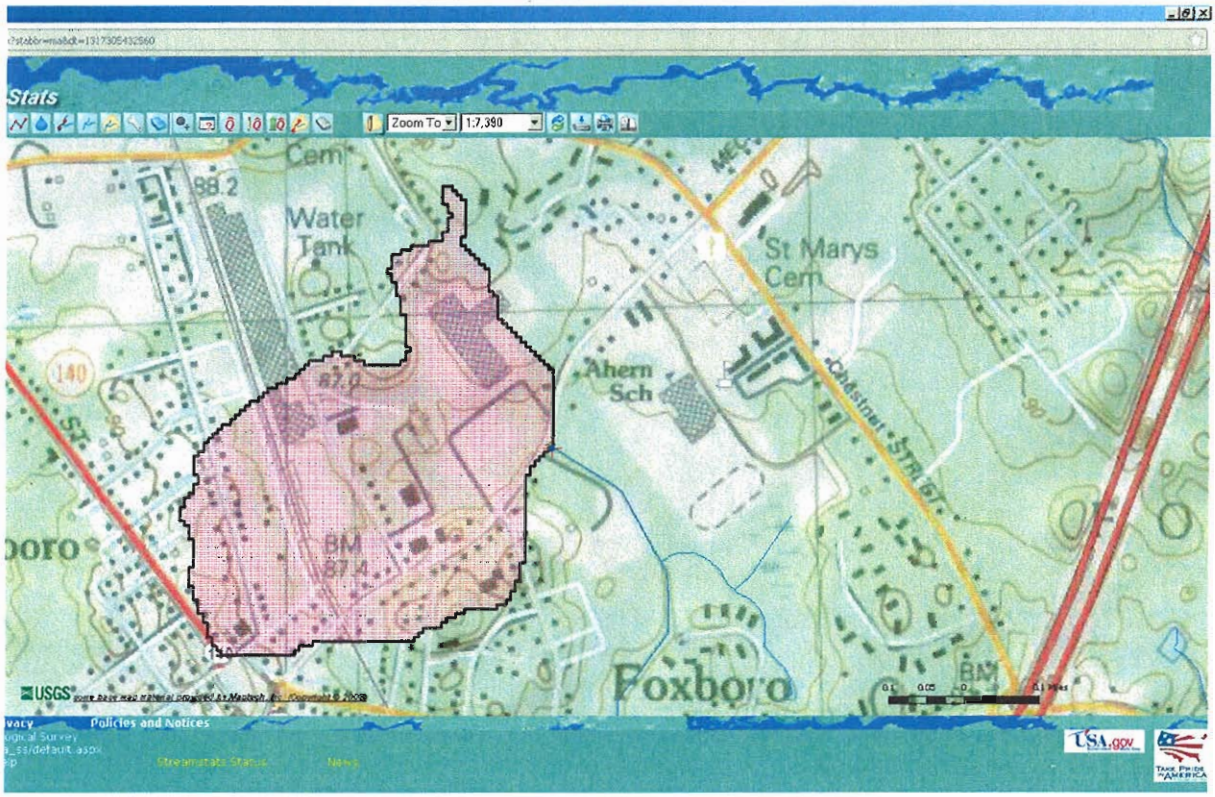
W/JMM/cb

cc: The Foxboro Company
33 Commercial Street, No. 5-2A
Foxborough, MA 02035
ATTN: Richard Mannion, Mgr. Environmental Services

ATTACHMENT 13

USGS StreamStats Output[1]

Drainage Basin for Subject Portion of Robinson Brook



Drainage Basin Characteristics for Subject Portion of Robinson Brook

PARAMETER	VALUE
Area in square miles	0.18
Average area slope in percent	0.34
Total stream length in miles	0.0044
Stratified drift per unit stream length	29
Low flow region indicator for Massachusetts	0
Area of forest land (percent)	4.32
Area of sand and gravel deposits (percent)	68.98

[1] USGS StreamStates for Massachusetts available at http://water.usgs.gov/osw/streamstats/massachusetts.html (last visited October 31, 2011). Model Run Date: September 29, 2011; NAD27 Latitude: 42.0694 (42 04 10); NAD27 Longitude: -71.2431 (-71 14 35); NAD83 Latitude: 42.0695 (42 04 10); NAD83 Longitude: -71.2426 (-71 14 33); ReachCode: 0109000402269; Measure: 99.98.

ATTACHMENT 14

River Flow Observations in Robinson Brook, August 2001-March 2002

August 2001		September 2001		October 2001		November 2001		December 2001		January 2002		February 2002		March 2002	
Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation
13-Aug-01	dry	1-Sep-01	dry	1-Oct-01	dry	1-Nov-01	Puddles-no flow	1-Dec-01	No observed flow	30-Jan-02	Slight flow	1-Feb-02	Flow	1-Mar-02	No observed flow
14-Aug-01	dry	2-Sep-01	dry	2-Oct-01	dry	2-Nov-01	Dry	2-Dec-01	No observed flow	31-Jan-02	Slight flow	2-Feb-02	Slight flow	2-Mar-02	
15-Aug-01	dry	3-Sep-01	dry	3-Oct-01	dry	3-Nov-01	Dry	3-Dec-01	No observed flow			3-Feb-02	No observed flow	3-Mar-02	
16-Aug-01	dry	4-Sep-01	dry	4-Oct-01	dry	4-Nov-01	Dry	4-Dec-01	No observed flow			4-Feb-02	No observed flow	4-Mar-02	No observed flow
17-Aug-01	dry	5-Sep-01	dry	5-Oct-01	dry	5-Nov-01	Dry	5-Dec-01	No observed flow			5-Feb-02	No observed flow	5-Mar-02	No observed flow
18-Aug-01	dry	6-Sep-01	dry	6-Oct-01	dry	6-Nov-01	Puddles-no flow	6-Dec-01	No observed flow			6-Feb-02	No observed flow	6-Mar-02	No observed flow
19-Aug-01	dry	7-Sep-01	dry	7-Oct-01	dry	7-Nov-01	Puddles-no flow	7-Dec-01	No observed flow			7-Feb-02	No observed flow	7-Mar-02	No observed flow
20-Aug-01	dry	8-Sep-01	dry	8-Oct-01	dry	8-Nov-01	Puddles-no flow	8-Dec-01	No observed flow			8-Feb-02	No observed flow	8-Mar-02	No observed flow
21-Aug-01	dry	9-Sep-01	dry	9-Oct-01	dry	9-Nov-01	No	9-Dec-01	Flow			9-Feb-02	No observed flow	9-Mar-02	
22-Aug-01	dry	10-Sep-01	dry	10-Oct-01	dry	10-Nov-01	No	10-Dec-01	Flow			10-Feb-02	No observed flow	10-Mar-02	
23-Aug-01	dry	11-Sep-01	dry	11-Oct-01	dry	11-Nov-01	No	11-Dec-01	Flow			11-Feb-02	No observed flow	11-Mar-02	No observed flow
24-Aug-01	dry	12-Sep-01	dry	12-Oct-01	dry	12-Nov-01	Dry	12-Dec-01	Flow			12-Feb-02	No observed flow	12-Mar-02	No observed flow
25-Aug-01	dry	13-Sep-01	dry	13-Oct-01	dry	13-Nov-01	Dry	13-Dec-01				13-Feb-02	No observed flow	13-Mar-02	
26-Aug-01	dry	14-Sep-01	dry	14-Oct-01	dry	14-Nov-01	Dry	14-Dec-01				14-Feb-02	No observed flow		
27-Aug-01	dry	15-Sep-01	Puddles-no flow	15-Oct-01	dry	15-Nov-01	Dry	15-Dec-01				15-Feb-02	No observed flow		
28-Aug-01	dry	16-Sep-01	No	16-Oct-01	dry	16-Nov-01	Dry	16-Dec-01				16-Feb-02	No observed flow		
29-Aug-01	dry	17-Sep-01	dry	17-Oct-01	Puddles-no flow	17-Nov-01	Dry	17-Dec-01	Flow			17-Feb-02	No observed flow		
30-Aug-01	dry	18-Sep-01	dry	18-Oct-01	Dry	18-Nov-01	Dry	18-Dec-01				18-Feb-02	No observed flow		
31-Aug-01	dry	19-Sep-01	dry	19-Oct-01	Dry	19-Nov-01	Dry	19-Dec-01				19-Feb-02	No observed flow		
		20-Sep-01	dry	20-Oct-01	Dry	20-Nov-01	Dry					20-Feb-02	No observed flow		
		21-Sep-01	Flow	21-Oct-01	Dry	21-Nov-01	Dry					21-Feb-02	No observed flow		
		22-Sep-01	flow	22-Oct-01	Dry	22-Nov-01	Dry					22-Feb-02	No observed flow		
		23-Sep-01	No	23-Oct-01	Dry	23-Nov-01	Dry					23-Feb-02			
		24-Sep-01	No	24-Oct-01	Dry	24-Nov-01	Dry					24-Feb-02			

River Flow Observations in Robinson Brook, August 2001-March 2002

August 2001		September 2001		October 2001		November 2001		December 2001		January 2002		February 2002		March 2002	
Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation	Date	Observation
		25-Sep-01	Puddles-no flow	25-Oct-01	Dry	25-Nov-01	Flow					25-Feb-02	No observed flow		
		26-Sep-01	dry	26-Oct-01	Dry	26-Nov-01	Puddles-no flow					26-Feb-02	No observed flow		
		27-Sep-01	dry	27-Oct-01	Dry	27-Nov-01	Puddles-no flow					27-Feb-02	No observed flow		
		28-Sep-01	dry	28-Oct-01	Dry	28-Nov-01	No observed flow					28-Feb-02	No observed flow		
		29-Sep-01	dry	29-Oct-01	Dry	29-Nov-01	No observed flow								
		30-Sep-01	dry	30-Oct-01	Dry	30-Nov-01	No observed flow								
				31-Oct-01	Dry										

ATTACHMENT 15

MEMORANDUM

TO: Richard Cretien, Chief, DWPC-Regulatory Section, Boston

FROM: Laurie Kennedy, Environmental Analyst I, DWPC/TSS, N. Grafton LK

DATE: September 26, 1991

SUBJECT: Draft NPDES Permit Review, Foxboro Company-Neponset

I have reviewed the draft NPDES permit No. MA 0004120 for the Foxboro Company of Foxboro which is permitted to discharge non-contact cooling water and stormwater runoff from its metal finishing operations into the Neponset Reservoir.

Past water quality surveys (1986) of the Neponset Reservoir have documented poor water quality conditions for which the Foxboro Company discharge was considered to be the largest contributor. Although the process wastewater discharge has since been removed from the Reservoir, whole effluent toxicity testing requirements on the remaining discharge is warranted. If acute toxicity is not detected in the discharge after one year of testing, the monitoring frequency could be reduced from quarterly to annually.

It is also strongly recommended that temperature limits and a monitoring schedule be added to Page 2 of 7 of the draft permit.

If you have any questions, please contact me at your convenience.

LK:djm
LK92691a

cc: R. Isaac
A. Cooperman
P. Hogan
A. Johnson
T. Vigneault
J. Cubillos. SERO
J. Brolin, EPA, Boston

ATTACHMENT 16

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Protection

William F. Weld
Governor
Daniel S. Greenbaum
Commissioner

MEMORANDUM

TO: Richard Chretien, Chief, DWPC-Regulatory, Boston
FROM: Paul Hogan, Environmental Engineer V, DWPC-TSS, Grafton
DATE: September 30, 1991
RE: Foxboro Company (Neponset Plant) Draft NPDES Permit (MA0004120)

I have reviewed the draft NPDES permit (MA0004120) for the Foxboro Company (Neponset Plant) and I offer the following comments:

-discharge #001 should have a temperature limit of 83 (F); this limit would be appropriate during dry weather when the discharge is solely cooling water; during precipitation events, the rainfall will lower the temperature thus not affecting the ability to maintain the limit (is it possible to monitor the cooling water prior to mixing with stormwater?)

-the permittee could request, after one year of "passable" data, a lessening of the toxicity monitoring requirement to once per year

-monitoring and toxicity data (pg 6) should not be sent to the DWPC Boston office; other notifications and reports should be sent to Boston

-attachment B in the fact sheet contains previous proposed limts but the fact sheet does not discuss these limits; this might confuse someone reviewing the permit

-the remaining conditions in the permit are adequate to protect water quality of the receiving water (the discharge is likely to cease with the implementation of recycled cooling water)

If you have any questions concerning these comments, please contact me at your convenience.

cc: R. Isaac
A. Cooperman
A. Johnson
T. Vigneault
J. Brolin, USEPA, Boston
J. Gould, DWPC-SERO, Lakeville

NPDES PERMIT SUMMARY

Permittee: Foxboro Company (Neponset Plant)
38 Neponset Avenue
Foxboro, MA

Date: September 30, 1991

Reviewers: Hogan
Kennedy

NPDES #: MA 0004120

EPA: Brolin (656-3590)

Receiving Water: Neponset Reservoir

Classification: B/WWF

Basin: Neponset

7Q10: 0 cfs

Permit Limits: #001 - Non-contact cooling water and stormwater

Parameter	Avg. Monthly	Max. Daily	Monitoring
Flow (MGD)	-	-	Continuous
pH (std. units)	6.5 - 8.3		4 grab;1/wk
Fecal Coliform (per 100 ml)	200	400	2 grab;2/qtr
VOC (mg/l^3)	report		
WET (Acute-%)			

#001 A - non-contact cooling water

Parameter	Avg. Monthly	Max. Daily	Monitoring
Flow (MGD)	-	0.320	Continuous
pH (std. units)	6.5 - 8.3		4 grab;1/wk
Temp (°F)	-	83	grab;/1mth

Other Information:

- after two years of monitoring for VOC's permittee can submit data and request relief from monitoring
- VOC's should be monitored for (1) dry weather event (no precipitation for at least 72 hours) and (2) a wet weather event (at least 0.1 inches rain)
- process wastewater tied into Mansfield WWTP collection system

NPDES PERMIT SUMMARY

Permittee: Foxboro Company (Neponset Plant)
38 Neponset Avenue
Foxboro, MA

Date: September 30, 1991

Reviewers: Hogan
Kennedy

NPDES #: MA 0004120

EPA: Brolin (656-3590)

Receiving Water: Neponset Reservoir

Classification: B/WWF

Basin: Neponset

7Q10: 0 cfs

Permit Limits: #001 - Non-contact cooling water and stormwater

Parameter	Avg. Monthly	Max. Daily	Monitoring
Flow (MGD)	-	-	Continuous
pH (std. units)	6.5 - 8.3		4 grab;1/wk
Fecal Coliform (per 100 ml)	200	400	2 grab;2/qtr
VOC (mg/l^3)	report		
WET (Acute-%)			

#001 A - non-contact cooling water

Parameter	Avg. Monthly	Max. Daily	Monitoring
Flow (MGD)	-	0.320	Continuous
pH (std. units)	6.5 - 8.3		4 grab;1/wk
Temp (°F)	-	83	grab;/1mth

Other Information:

- after two years of monitoring for VOC's permittee can submit data and request relief from monitoring
- VOC's should be monitored for (1) dry weather event (no precipitation for at least 72 hours) and (2) a wet weather event (at least 0.1 inches rain)
- process wastewater tied into Mansfield WWTP collection system

Exhibit 3

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

FACT SHEET

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

NPDES PERMIT NO. : **MA0004120**

NAME AND ADDRESS OF APPLICANT:

Invensys Systems, Inc.
(formerly named "The Foxboro Company")
38 Neponset Avenue
Foxboro, MA 02035

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Invensys Systems, Inc.
38 Neponset Avenue
Foxboro, MA 02035

RECEIVING WATERS: **Gudgeon Brook/Neponset Reservoir (001), and Robinson Brook (002)**

CLASSIFICATION: **Gudgeon Brook/Neponset Reservoir, B (Warm Water Fishery, High Quality Water); Robinson Brook, B (Warm Water Fishery)**

I. PROPOSED ACTION, TYPE OF FACILITY, AND DISCHARGE LOCATION

The above named applicant has applied to the U.S. Environmental Protection Agency for re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving waters. The existing permit expired on October 30, 1996. The draft permit is conditioned to expire 5 years after its effective date.

A draft permit reissuance was previously public noticed on March 6, 2003, but a final permit was not issued. Comments that were received on that draft permit were reviewed and this draft permit reflects appropriate changes. Such changes are summarized in this fact sheet. Several comments submitted by the permittee that did not result in changes to the permit are also summarized in the appropriate section of the fact sheet.

The facility is engaged in metal finishing operations. Treated industrial process wastewater and sanitary wastewater from the facility are discharged to the municipal sewer system for treatment at the Mansfield wastewater treatment facility in accordance with separate permits and approvals issued by the Town of Mansfield and the Town of Foxboro.

The draft permit authorizes two outfalls. Outfall 001 discharges groundwater infiltration, groundwater inflow from building sumps, and storm water to Gudgeon Brook. Flows of up to 60 gallons per minute

(86,400 gallons per day) are treated to remove volatile organic compounds. Outfall 002 discharges untreated groundwater infiltration, untreated groundwater inflow from building sumps, and storm water to Robinson Brook.

II. RECEIVING WATERS

Gudgeon Brook is a tributary of the Neponset Reservoir. It is approximately 200 feet long and its depth and width vary seasonally. The Brook flows into the Neponset Reservoir between the north side of Chestnut Street and the southwestern shoreline of the reservoir. Gudgeon Brook is not specifically identified in the tables or maps in the Massachusetts Water Quality Standards, so its classification is Class B, and presumed high quality water, consistent with 314 CMR 4.06(4).

The Neponset Reservoir is located at the headwaters of the Neponset River. The reservoir encompasses an area of approximately 300 acres. The eastern half of the reservoir is located within a MassDEP-designated Zone II Wellhead Protection Area; the western half approximately of the reservoir overlies the EPA - designated Neponset Sole Source Aquifer. Gudgeon Brook is not within the Zone II Wellhead Protection Area but is within the Neponset Sole Source Aquifer area. The Neponset Reservoir is classified as Class B, warm water fishery, high quality water by the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b). The Massachusetts Surface Water Quality Standards describes Class B waters as having the following uses: (1) a habitat for fish, other aquatic life, and wildlife, (2) primary and secondary contact recreation, (3) a source of public water supply (i.e., where designated and with appropriate treatment), (4) suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses, and (5) shall have consistently good aesthetic value. The Massachusetts Surface Water Quality Standards describes High Quality Waters as having the designation for protection under 314 CMR 4.04(2). These include waters whose quality exceeds minimum levels necessary to support the national goal uses, low flow waters and other waters whose character cannot be adequately described or protected by traditional criteria. These waters shall be protected and maintained for their existing level of quality unless limited degradation by a new or increased discharge is authorized by the Division.

Gudgeon Brook is not an identified segment in the MassDEP List of Integrated Waters. The Neponset Reservoir, which receives the discharge from the Gudgeon Brook, is identified in the Massachusetts 2008 Integrated List of Waters as a Category 5 water, requiring a TMDL for the following impairments: noxious aquatic plants, turbidity, and exotic species.

Robinson Brook is located at the headwaters of the Taunton River Basin, and is a tributary to the Rumford River. Robinson Brook is not specifically identified in the tables or maps in the Massachusetts Water Quality Standards, so its classification is Class B, and presumed high quality water, consistent with 314 CMR 4.06(4) .

The segment of Robinson Brook receiving the Invensys discharge is also not identified in the 2008 Integrated List. The first downstream segment identified in the Integrated List is the segment from the outlet of Hersey Pond, Foxboro to the confluence with the Rumford River. This segment is listed as a Category 5 water, requiring a TMDL for impairments due to unknown causes and habitat alterations.

III. DESCRIPTION OF THE DISCHARGE

A quantitative description of the discharges in terms of significant effluent parameters based on available monitoring data is shown in **Attachments A.1 through A.7** and **Attachments C.1 through C.7** of this fact sheet.

IV. LIMITATIONS AND CONDITIONS

The effluent limitations and monitoring requirements may be found in the draft NPDES permit.

V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. BACKGROUND

The facility is located in Foxboro, MA and manufactures process control instrumentation. There have been manufacturing operations at this site since 1908. In 2001, the facility notified EPA that it had changed its name from The Foxboro Company to Invensys. The parent company of Invensys Systems, Inc. is Invensys, PLC of London, U.K. There are approximately 1,000 people employed at this site.

This facility consists of two plants, called the Neponset facility and the Cocasset facility. At one time, the Foxboro Company held individual NPDES permits for each facility.

Neponset Facility

The current permit for the Neponset Facility, issued in 1991, authorizes the discharge of noncontact cooling water (since eliminated) and storm water to the Neponset Reservoir. The current manufacturing process at the facility consists of metal finishing and plating of parts for assembly into control instrumentation. The facility's operations include machine shop operations, plating, aqueous degreasing, painting, and assembly operations. The Neponset facility has an SIC code of 3823 (Measuring, Analyzing, and Controlling Instruments), and its industrial pretreatment activities are subject to the Metal Finishing Point Source Category at 40 CFR Part 433. Pretreated industrial waste and sanitary waste generated at the facility are discharged to the municipal sewer system for treatment at the Mansfield wastewater treatment facility.

Past operations at the Neponset facility included the discharge of treated industrial wastewater, non contact cooling water, and storm water to Gudgeon Brook. These operations resulted in contamination sufficient to necessitate remediation pursuant to Chapter 21E of Massachusetts General Law which created the Massachusetts Waste Site Cleanup Program and the Massachusetts Contingency Plan (MCP).

The following is a summary of activities undertaken since the 1980s to reduce the discharge of pollutants to receiving waters.

* In June 1988, the facility permanently ceased discharge of treated industrial wastewater to Gudgeon Brook by connecting the industrial discharge to the municipal sewer system.

* In 1994, the facility installed a closed-loop water recycling system for non-contact cooling water. The closed-loop system reduced water usage by approximately 90 million gallons per year and eliminated the discharge of non-contact cooling water to Gudgeon Brook.

* In 1995, the facility installed and commenced operation of a dry weather discharge treatment system. The dry weather treatment system removes VOCs from groundwater collected by the storm drain system during dry weather. Dry weather flow in the storm drain system consists of groundwater infiltration, and groundwater inflow from building sumps.

* In 1997-98, pursuant to a MassDEP-approved Release Abatement Measure (RAM) Plan, the facility performed an extensive drain clean-out project to remove contaminated sediment and debris from the

storm drain system leading to Gudgeon Brook. Loose sediment was removed from the drain lines by using high pressure water to loosen and transport sediment from the drain line to an adjacent upstream manhole. The drain segments were internally inspected with a closed circuit television. Drain segments that were unable to be cleaned due to complications (e.g., pipe collapses, 90-degree bends, in-line obstructions) were permanently abandoned (e.g., filled with concrete, blocked off with brick and masonry seals) and are no longer in use. According to the permittee's RAM Completion Report, the data indicate that the drain cleaning activities resulted in a substantial reduction in the concentrations of metals (e.g., a 77% reduction for cadmium and 91% for chromium) and VOC (e.g., a 70% reduction for 1,1,1-trichchloroethane)

As a result of these improvements, the current discharge from Outfall 001 to Gudgeon Brook now consists of treated dry weather flow of up to 60 gallons per minute from the dry weather treatment system, and untreated wet weather flow from groundwater infiltration, groundwater inflow from sumps located in facility basements, and storm water.

The dry weather treatment system is designed to remove volatile organic compounds (VOC) from dry weather flows prior to discharge to Gudgeon Brook. The treatment system consists of:

* One 850-gallon wet well with two 60-GPM sump pumps located within the main drainage line at Manhole 1;

* An in-ground looped piping system (feed and return) connecting the wet well at Manhole 1 to the treatment system and automatic control system located inside Building 30; and

* A VOC treatment system inside Building 30 which includes a 60-gallon stainless steel 3-tray stripper with air blower and silencer and two 55-gallon vapor phase carbon drums.

The treatment system is designed to treat a maximum flow of 60 gallons per minute ("dry-weather" conditions). Treated effluent is discharged back to the main drainage line at a point just downstream of the outlet from the Manhole 1 wet well. The flow combines with any flows not treated by the discharge in the main drainage line and discharges through Outfall 001 to Gudgeon Brook. The treatment system does not operate when flows are in excess of 60 gallons per minute.

The system was originally installed and began operating in June 1995 as part of the RAM approved by the MassDEP and undertaken in accordance with the MCP regulations under Release Tracking Number (RTN) 4-11296. In November 1996, the Company filed an application to EPA and the MassDEP seeking approval to continue operating the system to alleviate concerns regarding the continuing release of VOCs to Gudgeon Brook. The system currently operates under a MassDEP plan approval letter dated April 8, 1997.

Cocasset Facility

The Cocasset facility permit (MA0004111), authorized discharges to Robinson Brook. This permit was terminated in 1995 following the elimination of the facility's sanitary sewage wastewater treatment plant by a tie-in to the municipal sewer system. The storm water discharges from this facility are currently covered under the Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (MSGP). EPA is proposing to cover a portion of the storm water drainage area, groundwater infiltration, and inflow from building sumps in this permit as Outfall 002. The remaining storm water outfalls will maintain coverage under the MSGP.

B. DRAINAGE SYSTEMS

Neponset Drainage System

The drainage area contributing to Outfall 001 is approximately 18 acres. The runoff area consists of building roofs and paved parking lots, roadways, and pedestrian walkways. A minor portion of the drainage area (less than approximately 2 acres) consists of seeded lawn and other landscaped areas where fertilizers and pesticides may be used.

Drainage from the northern portion of the facility (the buildings and parking lots located on the west side of Neponset Avenue and north of Building 16, plus the "north parking lot" on the east side of Neponset Avenue near Chestnut Street) flows through Outfall 001 to Gudgeon Brook. The main drainage line for the northern portion of the facility starts at a bulkhead near the northeast corner of Building 16. The drainage line, which is 36 inches in diameter and constructed of brick/concrete, runs north beneath the series of connected manufacturing buildings and under the Building 30A/30B shipping and parking area at the north end of the facility. Trunk lines carrying storm water collected in catch basins along the west side of the facility and from the North Parking Lot connect into the main line at various points along Neponset Avenue. From the northern-most manhole on the facility property (Manhole 45), the main line continues north under Chestnut Street to the outfall location at Gudgeon Brook. This outfall (001) will be subject to the terms of this individual NPDES permit being proposed for renewal.

Cocasset Drainage System

Drainage from the southern portion of the facility (the buildings and parking lots located on the west side of Neponset Avenue and south of, and including, Building 16) flows through Outfall 002 to Robinson Brook, which is located across Neponset Avenue to the east of Building 16.

C. MATERIALS USED IN PRODUCTION, AND MATERIALS STORED ON-SITE

The raw materials used in production include: oils and coolants, organic solvents, acids and alkalis, plating chemicals, paint, and raw metal (i.e., brass, steel ferrous, aluminum). All raw materials are stored indoors, with the exception of flammable liquids, which are stored in containers in an outdoor roofed containment area adjacent to west wall of Building 30. Chemicals are stored in containers; typically in 55 gallon drums or smaller containers, with the exception of lubricants which are stored in 200 gallon tanks. Mineral spirits are stored in one 5,000 gallon above ground tank within a secondary containment unit. Hazardous waste are stored in containers (typically, in 55 gallon drums or smaller containers) in designated indoor storage areas. Waste oil is stored in one 5,000 gallon above ground tank within a secondary containment unit. All hazardous wastes are disposed at offsite treatment/disposal facilities and are transported by licensed hazardous materials transporters in accordance with Department of Transportation Regulations (49 CFR).

The company has implemented a Pollution Prevention Program since the late 1970's and has achieved the following: (1) elimination of chlorofluorocarbons in manufacturing, (2) reduction of VOC emissions from painting operations by 99%, (3) use, almost entirely, of water based detergents to clean parts, (4) reduction of VOC emissions by 61% over the 1988 baseline, and (5) a 92% reduction in the volume of hazardous waste previously sent to disposal facilities.

The facility also maintains a Spill Prevention Control and Countermeasure (SPCC) Plan in accordance with 40 CFR Part 112 to minimize the occurrence and impact of oil spills which could affect surface water and groundwater.

D. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable state regulations. During development, EPA considered the most recent technology-based treatment requirements, water quality-based requirements, and all limitations and requirements in the current/existing permit. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The standard conditions (Part II) of the draft permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. 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(i) and §122.48.

Technology-Based Requirements

Subpart A of 40 CFR Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (See 40 CFR Part 125 Subpart A) to meet best practicable control technology currently available (BPT), best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and nonconventional pollutants. In general, technology-based effluent guidelines for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established, and in no case later than March 31, 1989 [See 40 CFR §125.3(a)(2)]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. EPA has not promulgated technology-based National Effluent Guidelines for storm water, groundwater or other non process discharges from facilities subject to the Metal Finishing Point Source Category at 40 CFR Part 433. In the absence of technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using Best Professional Judgment (BPJ).

Water Quality-Based Requirements

Water quality-based limits are required in NPDES permits when EPA determines that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water quality standards (See Section 301(b) (1)(C) of the CWA). Water quality standards consist of three (3) 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) of the water body; and 3) antidegradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards (WQS), found at 314 CMR 4.00, include these elements.

The WQS limit or prohibit discharges of pollutants to surface waters and thereby assure that the surface water quality standards of the receiving water are protected, maintained, and/or attained. The WQS include requirements for the regulation and control of toxic constituents. The WQS regarding toxic pollutants

contains both a narrative criterion, which generally prohibits pollutants in toxic amounts, and a specific numeric criterion requiring that the 2002 EPA- recommended water quality criteria, established pursuant to Section 304(a) of the CWA, be used unless a site-specific criterion is established:

> (e) Toxic Pollutants. All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher. Where the Department determines that naturally occurring background concentrations are higher, those concentrations shall be the allowable receiving water concentrations. The Department shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction of metals when EPA's 304(a) recommended criteria provide for use of the dissolved fraction. The EPA recommended criteria based on total recoverable metals shall be converted to dissolved metals using EPA's published conversion factors. Permit limits will be written in terms of total recoverable metals. Translation from dissolved metals criteria to total recoverable metals permit limits will be based on EPA's conversion factors or other methods approved by the Department. The Department may establish site specific criteria for toxic pollutants based on site specific considerations. Site specific criteria, human health risk levels and permit limits will be established in accordance with the following:
>
> > 1.Site Specific Criteria: Where EPA recommended criteria for a specific pollutant are not available or where the Department determines that they are invalid due to site specific physical, chemical or biological considerations, the Department shall use a site specific criterion as the allowable receiving water concentration for the affected waters. In all cases, at a minimum, site specific criteria shall not exceed safe exposure levels determined by toxicity testing using methods approved by the Department. The Department will adopt any such site specific criteria as revisions to 314 CMR 4.00 in accordance with M.G.L. c. 30A.
> >
> > 2. Human Health Risk Levels. Where EPA has not set human health risk levels for a toxic pollutant, the human health based regulation of the toxic pollutant shall be in accordance with guidance issued by the Department of Environmental Protection's Office of Research and Standards. The Department's goal is to prevent all adverse health effects which may result from the ingestion, inhalation or dermal absorption of toxins attributable to waters during their reasonable use as designated in 314 CMR 4.00. When this goal is not attainable, the Department will use a goal of 10-6 as the acceptable excess lifetime cancer risk level for individual carcinogens.

314 CMR 4.05(5)(e).[1] The Massachusetts WQS also [See Massachusetts 314 CMR 4.05(5)(e)]. EPA regulations pertaining to permit limits based upon water quality standards and state requirements include the provisions at 40 CFR §122.44(d).

[1] In its comments on the 2003 permit, Invensys suggested that EPA must develop site specific criteria for toxic pollutants, e.g., cadmium. The permittee's arguments were focused on the WQS narrative criteria for toxics, and language in the Massachusetts Implementation Policy for the Control of Toxic Pollutants in Surface Waters pertaining to the interpretation of narrative criteria. However, the limits in the permit are not interpreting the WQS narrative toxics criterion, but rather the numeric criterion of 314 CMR 4.05(5)(e), which establishes that EPA-recommended criteria found in the National Recommended Water Quality Criteria: 2002 "are the allowable receiving water concentrations for the affected waters, *unless* the Department either establishes a site specific criterion or determines

Anti-Backsliding

Section 402(o) of the CWA provides, generally, that the effluent limitations of a renewed, reissued, or modified permit must be at least as stringent as the comparable effluent limitations in the previous permit. Unless certain limited exceptions are met, backsliding from effluent limitations contained in previously issued permits is prohibited. EPA has also promulgated anti-backsliding regulations, which are found at 40 CFR 122.44(l). Unless statutory and regulatory backsliding requirements are met, the limits in the reissued permit must be at least as stringent as those in the previous permit. The effluent limits in the draft permit are at least as stringent as those in the current permit.

Antidegradation

The Massachusetts Surface Water Quality Standards (314 CMR 4.00) establish designated uses of the State's waters, criteria to protect those uses, and an antidegradation provision to ensure that existing uses and high quality waters are protected and maintained. The limits in the draft permit are as stringent, or more stringent, than the current permit and accordingly are consistent with the antidegradation provisions.

2. Technology-based Limitations

As described previously, there are no effluent limitations guidelines for storm water, groundwater, or other non process discharges from facilities subject to the Metal Finishing Point Source Category at 40 CFR Part 433. As authorized under Section 402(a)(1)(B) of the CWA, EPA has included technology-based limits in the draft permit based on Best Professional Judgment. Specifically, the draft permit requires that the facility maintain and implement a storm water pollution prevention plan (SWPPP) facility to minimize the discharge of pollutants in storm water runoff.

Storm Water Pollution Prevention Plan (SWPPP)

This facility stores and handles pollutants listed as toxic under Section 307 (a) (1) of the CWA and engages in activities which could result in the discharge of pollutants to waters of the United States either directly or indirectly through storm water run-off. These operations include one or more of the following items from which there is or could be site run-off: material storage, material processing and handling, blending operations, intra facility transfers, and loading/unloading of product.

To control the activities/operations which could contribute pollutants to waters of the United States, potentially violating the State's Water Quality Standards, the draft permit requires the facility to develop, implement, and maintain a Storm Water Pollution Prevention Plan (SWPPP) documenting the application of best management practices (BMPs) appropriate for this specific facility (See Sections 304(e) and 402(a)(1) of the CWA and 40 CFR §122.44(k)).

The goal of the SWPPP is to reduce or prevent the discharge of pollutants through the storm water system. The SWPPP serves to document the selection of, and if necessary, design and installation of, control

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that naturally occurring background concentrations are higher." The quoted language is from the current version of 314 CMR 4.05(5)(e) and is somewhat different than the language in the WQS in effect in 2003, but the underlying requirement that the EPA-recommended toxics criteria established pursuant to 304(a) of the CWA are the allowable numeric water quality standards unless the Department establishes a site-specific criterion, is the same. Notably, the provision authorizes "the Department" (i.e., MassDEP) to establish a site-specific criterion via revisions to 314 CMR 4.00. MassDEP has not established a site-specific criterion for any of the pollutants and receiving waters at issue in this permit.

measures, including BMPs. Additionally, the SWPPP requirements in the draft permit are intended to facilitate a systematic approach for the permittee to properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. The SWPPP documents the appropriate BMPs implemented or to be implemented at the facility to satisfy the non-numeric technology-based effluent limitations included in the draft permit. These non-numeric effluent limitations support, and are equally enforceable as, the numeric effluent limitations included in the draft permit.

3. Water Quality-Based Limitations

Available Dilution and Determination of a Mixing Zone

The available dilution for the facility's discharges to Gudgeon Brook (Outfall 001) and Robinson Brook (Outfall 002) was determined to be zero. These determinations are based on the fact that both discharge locations are at the headwaters of small streams and so have little or no flow upstream of the discharge locations. Therefore, given that the available dilution is zero, the water quality criteria must be met at the point of discharge, with no allowance for dilution.[2]

Water Quality-Based Effluent Limits Derivation - Outfall 001

Groundwater discharges, sump pump discharges, and storm water discharges are comingled in the discharge pipes. While it is reasonable to assume that the data routinely collected for the Gudgeon Brook discharge (see Attachments A.1 and A.2, and A.6) were collected under dry and wet weather conditions, there is limited definitive information available on which sampling results reflect wet weather and which reflect dry weather. Information provided by the permittee (See Attachment A.3) is incomplete but does indicate that two of the 2009 quarterly whole effluent toxicity samples were collected under wet weather conditions. Review of rainfall data collected at the Blue Hill observatory in Milton, MA also indicates that these were wet weather days and also indicates that one other day was a wet weather day. See Attachment A.3. Similarly, weather conditions during collection of quarterly VOC data were not recorded, but rainfall information indicates that several of these samples were collected during wet weather conditions (see Attachment A.6). Overall, the data indicate that concentrations of certain pollutants exceed water quality criteria during both dry weather and wet weather[3]. This data is discussed more specifically in the following section titled priority pollutants.

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[2] In its comments on the 2003 draft permit, Invensys commented that the Gudgeon Brook headwall (where Outfall 001 is located) also contains a municipal stormwater outfall owned by the Town of Foxborough, and suggested that this outfall provides additional flow that should be considered in determining dilution in Gudgeon Brook. EPA disagrees because the permit limits apply under dry weather conditions as well as wet weather conditions, the quantity and timing of the additional flow is unknown, and the water quality of the additional flow is unknown.

[3] In its comments on the 2003 draft permit, Invensys commented that numeric water quality-based limits on storm water were not consistent with federal policy, citing the EPA document titled Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, available at http://www.epa.gov/npdes/pubs/swpol.pdf. While this policy does recommend that first round storm water permits include best management practices in lieu of numeric water quality based limits, it states that such an approach is necessary due to the "typical lack of information on which to base numeric water quality-based effluent limitations". In the case of Invensys, there is adequate sampling data showing that pollutant concentrations in storm water discharges exceed applicable water quality criteria, and that there is no available dilution provided by the receiving waters, making the use of dilution inappropriate. Also, given that the site has been remediated pursuant to MassDEP's waste site cleanup program, and the company has already implemented numerous BMPs, it is not reasonable to expect that the imposition of routine BMPs will be sufficient to attain water quality criteria.

The effluent limits developed below apply under all discharge conditions in order to ensure that the acute and chronic criteria are not exceeded under the variable discharge conditions experienced at this site.

Conventional Pollutants (see Attachment A.1 for monitoring data)

pH - The draft permit includes pH limitations based on state water quality standards (in the range of 6.5 through 8.3 standard units). Data submitted by the permittee show that the lower limit is frequently violated And the permittee believes that this is a natural condition. It is recommended that the permittee submit data along with the discharge monitoring reports documenting the extent to which rainwater pH effects the pH of the final discharges.

Fecal Coliform Bacteria - The current permit contains fecal coliform limits. The limits are consistent with the water quality criteria in effect at the time of permit issuance. A review of discharge data submitted by the facility indicates that there have been recent violations of the limit, although the majority of the data is within the permit limits. A bacteria limit has been retained since the recent data show a reasonable potential for the discharge to cause or contribute to exceedances of water quality standards. The limits in the draft permit are for E.coli, which are the indicator bacteria for Class B waters in the current Massachusetts Surface Water Quality Standards. The limits are a monthly geometric mean of 126 cfu/100 ml and a daily maximum of 409 cfu/100 ml.

Priority Pollutants (see Attachments A.2 through A.7, and B for monitoring data and other information)

Metals

Metals monitoring data collected in conjunction with whole effluent toxicity (WET) tests are found on Attachment A.2. Sampling information submitted by the permittee, such as the date of the collected samples and weather conditions on the days of sampling is found on Attachment A.3. Metals data collected over the past three years, sorted by precipitation (i.e. wet or dry days) is found on Attachment A.4. The determination of whether a day is wet (having rainfall runoff) or dry (having no rainfall runoff) was based on the information in Attachment A.2 and by daily rainfall data collected at the Blue Hill Observatory in Milton, MA. If greater than 0.1 inch of rain was recorded in the 24 hours preceding the sample, the sample was considered to have been collected in wet weather.

The applicable water quality criteria are from National Recommended Water Quality Criteria: 2002 (see 314 CMR 4.05(5)(e)). Hardness- based metals criteria were calculated at a hardness of 50 mg/l. The hardness value of 50 mg/l was chosen as a reasonably protective value based on a review of the past three years of data submitted by the permittee. The range of hardness values over the past three years (fourth quarter 2006 through third quarter 2010 is from 52.4 mg/l to 83.2 mg/l). The calculations of the metals limits (which are expressed in the WQS as the dissolved fraction but expressed in the permit as total recoverable limits) are found in Attachment B.

Copper – The water quality criteria for copper at a hardness of 50 mg/l are 5.2 ug/l (chronic) and 7.3 ug/l (acute). A review of effluent data submitted by the facility show effluent values ranging from 3.6 ug/l to 48.5 ug/l during dry weather and 4.1 ug/l to 5.94 ug/l during wet weather. The data show that the copper concentration in the discharge has exceeded the chronic water quality criteria during both wet and dry weather. The acute criteria has been exceeded during dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for copper. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a

maximum daily copper limitation of 7.3 ug/l and an average monthly limitation of 5.2 ug/l.

Lead - The water quality criteria for lead at a hardness of 50 mg/l are 1.3 ug/l (chronic) and 33.8 ug/l (acute). A review of effluent data submitted by the facility show effluent values ranging from <1.0 ug/l to 17.4 ug/l during dry weather and <2 ug/l to 2.7 ug/l during wet weather. The data show that the lead concentration in the discharge has exceeded the chronic water quality criteria during both wet and dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for lead. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes an average monthly lead limitation of 1.3 ug/l.

Zinc - The water quality criteria for zinc at a hardness of 50 mg/l are 66.5 ug/l (chronic) and 66.5 ug/l (acute). A review of effluent data submitted by the facility, show effluent values ranging from 28 ug/l to 82 ug/l during dry weather and from 39 ug/l to 69.5 ug/l during wet weather. The data show that the zinc concentration in the discharge has exceeded both the chronic and acute water quality criteria during both wet and dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for zinc. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a maximum daily zinc limitation of 66.5 ug/l and an average monthly limitation of 66.5 ug/l.

Cadmium - The water quality criteria for cadmium at a hardness of 50 mg/l are 0.16 ug/l (chronic) and 1.05 ug/l (acute). A review of effluent data submitted by the facility show effluent values ranging from 0.33 ug/l to 1.4 ug/l during dry weather and from < 0.5 ug/l to 1.28 ug/l during wet weather. The data show that the cadmium concentration in the discharge has exceeded both the chronic and acute water quality criteria during both wet and dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for zinc. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a maximum daily cadmium limitation of 1.05 ug/l and an average monthly limitation of 0.16 ug/l.

Aluminum – The water quality criteria for aluminum are 87 ug/l (chronic) and 750 ug/l (acute). A review of effluent data submitted by the facility show effluent values ranging from 37 ug/l to 326 ug/l during dry weather and 39.1 ug/l to 245 ug/l during wet weather. The data show that the aluminum concentration in the discharge has exceeded the chronic water quality criteria during both wet and dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of chronic water quality criteria for aluminum. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes an average monthly aluminum limitation of 87 ug/l.

The draft permit also requires that sump pump activation and discharge volume records be kept and reported with the DMRs for sump pumps H, I, O, and Z in order to determine the effect of sump pump discharges on effluent concentrations. A review of the 2002 sump pump effluent data (see Attachment A.5) indicates that these sumps have the potential to contribute significant amounts of cadmium, copper, and lead to the effluent. No other sump pumps are authorized to be discharged through outfall 001.

VOCs - The DMR data (see Attachment A.6) indicate that the effluent concentrations of VOCs have been consistently below the human health criteria in National Recommended Water Quality Criteria (for purposes of comparison, drinking water maximum contaminant levels (MCLs) and limits included in EPA's Groundwater Remediation general permit are also shown on Attachment A.6). The draft permit includes monitoring for tetrachloroethylene (PCE) based on high concentrations detected in monitoring of sump Z (see Attachment A.7). While the measured concentration in sump Z (23 ug/l) is higher than the human health criteria for aquatic life consumption (3.3 ug/l), EPA has not found that this represents reasonable

potential to exceed the criteria, since the measurement was taken at a sump that is just one component of the total discharge and has not been detected in the effluent monitoring data (see Attachment A.6.). Consequently, the draft permit does not impose a water-quality based effluent limit for PCE.

Whole Effluent Toxicity

As discussed above, the discharge from the facility is a complex mixture of chemicals, which are often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity (WET) testing. Furthermore, 40 CFR 122.44 (d) requires WET limits in NPDES permits when the permittee has a "reasonable potential" to cause toxicity. Massachusetts' Surface Water Quality Standards contain a narrative toxicity criterion which states that "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife." 314 CMR 4.05(5)(e). EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges entering the nation's waterways. EPA-New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance.

These approaches are designed to protect aquatic life and human health. Pollutant-specific approaches such as those in the Gold Book and State regulations address individual chemicals, whereas, the whole effluent toxicity (WET) approach evaluates interactions between pollutants thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "Additive" and/or "Antagonistic" effects of individual chemical pollutants which pollutant specific approaches do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

The current permit requires acute toxicity testing. This testing has shown that the discharge routinely meets its LC50 limit of 100 percent effluent (this value means that greater than 50 percent of test organisms survive in 100 percent effluent). Acute testing measure lethality of the effluent, but does not measure more subtle effects such as effects on growth or reproduction. Because of the low available dilution and the presence of several toxic chemical in concentrations exceeding water quality criteria, EPA believes there is a reasonable potential for the discharge to cause chronic toxicity in the receiving water. Therefore the proposed draft permit requires quarterly chronic (and modified acute) toxicity testing of the discharge from outfall 001 using the daphnid, Ceriodaphnia dubia and the fathead minnow, Pimephales promelas.

Sampling frequency

The draft permit requires daily flow measurement, 4/week pH sampling, weekly sampling for toxic chemicals and quarterly sampling for whole effluent toxicity. EPA believes that these frequencies are necessary to characterize the discharge, and to ensure that adequate numbers of both dry and wet weather events are sampled.[4]

[4] In its comments on the 2003 draft permit, Invensys stated that the frequency of monitoring should be reduced. The 2003 draft permit required weekly sampling for toxics during dry weather and once per month sampling during wet weather. Specifically, Invensys stated that there is no reason to expect that the discharges from Outfall 001 would vary significantly during dry weather. EPA does not agree with this contention. The data indicate that there is significant variability in almost all parameters and this, in part, reflects differences in weather conditions as well as the activation frequency of the numerous sump pumps. Notwithstanding the preceding, this draft permit has eliminated the wet weather-specific sampling and requires the permittee to routinely collect weekly samples and to include pertinent precipitation data for the sampling days. In this way, a portion of the routine sampling will be conducted under wet

Water Quality-Based Effluent Limits Derivation - Outfall 002

Groundwater discharges, sump pump discharges, and storm water discharges are comingled in the discharge pipes.

Data submitted by the permittee for discharges to Robinson Brook in 2001 and 2002 show that during wet weather, the discharge exceeds water quality criteria for several metals (see Attachment C.1.) and some volatile organic compounds (see Attachment C.5). The dry weather data for 2001 and 2002 also show exceedances of metals criteria (see Attachment C.2) and some volatile organic compounds (see Attachment C.4). It is also noted that some of the detection limits for metals are much greater than the criteria. This data is discussed in detail in the section below titled Priority Pollutants.[5]

The effluent limits developed below apply under all discharge conditions in order to ensure that the acute and chronic criteria are not exceeded under the variable discharge conditions experienced at this site.

Conventional Pollutants

pH - The draft permit includes proposed pH limitations based on state water quality standards. While pH data for outfall 002 is not available, it is reasonable to assume that the pH levels will be similar to outfall 001.

Priority Pollutants (see Attachments C and D.)

Metals

Metals monitoring data collected during wet and dry weather is found on Attachments C.1 and C.2.

The applicable water quality criteria are from National Recommended Water Quality Criteria: 2002 (see 314 CMR 4.05(5)(e)). Hardness-based metals criteria are based on a hardness value of 50 mg/l (due to a lack of hardness data for Robinson Brook, the hardness was assumed to be similar to Gudgeon Brook) and a dilution factor of zero. The calculations of the metals limits are found in Attachment D.

Copper - – The water quality criteria for copper at a hardness of 50 mg/l are 5.2 ug/l (chronic) and 7.3 ug/l (acute). A review of the effluent data submitted by the facility, show concentrations ranging from 24.8 ug/l - 106.2 ug/l during wet weather and <50 ug/l - 62 ug/l during dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for copper. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a maximum daily copper limitation of 7.3 ug/l and an average monthly limitation of 5.2 ug/l.

Lead - The water quality criteria for lead at a hardness of 50 mg/l are 1.3 ug/l (chronic) and 33.8 ug/l (acute).

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weather conditions, and those days may be identified in the record by the precipitation data. The net result is a 20 percent reduction in the number of samples for toxic chemicals, as well as significantly reduced logistical costs inherent in conducting targeted wet weather sampling. The sump sampling has also been eliminated but sump activation information is required to be reported.

[5] In its comments on the 2003 draft permit, Invensys stated that it had cleaned the Robinson Brook drain line system and that this cleanout was expected to reduce the levels of contaminants measured at the outfall. A review of the post drain cleaning data submitted by Invensys (see Attachment C.7) shows that, while some metals levels did in fact decrease after the drain cleaning, metals levels are in many cases still well above criteria.

A review of the effluent data submitted by the facility, show concentrations ranging from 6.0 ug/l - 23.4 ug/l during wet weather and 32 ug/l during dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for lead. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a maximum daily lead limitation of 33.8 ug/l and an average monthly limitation of 1.3 ug/l.

Zinc - The water quality criteria for zinc at a hardness of 50 mg/l are 66.5 ug/l (chronic) and 66.5 ug/l (acute). A review of the effluent data submitted by the facility, show concentrations ranging from 60 ug/l - 440 ug/l during wet weather and 66 ug/l - 70 ug/l during dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for zinc. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a maximum daily zinc limitation of 66.5 ug/l and an average monthly limitation of 66.5 ug/l.

Cadmium - The water quality criteria for cadmium at a hardness of 50 mg/l are 0.16 ug/l (chronic) and 1.05 ug/l (acute). A review of the effluent data submitted by the facility, show concentrations ranging from 0.8 ug/l - 1.5 ug/l during wet weather and <0.5 ug/l - <5.0 ug/l during dry weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for cadmium. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes a maximum daily cadmium limitation of 1.05 ug/l and an average monthly limitation of 0.16 ug/l.

Aluminum - The water quality criteria for aluminum are 87 ug/l (chronic) and 750 ug/l (acute). A review of the effluent data submitted by the facility show concentrations ranging from 400 ug/l - 500 ug/l during wet weather. The effluent from Outfall 002 was not sampled during dry weather conditions. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for aluminum. Therefore, pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes an average monthly limitation of 87 ug/l for aluminum.

Iron - The water quality criteria for iron is 1000 ug/l (chronic). A review of the effluent data submitted by the facility, show concentrations ranging from 1590 ug/l - 1900 ug/l during wet weather. The effluent from Outfall 002 was not sampled during dry weather conditions. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for iron. Therefore pursuant to 40 CFR §122.44(d)(1)(iii), the draft permit includes an average monthly limitation of 1000 ug/l for iron.

Mercury – A mercury monitoring requirement has been included for outfall 002. While most of the data collected from the outfall 002 drainage area resulted in non- detectable levels for mercury, one sample collected in 2002 and one sample collected in 2003 indicated detectable levels of mercury at catch basin number 24 (see Attachment C7). The permit also requires that if any future sampling indicates that there are detectable levels of mercury in outfall 002, the permittee shall, within three months of obtaining the sampling result, develop and submit a plan to EPA and MassDEP for eliminating the source of the mercury contamination and shall complete implementation of the plan and submit a report to EPA and MassDEP within one year of obtaining the sampling result.

The permit also requires that sump pump activation and discharge volume records be kept and reported with the DMRS for sump pumps A, B, C, D, E, J, and L in order to determine the effect of sump pump discharges on effluent concentrations. A review of the 2002 sump pump effluent data (see Attachment C.3) indicates that these sumps have the potential to contribute significant amounts of copper, lead, and cadmium to the effluent. No other sump pumps are authorized to be discharged through outfall 002.

Volatile Organic Compounds (VOCs)

VOC concentrations are shown on Attachments C.4 and C.5. Samples were taken from outfall 002 during both wet and dry weather. The data show that discharge concentrations of VOCs are generally higher in dry weather than in wet weather.

Trichloroethylene - The human health water quality criteria for trichloroethylene is 30 ug/l (fish consumption). A review of the 2001 and 2002 effluent data submitted by the facility show values ranging from 110 ug/l - 320 ug/l in dry weather and 3.0 ug/l - 8.6 ug/l in wet weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for trichloroethylene. Therefore, pursuant to 40 CFR § 122.44(d)(1)(iii), the draft permit includes an average monthly limitation of 30 ug/l for trichloroethylene.

Tetrachloroethylene – The human health criteria for tetrachlorethylene is 3.3 ug/l (fish consumption). A review of the 2001 and 2002 effluent data submitted by the facility show values ranging from 1.3 ug/l - 3.0 ug/l in dry weather and 0.6 ug/l - 2.0 ug/l during wet weather. This data, coupled with the lack of dilution, show that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for tetrachloroethylene. Therefore, pursuant to 40 CFR § 122.44(d)(1)(iii), the draft permit includes an average monthly limitation of 3.3 ug/l for tetrachloroethylene.

Whole Effluent Toxicity

As discussed above, the discharge from the facility is a complex mixture of chemicals, which are often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity (WET) testing. Furthermore, 40 CFR 122.44 (d) requires WET limits in NPDES permits when the permittee has a "reasonable potential" to cause toxicity. Massachusetts' Surface Water Quality Standards contain a narrative toxicity criterion which states that "All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife." 314 CMR 4.05(5)(e). EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges entering the nation's waterways. EPA-New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance.

These approaches are designed to protect aquatic life and human health. Pollutant-specific approaches such as those in the Gold Book and State regulations address individual chemicals, whereas, the whole effluent toxicity (WET) approach evaluates interactions between pollutants thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. Furthermore, WET measures the "Additive" and/or "Antagonistic" effects of individual chemical pollutants which pollutant specific approaches do not, thus the need for both approaches. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process. Because of the low available dilution and the presence of several toxic chemical in concentrations exceeding water quality criteria, EPA believes there is a reasonable potential for the discharge to cause chronic toxicity in the receiving water. Therefore the proposed draft permit requires quarterly chronic (and modified acute) toxicity testing of the discharge from outfall 002 using the daphnid, Ceriodaphnia dubia and the fathead minnow, Pimephales promelas.

Sampling frequency

The draft permit requires daily flow measurement, 4/week pH sampling, weekly sampling for toxic

chemicals and quarterly sampling for whole effluent toxicity. EPA believes that these frequencies are necessary to characterize the discharge, and to ensure that adequate numbers of both dry and wet weather events are sampled.

VII. MONITORING AND REPORTING

The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

VIII. ESSENTIAL FISH HABITAT DETERMINATION (EFH)

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. The Neponset Reservoir, Gudgeon Brook and Robinson Brook are not covered by the EFH designation for riverine systems and thus EPA and the MassDEP have determined that a formal EFH consultation with NMFS is not required.

IX. STATE PERMIT CONDITIONS

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection pursuant to M.G.L. Chap. 21, §43.

X. STANDARD CONDITIONS

The standard conditions of the permit are based on 40 CFR Parts 122, Subparts A and D and 40 CFR § 124, Subparts A, D, E, and F and are consistent with management requirements common to other permits.

XI. STATE CERTIFICATION REQUIREMENTS

The staff of the MassDEP has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the draft permit will be certified.

XII. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to David Pincumbe, U.S. EPA, Office of Ecosystem Protection,

Municipal Permits Branch, 5 Post Office Square, Suite 100 – Mail Code OEP06-4, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the MassDEP. Such requests shall state the nature of the issues proposed to be raised in the hearing.

A public hearing may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the draft permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

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

Within 30 days following the notice of the final permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

XIII. EPA 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:

David Pincumbe
U.S. Environmental Protection Agency
Office of Ecosystem Protection (CMP)
5 Post Office Square
Suite 100 (OEP 6-4)
Boston, MA 02109-3912
Telephone: (617) 918-1695
Pincumbe.David@EPA.GOV

Kathleen Keohane
Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, MA 01608
TEL: (508) 767-2856
FAX: (508) 791-4131
Kathleen.Keohane@state.ma.us

_____
Date

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

Attachment A.1.
Gudgeon Brook
Outfall 001 Conventional Pollutants

	Flow (MGD)		Fecal Coliorm (#/100 ml)		pH (SU)	
DATE	30DA AVG	DAILY MX	MO GEO	DAILY MX	MINIMUM	MAXIMUM
January-07	.2534	1.574			5.9	6.
February-07	.2074	2.536			5.8	6.
March-07	.35	3.6	11	30.	5.6	5.8
April-07	.4639	2.86			5.7	5.9
May-07	.3187	2.6425			5.7	6.2
June-07	.2045	4.862	6	30.	6.1	6.3
July-07	.166	4.953			6.	6.3
August-07						
September-07	.0936	2.831	10	130.	5.8	6.2
October-07	.098	2.065			6.1	6.2
November-07	.1512	4.627			6.1	6.2
December-07	.219	3.355	10	50.	6.1	6.2
January-08						
February-08	.5	6.552			5.7	6.1
March-08	.4853	3.786	1	4.	5.8	6.2
April-08	.3542	3.1			5.9	6.1
May-08	.275	1.7078			5.8	6.1
June-08	.1786	2.76	7	13.	5.9	6.
July-08	.1512	4.99			5.9	6.3
August-08	.2578	6.31			5.9	6.2
September-08	.3	6.8	7	13.	5.8	6.
October-08	.251	5.403			5.8	6.2
November-08	.3125	2.3472			5.7	6.2
December-08	.4536	2.6	5	30.	5.7	5.9
January-09	.337	1.823			5.5	5.8
February-09	.347	1.835			5.7	6.
March-09	.3514	1.607	13	80.	5.9	6.1
April-09	.3874	2.373			5.9	6.
May-09	.2678	3.064			5.9	6.1
June-09	.32	8.384	14	50.	5.6	6.2
July-09	.5011	4.752			5.5	6.2
August-09	.285	2.605			6.1	6.2
September-09	.213	2.308	74	110.	6.12	6.39
October-09	.3586	5.213			6.1	6.3
November-09	.504	3.23			6.17	6.42
December-09	.52	2.6323	5	30.	5.88	6.26
January-10	.422	3.4013			5.9	6.19
February-10	.46	3.34			5.69	6.19
March-10	.8424	3.6	2	4.	5.72	6.1
April-10	.5126	2.242			5.74	6.1
May-10	.3557	3.786			5.87	6.06
June-10	.3485	2.576	22	500.	5.74	6.08
July-10	.2462	6.6			5.71	6.07
August-10	2.4422	29.3			5.65	6.32
September-10	.45	27.26	212	900.	6.1	6.37
Permit Limit			200	400	6.5	8.3

Attachment A.2

Gudgeon Brook
Outfall 001 Monitoring Data - From WET Tests

Sampling Period	Al	Cd	Ca	Cr	Cu	Pb	Mg	Ni	Zn	Ammonia	Hardness	WET *c. dubia*	WET *minnow*
	ppb										ppm	(%)	(%)
1st Quarter 98	200	8	15800	ND	14	ND	3800	ND	99	400	55	>100	>100
2nd Quarter 98	150	<5	13360	<30	<50	<40	3250	<20	50	400	46.7	>100	>100
3rd Quarter 98	240	1.4	12500	<2.0	9.9	3.6	2640	<10	120	200	42	>100	>100
4th Quarter 98	132	0.9	16500	<2.0	6.3	9.7	3020	<10	20	300	53.6	>100	>100
1st Quarter 99	244	0.8	14000	<2.0	11.3	<2.0	2710	45	45	<100	46.1	>100	>100
2nd Quarter 99	185	1.09	14300	3.4	22.1	2.9	2680	<10	26.6	400	46.7	>100	>100
3rd Quarter 99	0.1	<0.5	14800	2.4	17	2.7	3280	<20	41	21300	50.5	>100	>100
4th Quarter 99	84	<0.5	15400	<2.0	10	<2.0	3400	<10	58	1000	52.4	>100	>100
1st Quarter 00	253	1.37	13500	<2.0	25.6	<2.0	3500	<20	85	700	48.1	>100	>100
2nd Quarter 00	170	8	19720	<30.0	<50.0	<40.0	3500	15	100	600	63.7	>100	>100
2nd Quarter 00	181	1.6	16000	<2.0	22.9	<2.0	3500	48	120	400	54.5	>100	>100
3rd Quarter 00	120	1.2	16400	<2.0	8.7	2.5	3530	14	80	600	55.4	>100	>100
4th Quarter 00	78	0.9	16200	<2.0	3.7	2.4	3290	<10	14	600	53.9	>100	>100
1st Quarter 01	138	1.1	15900	<2.0	4.6	<2.0	3600	<20	67	700	54.5	>100	>100
2nd Quarter 01	218	0.6	15800	<2.0	4.2	<2.0	3070	<20	91	900	52.095	>100	>100
3rd Quarter 01	260	0.8	16600	2.4	21.2	4.3	3630	27	114	1600	56.398	>100	>100
4th Quarter 01	380	<0.5	19056	<2.0	4.2	<2.0	4334	22	92	900	65.43	>100	>100
1st Quarter 02	106	0.7	6300	2	35.2	6	1400	<20	163	200	21.5	83.00	>100
2nd Quarter 02	260	0.7	18830	3.7	6.9	<2.0	4300	<20	47	800	63	>100	>100
3rd Quarter 02	78	1.0	930	2.5	3.5	<2.0	900	<20	24	<100	6.03	>100	>100
4th Quarter 02	66	0.6	21000	<2.0	5.5	<2.0	4600	<20	28	900	71.4	>100	>100
1st Quarter 03	280	0.9	18000	<2.0	4.4	<2.0	3600	<20	52	1800	59.8	>100	>100
2nd Quarter 03	320	0.8	17000	<2.0	4.2	<2.0	3700	<20	65	200	57.7	>100	>100
3rd Quarter 03	230	1.2	22000	<2.0	7.2	3.7	4800	<20	45	600	74.7	>100	>100
4th Quarter 03	44	<0.5	26000	<2.0	2.8	<2.0	6000	<20	34	600	90	>100	>100
1st Quarter 04	140	2	20000	2.8	9	<2.0	4600	<20	83	700	69	>100	>100
2nd Quarter 04	260	1.4	17000	<2.0	3.2	<2.0	3900	3.6	56	300	58	>100	>100
3rd Quarter 04	86	1.4	26000	<2.0	8	3.2	5700	<20	27	300	88	>100	>100
4th Quarter 04	130	<0.5	21000	<2.0	4.6	<2.0	4800	3.4	36	1100	72	100	>100
1st Quarter 05	78	1	23000	<2.0	15	<3.0	4900	<20	22	270	78	>100	>100
2nd Quarter 05	120	0.7	7600	<2.0	8	3.3	1800	<20	44	<100	26	>100	>100
3rd Quarter 05	110	0.93	22000	<2.0	5.8	<2.0	5600	<20	56	390	78	>100	>100
4th Quarter 05	19	<0.5	23000	<2.0	14	<2.0	5300	<20	45	280	79	>100	>100
1st Quarter 06	140	0.9	20000	<2.0	19	<2.0	4200	<20	55	570	67	>100	>100
2nd Quarter 06	320	0.7	21000	<2.0	4.5	<2.0	4900	<20	38	530	73	>100	>100
3rd Quarter 06	250	0.8	15000	<2.0	4.6	<2.0	3500	<20	73	<100	52.5	>100	>100
4th Quarter 06	40	<0.5	20000	<2.0	10	<2.0	4600	<20	50	330	69	>100	>100
1st Quarter 07	190	<0.5	16000	<2.0	4.1	<2.0	3700	<20	39	670	55	>100	>100
2nd Quarter 07	195	0.53	15300	<1.0	3.6	<1.0	3450	<20	46	120	52.4	>100	>100
3rd Quarter 07	84.9	0.58	19500	<1.0	4.3	<1.0	4280	<5.0	28	620	66.3	>100	>100
4th Quarter 07	37	0.33	20200	<1.0	3.9	<1.0	4600	<5.0	31	320	69.4	>100	>100
1st Quarter 08	294	0.36	16400	1	5.4	1.2	3690	<5.0	88	530	56.1	>100	>100
2nd Quarter 08	185	1.4	17200	<1.0	4.2	<1.0	3770	12	64	340	58.5	>100	>100
3rd Quarter 08	325	0.83	24500	9.4	48.5	17.4	5360	6.3	65	210	83.2	>100	>100
4th Quarter 08	76.8	0.63	19500	1.1	19.9	3	3790	<5.0	82	<100	64.3	>100	>100
1st Quarter 09	245	1.28	23100	<1.0	5.94	1.52	3660	6.74	69.5	450	72.753	>100	>100
2nd Quarter 09												>100	>100
3rd Quarter 09												>100	>100
4th Quarter 09	39.1	0.3	2050	1.1	5.8	2.7	620	<5.0	50.7	360	76.72	>100	>100
1st Quarter 10												>100	>100
2nd Quarter 10												>100	>100
3rd Quarter 10												>100	>100
3rd Qtr. 10 (re-test)	38	0.27	20700	<1.0	1.7	<1.0	4390	<5.0	<20	0.57	69.8	>100	>100

		Attachment A.3.	
		Gudgeon Brook	
		Outfall 001	
		WET Sampling Information	
DMR QTR	DATE OF SAMPLING	WAS BIOASSAY / METAL TESTING CONDUCTED?	WEATHER-RELATED CONDITIONS NOTED ON CHAIN OF CUSTODY
2010-Q3	9/23/2010	Yes	No weather entry
2010-Q3	7/7/2010	No	No weather entry
2010-Q2	4/7/2010	No	No weather entry
2010-Q1	1/6/2010	No	No weather entry
2009-Q4	10/7/2009	Yes	Sampling done during rain event
2009-Q3	7/8/2009	No	No weather entry
2009-Q2	4/1/2009	No	No weather entry
2009-Q1	1/7/2009	Yes	Sleet & rain during sampling time
2008-Q4	10/1/2008	Yes	No weather entry
2008-Q3	7/8/2008	Yes	No weather entry
2008-Q2	4/7/2008	Yes	No weather entry
2008-Q1	1/9/2008	Yes	No weather entry
2007-Q4	10/1/2007	Yes	No weather entry
2007-Q3	7/9/2007	Yes	No weather entry
2007-Q2	4/4/2007	Yes	No weather entry
2007-Q1	1/3/2007	Yes	No weather entry
2006-Q4	10/3/2006	Yes	No weather entry
2006-Q3	7/5/2006	Yes	No weather entry
2006-Q2	4/5/2006	Yes	No weather entry
2006-Q1	1/4/2006	Yes	No weather entry
2005-Q4	10/3/2005	Yes	No weather entry
2005-Q3	7/6/2005	Yes	No weather entry
2005-Q2	5/25/2005	Yes	Intermittent rain last few days, light rain while sampling
2005-Q1	1/6/2005	Yes	Snow event while sampling
2004-Q4	10/5/2004	Yes	No weather entry
2004-Q3	7/1/2004	Yes	No weather entry
2004-Q2	4/6/2004	Yes	No weather entry
2004-Q1	1/7/2004	Yes	No weather entry
2003-Q4	10/7/2003	Yes	No weather entry
2003-Q3	7/1/2003	Yes	No weather entry
2003-Q2	4/1/2003	Yes	No weather entry
2003-Q1	1/7/2003	Yes	No weather entry
2002-Q4	10/1/2002	Yes	No weather entry
2002-Q3	7/1/2002	Yes	No weather entry
2002-Q2	4/4/2002	Yes	No weather entry
2002-Q1	1/7/2002	Yes	No weather entry
2001-Q4	10/4/2001	Yes	No weather entry
2001-Q3	7/6/2001	Yes	No weather entry
2001-Q2	4/2/2001	Yes	No weather entry
2001-Q1	1/5/2001	Yes	No weather entry
2000-Q4	10/3/2000	Yes	No weather entry
2000-Q3	7/5/2000	Yes	No weather entry
2000-Q2	4/14/2000 (resample)	Yes	No weather entry
2000-Q2	4/7/2000	Yes	No weather entry
2000-Q1	1/7/2000	Yes	No weather entry
1999-Q4	10/9/1999	Yes	No weather entry
1999-Q3	7/9/1999	Yes	No weather entry
1999-Q2	4/8/1999	Yes	No weather entry
1999-Q1	1/7/1999	Yes	No weather entry
1998-Q4	1/21/1998	Yes	Sunny, 36°F. snow covered ground
1998-Q3	6/2/1998	Yes	No weather entry
1998-Q2	7/9/1998	Yes	No weather entry
1998-Q1	10/6/1998	yes	No weather entry

Attachment A.4.
Gudgeon Brook
Outfall 001- Metals from Wet Tests

Date	Time	Wet or Dry[2]	Al	Cd[1]	Cr	Cu[1]	Pb[1]	Ca	Mg	Ni[1]	Zn[1]	Hardness
						(micrograms per liter)						
4/4/2007	8:15	Dry	195	0.53	<1.0	3.6	<1.0	15300	3450	<20	46	52400
7/10/2007	14:30	Dry	84.9	0.58	<1.0	4.3	<1.0	19500	4280	<5.0	28	66300
10/1/2007	8:00	Dry	37	0.33	<1.0	3.9	<1.0	20200	4600	<5.0	31	69400
1/9/2008	7:35	Dry	294	0.36	1	5.4	1.2	16400	3690	<5.0	88	56100
4/7/2008	7:40	Dry	185	1.4	<1.0	4.2	<1.0	17200	3770	12	64	58500
7/8/2008	8:25	Dry	325	0.83	9.4	48.5	17.4	24500	5360	6.3	65	83200
10/1/2008	7:30	Dry	76.8	0.63	1.1	19.9	3	19500	3750	<5.0	82	64299
		Average[3]	171.1	0.67	1.9	12.8	3.4	18943	4129	5.5	58	64314
		Max	325	1.4	9.4	48.5	17.4	24500	5360	12	88	83200
1/2/2007	8:10	Wet	190	<0.5	<2.0	4.1	<2.0	16000	3700	<20	39	55000
1/7/2009	7:55	Wet	245	1.28	<1.0	5.94	1.52	23100	3660	6.74	69.5	72753
10/7/2009	7:35	Wet	39.1	0.3	1.1	5.8	2.7	2050	620	<5.0	50.7	7672[4]
		Average[3]	158.0	0.6	0.9	5.28	1.74	13717	2660	6.4	53	63877
		Max	245	1.28	1.1	5.94	2.7	23100	3700	6.74	69.5	72753
Water Quality Criteria (total metals)												
Aquatic Life												
	chronic		87	0.16		5.16	1.32			29.02	66.6	
	acute		750	1.05		7.29	33.78			261.01	66.6	
Human Health												
	water + organism					1300				610	7400	
	organism only									4600	26000	

1 - Hardness based criteria calculated using a hardness of 50 mg/l
2 - Determination based on hourly rainfall at Blue Hill Observatory. Less than 0.1 inch of rain in previous 24 hours = dry
3 - Less than values assumed to be 1/2 detection
4- Value not used in calculating average

Attachment A.5.

Gudgeon Brook Sump Sampling Analytical Results - Metals

	An	Ar	Be	Cd[1]	Cr	Cu[1]	Pb[1]	Hg	Ni[1]	Se	Ag[1]	Th	Zn[1]	Al	Fe
					(micorgrams per liter)										
Analytical Detection Limit															
June 2002	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	100	50
Sampling in Sumps Leading to Gudgeon Brook (Note 1)															
6/24/02: Active Sumps (H,O,Z) Composite	bdl	bdl	bdl	4.6	bdl	24	2.9	bdl	bdl	bdl	bdl	bdl	bdl	NT	NT
Water Quality Criteria (total metals)															
Aquatic Life chronic		150		0.16		5.16	1.32	0.77	29.02	5	3.2		66.6	87	1000
acute		340		1.05		7.29	33.78	1.4	261.01		1.15		66.6	750	
Human Health water + organism	5.6	0.018				1300			610	170		1.7	7400		300
organism only	640	0.14							4600	4200		6.3	26000		
Footnotes															
1 - hardness based metals criteria calculated at a hardness of 50 mg/l															

Attachment A.6.

Gudgeon Brook, Outfall 001 - VOCs

	Wet or Dry[1]	1,1 -DCA	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	Napth	PCE	1,1,1-TCA	TCE	VC	MTBE	Chloroethane
					(micrograms per liter)							
Minimum Detection Levels		1	1	1	1	1	1	1	1	1	2	5
Sampling Date												
12/17/2008	Wet	bdl	bdl	1	bdl	bdl	bdl	bdl	6	bdl	bdl	bdl
3/9/2009	Wet	bdl	bdl	bdl	bdl	bdl	bdl	bdl	9	bdl	bdl	bdl
9/10/2009	Dry	bdl	bdl	bdl	bdl	bdl	bdl	bdl	7	bdl	bdl	bdl
10/28/2009	Wet	bdl	bdl	1	bdl	bdl	bdl	bdl	7	bdl	bdl	bdl
2/2/2010	Dry	bdl	bdl	1	bdl	bdl	bdl	bdl	6	bdl	bdl	bdl
Water Quality Criteria												
Human Health water + organism			0.057		700		0.69		2.5	2		
organism only			3.2		140000		3.3		30	530		
Limits from Remediation General Permit		70	3.2	70		20	5	200	5	2	70	
Drinking Water MCL		5	7	70	100		5	200	5	2		

	Abbreviation	Chemical name	CAS No.
	1,1 -DCA	1,1- Dichloroethane	75343
	1,1-DCE	1,1 Dichloroethene	75354
	cis 1,2-DCE	cis 1,2- Dichloroethene	156592
	trans 1,2-DCE	trans 1,2- Dichloroethene	156605
	Napth	Napthalene	91203
	PCE	Tetrachloroethene	127184
	1,1,1-TCA	1,1,1 - Trichloroethane	71556
	TCE	Trichloroethene	79106
	VC	Vinyl Chloride	75014
	MTBE	Methyl tert-butyl ether	1634044
	Chloroethane	Chloroethane	75003

1- Determination based on hourly rainfall at Blue Hill Observatory. Less than 0.1 inch of precipition in previous 24 hour period = dry precipitation in winter onths may has been in the forom of snow. Also in winter, snow melt may have occurred on days with no precipittion

Attachment A.7.

Gudgeon Brook Sumps Sampling Analytical Results - VOCs

	Flow (gallons)	1,1 -DCA	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	Napthalene	PCE	1,1,1-TCA	TCE	VC	MTBE	THF	Acetone	MEK	Chloroethane
Minimum Detection Levels															
June 2002		1	1	1	1	1	1	1	1	1	2	10	10	10	10
Sampling in Sumps Leading to Gudgeon Brook (Note 1)															
6/24/02: Active Sump H	6*	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
6/24/02: Active Sump O	2*	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	47	bdl	bdl
6/24/02: Active Sump Z	2055*	bdl	bdl	bdl	bdl	bdl	23	bdl	bdl	bdl	2	bdl	13	bdl	bdl
6/24/02 Active Sump Composite (Notes 1, 2)		bdl	bdl	bdl	bdl	bdl	23	bdl	bdl	bdl	2	bdl	13	bdl	bdl
Water Quality Criteria															
Human Health water + organism			0.057		700		0.69		2.5	2					
organism only			3.2		140000		3.3		30	530					
Limits from Remediation General Permit		70	3.2	70		20	5	200	5	2	70				
Drinking Water MCL		5	7	70	100		5	200	5	2					
Notes															
* - average daily flow - from composite sheet															
1. Sumps D and E were dry															
2. Mathematical Composite	Abbreviation	Chemical name			CAS No.										
	1,1 -DCA	1,1- Dichloroethane			75343										
	1,1-DCE	1,1 Dichloroethene			75354										
	cis 1,2-DCE	cis 1,2- Dichloroethene			156592										
	trans 1,2-DCE	trans 1,2- Dichloroethene			156605										
	Napthalene	Napthalene			91203										
	PCE	Tetrachloroethene			127184										
	1,1,1-TCA	1,1,1 - Trichloroethane			71556										
	TCE	Trichloroethene			79106										
	VC	Vinyl Chloride			75014										
	MTBE	Methyl tert-butyl ether			1634044										
	THF	Tetrahydrofuran			109999										
	Acetone	Acetone			67641										
	MEK	Methyl Ethyl Ketone			78933										
	Chloroethane	Chloroethane			75003										

ATTACHMENT B
DRAFT PERMIT LIMIT METALS CALCULATIONS (Outfall 001)
NPDES Permit No. MA0004120
INVENSYS SYSTEMS, INC.

Hardness dependant metals criteria are based on a hardness of 50 mg/l. While the metals criteria are based on the dissolved fraction, 40 CFR §122.45(c) requires that permit limits be based on total recoverable metals. The EPA Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA- 823-B-96-007) is used as the basis for establishing limits. It is necessary to apply a translator in order to develop a total recoverable permit limit from dissolved criteria. The translator reflects how a discharge partitions between the particulate and dissolved phases after mixing with the receiving water. In the absence of site specific data on how a particular discharge partitions in the receiving water, a default assumption that the translator is equivalent to the criteria conversion factor.

Copper Limits:
Copper is dependent on the hardness of the receiving water.
Acute Copper Limit = $e^{(0.9422 * \ln 50) + (-1.7)} = 7.3$ ug/l
Chronic Copper Limit = $e^{(0.8545 * \ln 50) + (-1.702)} = 5.2$ ug/l

Lead Limits:
Lead is dependent on the hardness of the receiving water.
Acute Lead Limit = $e^{(1.273 * \ln 50) + (-1.46)} = 33.8$ ug/l
Chronic Lead Limit = $e^{(1.273 * \ln 50) + (-4.705)} = 1.3$ ug/l

Zinc Limits:
Zinc is dependent on the hardness of the receiving water.
Acute Limit = $e^{(0.8473 * \ln 50) + (0.884)} = 66.5$ ug/l
Chronic Limit = $e^{(0.8473 * \ln 50) + (0.884)} = 66.5$ ug/l

Cadmium Limits:
Cadmium is dependent on the hardness of the receiving water.
Acute Limit = $e^{(1.066 * \ln 50) + (-3.924)} = 1.27$ ug/l
Chronic Limit = $e^{(0.7409 * \ln 50) + (-4.719)} = 0.16$ ug/l

Aluminum Limits:
Aluminum is not dependent on the hardness of the receiving water.
Acute Limit = (acute criterion) = (750 ug/l) = 750 ug/l
Chronic Limit = (chronic criterion) = (87 ug/l) = 87 ug/l

Attachment C.1.

Robinson Brook DischargeWet Weather Sampling Analytical Results - Metals

	An	Ar	Be	Cd[1]	Cr	Cu[1]	Pb[1]	Hg	Ni[1]	Se	Ag[1]	Th	Zn[1]	Al	Fe
					(micorgrams per liter)										
Analytical Detection Limit															
July 2001	100	100	1	5	30	50	40	0.5	20	200	20	100	20	NT	NT
Sept 2001 and July 2002	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	100	50
Discharge Concentrations															
7/17/01 - wet grab	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	60	NT	NT
9/25/01 - wet grab	NT	NT	NT	bdl	4.1	24.8	6	bdl	nt	bdl	bdl	NT	120	400	1590
9/25/01 - wet comp	NT	NT	NT	1.5	3.2	47.3	8	bdl	NT	bdl	bdl	NT	440	500	1900
7/23/02 -First Flush Composite (Note 1)	3.3	bdl	bdl	1.1	3.9	106.2	23.4	bdl	bdl	bdl	1.2	bdl	353	NT	NT
7/23/02 - MH 26 &39 Composite (Note 1)	10	bdl	bdl	0.8	2.7	58	14	bdl	bdl	bdl	bdl	bdl	290	NT	NT
Water Quality Criteria (total metals)															
Aquatic Life chronic		150		0.16		5.16	1.32	0.77	29.02	5	3.2		66.6	87	1000
acute		340		1.05		7.29	33.78	1.4	261.01		1.15		66.6	750	
Human Health water + organism	5.6	0.018				1300			610	170		1.7	7400		300
organism only	640	0.14							4600	4200		6.3	26000		
Notes															
1. Total Flow to Robinson Brook (MH 26 plus 39)															
Footnotes															
1 - hardness based metals criteria calculated at a hardness of 50 mg/l															

Attachment C.2.

Robinson Brook Discharge Dry Weather Sampling Analytical Results - Metals

	An	Ar	Be	Cd[1]	Cr	Cu[1]	Pb[1]	Hg	Ni[1]	Se	Ag[1]	Th	Zn[1]	Al	Fe
					(micorgrams per liter)										
Analytical Detection Limit															
June 2001	100	100	1	5	30	50	40	0.5	20	200	20	100	20	NT	NT
July 2002	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	100	50
6/15/2001: dry grab	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	70	NT	NT
7/2/02 - MH 26 &39 (Note 1)	bdl	bdl	bdl	bdl	2.7	62	32	bdl	bdl	bdl	1.6	bdl	66	NT	NT
Water Quality Criteria (total metals)															
Aquatic Life chronic		150		0.16		5.16	1.32	0.77	29.02	5	3.2		66.6	87	1000
acute		340		1.05		7.29	33.78	1.4	261.01		1.15		66.6	750	
Human Health water + organism	5.6	0.018				1300			610	170		1.7	7400		300
organism only	640	0.14							4600	4200		6.3	26000		

Notes

1. Total Flow to Robinson Brook(MH 29 plus 39) Flow weighted composite

Footnotes

1 - hardness based metals criteria calculated at a hardness of 50 mg/l

Attachment C.3.

Robinson Brook Sump Sampling Analytical Results - Metals

	An	Ar	Be	Cd[1]	Cr	Cu[1]	Pb[1]	Hg	Ni[1]	Se	Ag[1]	Th	Zn[1]	Al	Fe
					(micorgrams per liter)										
Analytical Detection Limit															
June 2002	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	100	50
Sampling in Sumps Leading to Robinson Brook (Note 1)															
6/24/02: Active Sumps (A,B,J) Composite	bdl	bdl	bdl	7.4	2.7	30	6	bdl	bdl	bdl	bdl	bdl	bdl	NT	NT
6/24/02 :Inactive Sumps (C,F,L) Composite	bdl	bdl	bdl	0.6	bdl	120	13	bdl	bdl	bdl	bdl	bdl	59	NT	NT
Water Quality Criteria (total metals)															
Aquatic Life chronic		150		0.16		5.16	1.32	0.77	29.02	5	3.2		66.6	87	1000
acute		340		1.05		7.29	33.78	1.4	261.01		1.15		66.6	750	
Human Health water + organism	5.6	0.018				1300			610	170		1.7	7400		300
organism only	640	0.14							4600	4200		6.3	26000		
Notes															
1. Sumps D and E were dry															
Footnotes															
1 - hardness based metals criteria calculated at a hardness of 50 mg/l															

Attachment C.4.

Robinson Brook Discharge Dry Weather Sampling Analytical Results - VOCs

	Flow	1,1 -DCA	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	Napth	PCE	1,1,1-TCA	TCE	VC	MTBE	THF	Acetone	MEK	Chloroethane
Minimum Detection Levels						(micorgrams per liter)									
June 2001 and July 2002		1	1	1	1	1	1	1	1	1	2	10	10	10	10
6/15/2001: dry grab		8	2	bdl	bdl	bdl	3	73	110	2	bdl	bdl	bdl	bdl	bdl
Sampling in Manholes 26 and 39 (see note 1)															
7/2/02: Flow weighted comp.: 9:30-10:30	0	9.0	2.0	95.0	1.0	bdl	1.0	63.0	310.0	1.0	6.0	bdl	bdl	bdl	bdl
7/2/02: Flow weighted comp.: 1030-11:30	0	12.5	4.0	90.0	3.0	bdl	1.5	78.0	321.0	15.0	11.0	bdl	8.5	14.0	bdl
7/2/02: Flow weighted comp.: 11:30-12:30	0		4.5	90.0	3.0	bdl	1.5	61.0	330.0	20.0	13.0	bdl	11.5	17.5	bdl
7/2/02: Flow weighted comp.	0	11.3	3.5	92.0	2.3	bdl	1.3	67.3	320.0	13.5	10.0	bdl	6.7	10.5	bdl
Water Quality Criteria															
Human Health water + organism			0.057		700		0.69		2.5	2					
organism only			3.2		140000		3.3		30	530					
Limits from Remediation General Permit		70	3.2	70		20	5	200	5	2	70				
Drinking Water MCL		5	7	70	100		5	200	5	2					

Notes

1. Total Flow to Robinson Brook (MH29 plus 39) mathematical composite, composite sheet shows flows were zero at the time of sampling, so equal amount of each sample used for composites

Abbreviation	Chemical name	CAS No.
1,1 -DCA	1,1- Dichloroethane	75343
1,1-DCE	1,1 Dichloroethene	75354
cis 1,2-DCE	cis 1,2- Dichloroethene	156592
trans 1,2-DCE	trans 1,2- Dichloroethene	156605
Napth	Napthalene	91203
PCE	Tetrachloroethene	127184
1,1,1-TCA	1,1,1 - Trichloroethane	71556
TCE	Trichloroethene	79106
VC	Vinyl Chloride	75014
MTBE	Methyl tert-butyl ether	1634044
THF	Tetrahydrofuran	109999
Acetone	Acetone	67641
MEK	Methyl Ethyl Ketone	78933
Chloroethane	Chloroethane	75003

Attachment C.5.

Robinson Brook Discharge Wet Weather Sampling Analytical Results - VOCs

	Flow (gpm)	1,1 -DCA	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	Napth	PCE	1,1,1-TCA	TCE	VC	MTBE	THF	Acetone	MEK	Chloroethane
	MH26/MH39														
Minimum Detection Levels						(micorgrams per liter)									
June 2001 and July 2002		1	1	1	1	1	1	1	1	1	2	10	10	10	10
7/17/2001: wet grab		7	1	bdl	bdl	bdl	2	39	3	bdl	bdl	bdl	bdl	bdl	bdl
Sampling in Manholes 26 and 39 (see note 1)															
7/23/02: First Flush Comp.		0.6	bdl	5.0	bdl	bdl	bdl	1.2	6.6	bdl	bdl	5.3	173.7	2.4	bdl
7/23/02: Flow weighted comp.: 18:25	154/34	3.6	bdl	3.8	bdl	bdl	1.5	4.2	9.6	bdl	bdl	bdl	17.4	bdl	bdl
7/23/02: Flow weighted comp.: 19:25	65/52	9.4	bdl	2.7	bdl	bdl	bdl	5.4	8.6	bdl	bdl	bdl	10.3	bdl	4.5
7/23/02: Flow weighted comp. 20:25	28/19	2.6	bdl	2.6	bdl	bdl	bdl	6.1	6.1	bdl	bdl	bdl	11.2	bdl	bdl
7/23/02: MH 26 + 39 Composite		5.4	bdl	3.2	bdl	bdl	0.6	4.9	8.6	bdl	bdl	bdl	13.3	bdl	1.0
Water Quality Criteria															
Human Health water + organism			0.057		700		0.69		2.5	2					
organism only			3.2		140000		3.3		30	530					
Limits from Remediation General Permit		70	3.2	70		20	5	200	5	2	70				
Drinking Water MCL		5	7	70	100		5	200	5	2					
1. Total Flow to Robinson Brook (MH26 plus 39)															
mathematical composite, flows shown are for															
MHs 26 and 39 and are from composite sheet.															

Abbreviation	Chemical name	CAS No.
1,1 -DCA	1,1- Dichloroethane	75343
1,1-DCE	1,1 Dichloroethene	75354
cis 1,2-DCE	cis 1,2- Dichloroethene	156592
trans 1,2-DCE	trans 1,2- Dichloroethene	156605
Napth	Napthalene	91203
PCE	Tetrachloroethene	127184
1,1,1-TCA	1,1,1 - Trichloroethane	71556
TCE	Trichloroethene	79106
VC	Vinyl Chloride	75014
MTBE	Methyl tert-butyl ether	1634044
THF	Tetrahydrofuran	109999
Acetone	Acetone	67641
MEK	Methyl Ethyl Ketone	78933
Chloroethane	Chloroethane	75003

Attachment C.6.

Robinson Brook Sumps Sampling Analytical Results - VOCs

	Flow	1,1 -DCA	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	Napthalene	PCE	1,1,1-TCA	TCE	VC	MTBE	THF	Acetone	MEK	Chloroethane
	(gallons)														
Minimum Detection Levels						(micorgrams per liter)									
June 2002		1	1	1	1	1	1	1	1	1	2	10	10	10	10
Sampling in Sumps Leading to Robinson Brook (Note 1)															
6/24/02: Active Sump A	3919*	18.0	6.0	bdl	bdl	3.0	bdl	40.0	bdl	bdl	3.0	bdl	bdl	bdl	bdl
6/24/02: Active Sump B	31*	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
6/24/02: Active Sump J	64*	1.0	bdl	3.0	bdl	bdl	bdl	bdl	4.0	bdl	bdl	bdl	bdl	bdl	bdl
6/24/02 Active Sump Composite (Note 2)		17.6	5.9	0.05	bdl	2.0	bdl	39.0	0.06	bdl	2.9	bdl	bdl	bdl	bdl
6/24/02: Inactive Sump C	0	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	19.0	1000.0	bdl	bdl
6/24/02: Inactive Sump F	0	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	39.0	bdl	bdl
6/24/02 Inactive Sump L	0	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Water Quality Criteria															
Human Health water + organism			0.057		700		0.69		2.5	2					
organism only			3.2		140000		3.3		30	530					
Limits from Remediation General Permit		70	3.2	70		20	5	200	5	2	70				
Drinking Water MCL		5	7	70	100		5	200	5	2					
Notes															
* - average daily flow															
1. Sumps D and E were dry															
2. mathematical Composite	Abbreviation	Chemical name			CAS No.										
	1,1 -DCA	1,1- Dichloroethane			75343										
	1,1-DCE	1,1 Dichloroethene			75354										
	cis 1,2-DCE	cis 1,2- Dichloroethene			156592										
	trans 1,2-DCE	trans 1,2- Dichloroethene			156605										
	Napthalene	Napthalene			91203										
	PCE	Tetrachloroethene			127184										
	1,1,1-TCA	1,1,1 - Trichloroethane			71556										
	TCE	Trichloroethene			79106										
	VC	Vinyl Chloride			75014										
	MTBE	Methyl tert-butyl ether			1634044										
	THF	Tetrahydrofuran			109999										
	Acetone	Acetone			67641										
	MEK	Methyl Ethyl Ketone			78933										
	Chloroethane	Chloroethane			75003										

Attachment C.7. -A

Robinson Brook Drainage System - Pre and Post Cleaning Results -- VOCs

Micrograms per liter (or PPB)

**** Table includes only those VOCs with reported values equal to or greater than detection limit. ****

	1,1-DCA	1,1-DCE	cis 1,2-DCE	trans 1,2-DCE	Napth	PCE	1,1,1-TCA	TCE	VC	MTBE	THF	Aceto	MEK	Chloro ethane
Minimum Detection Levels														
October 2002	1	1	1	1	1	1	1	1	1	2	10	10	10	5
February 2003	1	1	1	1	1	1	1	1	1	2	10	10	10	5
November 2003	1	1	1	1	1	1	1	1	1	2	10	10	10	5
Sampling: In Manholes 39, 26, 27, 24														
Pre-Drain Cleaning 10/22/02; MH 39	5	bdl	bdl	bdl	bdl	8	bdl	bdl	bdl	2	bdl	bdl	bdl	bdl
Post-Drain Cleaning 02/28/03; MH 39	1	bdl	bdl	bdl	bdl	bdl	18	bdl	bdl	3	bdl	bdl	bdl	bdl
Post-Drain Cleaning 11/14/03; MH 39	NT	bdl	NT	NT	NT	bdl	NT	bdl	NT	NT	NT	NT	NT	NT
Pre-Drain Cleaning 10/22/02; MH 26	5	bdl	bdl	bdl	bdl	7	bdl	bdl	bdl	2	bdl	bdl	bdl	bdl
Post-Drain Cleaning 02/28/03; MH 26	2	bdl	bdl	bdl	bdl	bdl	16	bdl	bdl	3	bdl	bdl	bdl	bdl
Post-Drain Cleaning 11/14/03; MH 26	NT	bdl	NT	NT	NT	bdl	NT	bdl	NT	NT	NT	NT	NT	NT
Pre-Drain Cleaning 10/22/02; CB 27	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Post-Drain Cleaning 02/28/03; CB 27	bdl	bdl	bdl	bdl	bdl	bdl	bdl	2	bdl	bdl	bdl	bdl	bdl	bdl
Post-Drain Cleaning 11/14/03; CB 27	NT	bdl	NT	NT	NT	bdl	NT	bdl	NT	NT	NT	NT	NT	NT
Pre-Drain Cleaning 10/22/02; CB 24	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Post-Drain Cleaning 02/28/03; CB 24	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	6	bdl	bdl	bdl	bdl
Post-Drain Cleaning 11/14/03; CB 24	NT	bdl	NT	NT	NT	bdl	NT	6	NT	NT	NT	NT	NT	NT

Notes:

bdl = below detection limit

NT = Not Tested

Attachment C.7.-B

Robinson Brook Drainage System - Pre and Post Cleaning Results -- Total Metals

Micrograms per liter (or PPB)	**Sb**	**As**	**Be**	**Cd**	**Cr**	**Cu**	**Pb**	**Hg**	**Ni**	**Se**	**Ag**	**Tl**	**Zn**	**Al**	**Fe**
Analytical Detection Limit															
October 2002	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	NT	NT
February 2003	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	NT	NT
November 2003	(none)	(none)	(none)	0.15	(none)	4.7	1	(none)	(none)	(none)	(none)	(none)	20	87	50
Sampling: In Manholes 39, 26, 27, 24															
Pre-Drain Cleaning 10/22/02; MH 39	5.7	bdl	bdl	0.6	4.1	52	31	bdl	bdl	bdl	bdl	bdl	76	NT	NT
Post-Drain Cleaning 02/28/03; MH 39	bdl	bdl	bdl	1.1	bdl	10	1.5	bdl	bdl	bdl	bdl	bdl	240	NT	NT
Post-Drain Cleaning 11/14/03; MH 39	NT	NT	NT	0.57	NT	30	27	NT	NT	NT	NT	NT	180	730	18000
Pre-Drain Cleaning 10/22/02; MH 26	bdl	bdl	bdl	bdl	bdl	10	2.8	bdl	bdl	bdl	bdl	bdl	bdl	NT	NT
Post-Drain Cleaning 02/28/03; MH 26	bdl	bdl	bdl	0.8	bdl	9.3	1.3	bdl	bdl	bdl	bdl	bdl	200	NT	NT
Post-Drain Cleaning 11/14/03; MH 26	NT	NT	NT	0.33	NT	7.4	4	NT	NT	NT	NT	NT	150	bdl	3100
Pre-Drain Cleaning 10/22/02; CB 27	bdl	bdl	bdl	5.3	bdl	290	28	bdl	bdl	bdl	1.1	bdl	800	NT	NT
Post-Drain Cleaning 02/28/03; CB 27	bdl	bdl	bdl	0.8	5	26	bdl	bdl	bdl	bdl	bdl	bdl	130	NT	NT
Post-Drain Cleaning 11/14/03; CB 27	NT	NT	NT	1.7	NT	26	4	NT	NT	NT	NT	NT	530	bdl	140
Pre-Drain Cleaning 10/22/02; CB 24	bdl	bdl	bdl	2.0	3.8	230	94	1.8	bdl	bdl	bdl	bdl	270	NT	NT
Post-Drain Cleaning 02/28/03; CB 24	bdl	bdl	bdl	2.6	9.5	170	84	170	bdl	bdl	1.4	bdl	260	NT	NT
Post-Drain Cleaning 11/14/03; CB 24	NT	NT	NT	0.74	NT	37	12	NT	NT	NT	NT	NT	140	140	3000

Notes:

bdl = below detection limit

NT = Not Tested

Attachment C.7.-C

Robinson Brook Drainage System Pre and Post Cleaning Results -- Dissolved Metals

Micrograms per liter (or PPB)	**Sb**	**As**	**Be**	**Cd**	**Cr**	**Cu**	**Pb**	**Hg**	**Ni**	**Se**	**Ag**	**Tl**	**Zn**	**Al**	**Fe**
Analytical Detection Limit															
October 2002	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	NT	NT
February 2003	5	100	0.5	0.5	2	2	1	0.5	20	5	1	2	20	NT	NT
November 2003	(none)	(none)	(none)	0.15	(none)	4.7	1	(none)	(none)	(none)	(none)	(none)	20	87	50
Sampling: In Manholes 39, 26, 27, 24															
Pre-Drain Cleaning 10/22/02; MH 39	bdl	bdl	bdl	bdl	bdl	9.2	bdl	bdl	bdl	bdl	bdl	bdl	bdl	NT	NT
Post-Drain Cleaning 02/28/03; MH 39	bdl	bdl	bdl	1.1	bdl	3.8	1.1	bdl	bdl	bdl	bdl	bdl	240	NT	NT
Post-Drain Cleaning 11/14/03; MH 39	NT	NT	NT	0.26	NT	bdl	bdl	NT	NT	NT	NT	NT	99	bdl	360
Pre-Drain Cleaning 10/22/02; MH 26	bdl	bdl	bdl	bdl	bdl	5.6	bdl	bdl	bdl	bdl	bdl	bdl	bdl	NT	NT
Post-Drain Cleaning 02/28/03; MH 26	bdl	bdl	bdl	0.8	bdl	3.4	bdl	bdl	bdl	bdl	bdl	bdl	200	NT	NT
Post-Drain Cleaning 11/14/03; MH 26	NT	NT	NT	0.32	NT	bdl	1.7	NT	NT	NT	NT	NT	120	bdl	470
Pre-Drain Cleaning 10/22/02; CB 27	bdl	bdl	bdl	4.7	bdl	260	20	bdl	bdl	bdl	bdl	bdl	790	NT	NT
Post-Drain Cleaning 02/28/03; CB 27	bdl	bdl	bdl	0.8	4	18	bdl	bdl	bdl	bdl	bdl	bdl	130	NT	NT
Post-Drain Cleaning 11/14/03: CB 27	NT	NT	NT	1.4	NT	20	1.1	NT	NT	NT	NT	NT	480	bdl	bdl
Pre-Drain Cleaning 10/22/02; CB 24	bdl	bdl	bdl	0.5	bdl	62	3.0	bdl	bdl	bdl	bdl	bdl	140	NT	NT
Post-Drain Cleaning 02/28/03; CB 24	bdl	bdl	bdl	1.7	bdl	6	4.7	bdl	bdl	bdl	1.4	bdl	180	NT	NT
Post-Drain Cleaning 11/14/03; CB 24	NT	NT	NT	0.71	NT	11	2	NT	NT	NT	NT	NT	82	bdl	230

Notes:

bdl = below detection limit

NT = Not Tested

ATTACHMENT D
DRAFT PERMIT LIMITS CALCULATIONS (Outfall 002)
NPDES Permit No. MA0004120
INVENSYS SYSTEMS, INC.

Hardness value used to derive the hardness-dependent permit limits = 50 mg/l. While the metals criteria are based on the dissolved fraction, 40 CFR §122.45(c) requires that permit limits be based on total recoverable metals. The EPA Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA- 823-B-96-007) is used as the basis for establishing limits. It is necessary to apply a translator in order to develop a total recoverable permit limit from dissolved criteria. The translator reflects how a discharge partitions between the particulate and dissolved phases after mixing with the receiving water. In the absence of site specific data on how a particular discharge partitions in the receiving water, a default assumption that the translator is equivalent to the criteria conversion factor.

Copper Limits:
Copper is dependent on the hardness of the receiving water.
Acute Copper Limit = $e^{(0.9422 * \ln 50) + (-1.7)} = 7.28$ ug/l
Chronic Copper Limit = $e^{(0.8545 * \ln 50) + (-1.702)} = 5.15$ ug/l

Lead Limits:
Lead is dependent on the hardness of the receiving water.
Acute Lead Limit = $e^{(1.273 * \ln 50) + (-1.46)} = 33.8$ ug/l
Chronic Lead Limit = $e^{(1.273 * \ln 50) + (-4.705)} = 1.3$ ug/l

Zinc Limits:
Zinc is dependent on the hardness of the receiving water.
Acute Limit = $e^{(0.8473 * \ln 50) + (0.884)} = 66.5$ ug/l
Chronic Limit = $e^{(0.8473 * \ln 50) + (0.884)} = 66.5$ ug/l

Cadmium Limits:
Cadmium is dependent on the hardness of the receiving water.
Acute Limit = $e^{(1.066 * \ln 50) + (-3.924)} = 1.27$ ug/l
Chronic Limit = $e^{(0.7409 * \ln 50) + (-4.719)} = 0.16$ ug/l

Aluminum Limits:
Acute Limit = (acute criterion) = (750 ug/l) = 750 ug/l
Chronic Limit = (chronic criterion) = (87 ug/l) = 87 ug/l

Iron Limit:
Chronic Limit = (chronic criterion) = (1000 ug/l) = 1000 ug/l

Trichloroethylene Limit:
Chronic Limit = (human health criterion for fish ingestion) = 30 ug/l

Exhibit 4

Response to Comments on Draft National Pollutant Discharge Elimination System (NPDES) Permit No. MA0004120

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 (MA0004120). The responses to comments explain and support the EPA determinations that form the basis of the Final Permit. The Invensys Systems Draft Permit public comment period began August 3, 2011 and ended on October 31, 2011. The Final Permit is substantially identical to the Draft Permit that was available for public comment. Although EPA's decision-making process has benefitted from the various comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however improve certain analyses, clarify certain requirements, and make some minor changes in response to comments. These improvements and changes are detailed in this document and reflected in 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. Added a requirement that the permittee provide documentation on the method used to estimate flows and the accuracy of the method. (see Response NRWA #2)
2. Added a requirement that monitoring results below the quantifiable level but above the method detection limit should be reported on a separate attached document to be submitted with the monthly discharge monitoring reports. (see Response NRWA #3)
3. Clarified the final permit to indicate that all sampling for the Outfall 002 (Robinson Brook) discharges shall consist of a flow weighted composite from manhole #26 and manhole #39. (see Response IS #1)
4. Modified the Outfall 001 (Gudgeon Brook) whole effluent toxicity requirements to include chronic testing only. (see Response IS #3)
5. Added language in the final permit indicating that the sampling frequency during the term of the permit may be modified if justification is provided that less frequent monitoring will adequately characterize the discharge(s) and ensure attainment of water quality standards. (see Response IS #12)
6. Eliminated the maximum daily lead limit for the Robinson Brook discharge. (see Response IS #17)
7. Eliminated the bacteria limit for Outfall 001 (Gudgeon Brook) and reduced the monitoring frequency to once per month. (see Response IS #18)
8. Modified the precipitation monitoring requirement to clarify that the data shall be provided from the closest location to the facility for which National Weather Service data is available. (see Response IS #21)
9. Modified footnote #10 for both outfalls to clarify that chemical specific monitoring results from quarterly whole effluent toxicity testing can be used to satisfy the weekly monitoring requirement for the same chemical.

Neponset Reservoir Reclamation Committee (NRRC) Comments (September 13, 2011):

The permit authorizes discharge to surface water from the Invensys facility at two locations:

- Outfall 001 to Gudgeon Brook, which flows to Neponset Reservoir;
- Outfall 002 to Robinson Brook, which flows to the Rumford River (i.e. not to Neponset Reservoir, and therefore not discussed further here).

Outfall 1 includes treated dry weather flow of up to 60 gallons per minute from the dry weather treatment system, and untreated wet weather flow from groundwater infiltration, groundwater inflow from sumps located in facility basements, and storm water. The dry weather treatment system includes air stripping and activated carbon and is designed to remove volatile organic compounds (VOCs = solvents in this case) from dry weather flows prior to discharge to Gudgeon Brook. The treatment system does not operate during wet weather when flows are in excess of 60 gallons per minute. Note that VOCs are not generally an ecological problem in surface water because they are very short-lived in a surface water environment. VOCs do not accumulate in surface water or sediment.

The draft permit requires sampling of the Invensys discharge to Gudgeon Brook as follows:

- daily flow measurement;
- 4/week pH sampling;
- weekly sampling for chemical contaminants; and
- quarterly sampling for whole effluent toxicity [minnows and small aquatic crustaceans are placed into 100% effluent and the effects on survival, growth and reproduction measured over a number of days in accordance with EPA protocols].

This sampling schedule seems reasonable, and is not trivial for Invensys. Page 2 of the permit lists the average monthly and maximum daily limits allowed under the permit. The chemical permit limits seem reasonable, in my opinion, and discharge compliance should not result in further degradation of Neponset Reservoir. For whole effluent toxicity testing, the draft permit requires for the undiluted effluent:

- Acute (i.e. lethal) toxic effects to *Ceriodaphnia dubia* (crustacean) over 48 hours not exceed 50% of test organisms;
- Chronic (i.e. sub-lethal but discernible effects on survival, growth or reproduction) effects to *Pimephales promelas* (Fathead minnow) not observed. The "no observed effects concentration" of the permit is undiluted effluent. I note however that no particular test methodology or duration is cited in the draft permit for the chronic testing.

The permit allows for a potential decrease in the whole effluent toxicity testing requirement if requested by Invensys following four consecutive sets of test results, all of which are in compliance with the permit limits. I suspect that any such permit modification would be subject to public comment, but I am not certain.

I suggest that NRRC formally comment as follows:

- NRRC should request that NRRC be specifically notified of any potential modification of the permit, and be allowed the opportunity to comment;
- The whole effluent testing notes that acute testing on *Ceriodaphnia dubia* (crustacean) be conducted over a 48 hour period. No such time period is specified for the minnow chronic toxicity testing. The final permit should specifically reference a test methodology and test duration for each type of whole effluent testing;
- Discharge 001 to Gudgeon Brook flows directly to Neponset Reservoir, an active recreational water body with recreational and consumptive fishing. As noted in the draft permit Fact Sheet, under the existing permit, numerous pollutants exceed water quality criteria during both dry weather and wet weather conditions. Waters in Neponset Reservoir currently exceed the National Recommended Water Quality Criterion for cadmium, and under the Massachusetts Contingency Plan categorically represent "Readily Apparent Environmental Harm." Therefore, strict permit compliance is necessary to prevent further degradation of Neponset reservoir. NRRC is not aware of any proposed changes to the Invensys facility treatment system or otherwise that would suggest improved compliance. The permit and USEPA enforcement should require that any exceedences of the proposed permit limits be promptly and effectively addressed through the addition of supplemental pre-treatment or other measures as necessary to ensure compliance.

Response to NRRC Comments:

The chronic whole effluent toxicity test is a seven day exposure test. The specific test protocol was included as Attachment A to the permit.

Any decision to reduce the toxicity testing requirements based on testing results that indicate a lack of toxicity would likely be processed by way of a letter from EPA in accordance with the language in Footnote #10 of the permit. Any formal modification of the permit would include a notification to NRRC.

If, upon finalization of the permit, Invensys Systems is unable to comply with the permit conditions, they will need to develop and implement all appropriate measures as necessary in order to comply with the permit conditions as soon as reasonably possible. An NPDES permit establishes discharge conditions sufficient to ensure attainment of water quality standards, including uses and criteria. It is not the role of an NPDES permit to dictate the specific measures necessary to comply with the permit or the specific enforcement steps that will pursued if the permit is not complied with. In the event of a permit violation, there are a variety of enforcement steps available to EPA, which EPA may at its discretion pursue, and the specifics of those enforcement steps would depend on the specifics of the non-compliance.

NRRC Supplemental Comments (October 7, 2011):

We note that the Draft NPDES Permit proposes Water Quality Based Limitations for a number of parameters. The Fact Sheet attached to the Draft Permit also notes that available dilution in

receiving waters was "determined to be zero" (Fact Sheet, pg. 9). According to the Fact Sheet, the data from sampling under the current permit indicate that exceedances of water quality have been numerous. A simple summary of these results, as presented in Table 1, below (data from Fact Sheet, pp. 10-11) illustrates the degree to which non-compliance regularly occurs.

Table 1:
Documented Exceedances of Water Quality Criteria

	Wet Weather		Dry Weather		"Reasonable Potential"[1]
Metal	**Acute**	**Chronic**	**Acute**	**Chronic**	
Copper		X	X	X	X
Lead		X		X	X
Zinc	X	X	X	X	X
Cadmium	X	X	X	X	X
Aluminum		X		X	X

[1]According to the fact Sheet, the data indicate that the discharge has the reasonable potential to cause or contribute to exceedances of water quality criteria for the noted metal.

Based upon the documented extensive exceedances of Water Quality Criteria in the discharge, NRRC believes that the sampling requirements and numeric limits in the draft NPDES discharge permit are appropriate and necessary in order to prevent violation of the Clean Water Act. Further, the fact Sheet states that "it is not reasonable to expect that the imposition of routine BMPs will be sufficient to attain water quality criteria" (p.9, footnote #2). Therefore, given the systematic exceedances of Water Quality Criteria in the discharge, and USEPA's reasonable conclusion that routine BMPs would not be protective of the receiving waters, NRRC requests that:

1. Sampling and/or analysis requirements from the original Draft NPDES Permit be maintained; and
2. USEPA require that Invensys design and implement site-specific BMPs, facility modifications, treatment system upgrades, and/or other appropriate measures sufficient to prevent future discharges that will further degrade the receiving water.

The sediments of Neponset Reservoir are heavily laden with toxic metals, cadmium in particular. The waters throughout the Reservoir frequently exceed water quality criteria, even far from the Gudgeon Brook input. Therefore, no contribution of metals that would exacerbate this already degraded resource should be permitted.

Response to NRRC Supplemental Comments:

The comments are noted for the record.

See response above relative to permit compliance.

Foxborough Conservation Commission Comments (October 18, 2011):

The Foxborough Conservation Commission has a significant interest in the water quality of lakes and rivers in Foxborough pursuant to the Massachusetts Wetland Protection Act and the Town of

Foxborough Wetlands and Groundwater Protection Bylaw. In addition the FCC owns a large parcel of property abutting the Reservoir, the Lane Property, and manages the Reservoir for conservation and recreational purposes. The Reservoir is no longer utilized to its full potential due to the existing contamination which is a safety concern to the recreational public and adjacent home owners.

Waters in Neponset Reservoir currently exceed the EPA's national recommended Water Quality Criterion for cadmium. As noted in the draft permit Fact Sheet, the company is not complying with the existing permit and, therefore, numerous pollutants exceed water quality criteria during both dry weather and wet weather conditions. It is imperative that the proposed numeric discharge limitations on the NPDES Permit and all monitoring requirements be upheld and implemented in a timely manner. Any further discharge that may exacerbate the deleterious environmental conditions in the reservoir is unacceptable. In addition to the proposed testing and monitoring protocols, it is crucial that site-specific Best Management Practices or other appropriate measures be implemented to prevent future discharges from Gudgeon Brook to the Neponset Reservoir and that the NPDES permit requirements be strictly enforced. The implementations of these permit conditions will help the community's effort to restore the Reservoir to its former grandeur.

Response to Foxborough Conservation Commission Comments:

The comments are noted for the record. See also the response above to the NRRC comments.

Neponset River Watershed Association Comments (NRWA) (October 28, 2011):

Comment NRWA #1: The Neponset River Watershed Association (NepRWA) appreciates this opportunity to comment on the above referenced draft NPDES permit. NepRWA shares each of the concerns contained in the comment letter on this project submitted to you on September 13, 2011 by Sheila Warner of NRRC, including the accompanying memo from their consultant, EcoTec, Inc. of the same date. As with NRRC, NepRWA would ask to be notified of any proposed modifications made after permit issuance (e.g., a request for termination of WET testing) and given an opportunity to comment before a final modification occurs.

Response NRWA #1: Please see responses to NRRC comments above.

Comment NRWA #2: The permit should specify how flow shall be estimated.

Response NRWA #2: EPA has added a requirement that the permittee provide documentation on the method used to estimate flows and the accuracy of the method.

Comment NRWA #3: The permit states that minimum quantification levels (MLs) for copper and lead are 3.0 µg/L and that sample results below that shall be reported as zero on discharge monitoring reports. However, according to Table 1 in Method 7010 ((http://www.epa.gov/wastes/hazard/testmethods/sw846/pdfs/7010.pdf), the lower limit of quantitation for each of these elements are 1.0 µg/L. Levels detected below the Quantification

Limit, whether that limit is 3.0 or 1.0 µg/L, should not be reported as zero. Results below the Quantification Limit and above the Method Detection Limit should be reported and noted that they were below the Quantification Limit for that parameter.

Response NRWA #3: The method cited applies to hazardous waste and not to wastewater. EPA Region 1 has determined that the minimum quantification level for copper and lead is 3.0 ug/l and can be achieved using the Furnace Atomic Absorption method. EPA has added a requirement that results below the minimum quantification level but above the method detection limit should be reported on a separate attached document to be submitted with the monthly discharge monitoring reports. EPA does not concur that results that are not quantifiable should be reported on the discharge monitoring report forms.

Comment NRWA #4: The permit gives ML for cadmium as 0.5 µg/L and that samples below that should be reported as zero. Again, Method 7010 gives the lower limit of quantitation as 0.1 µg/L. Levels detected below the Quantification Limit, whether that limit is 0.5 or 0.1 µg/L, should not be reported as zero. Results below the Quantification Limit and above the Method Detection Limit should be reported and noted that they were below the Quantification Limit for that parameter (as recommended by EPA; see http://www.epa.ohio.gov/portals/35/guidance/permit9.pdf).

Response NRWA #4: Please see Response #3. The cited Ohio policy also indicates that all values below the quantification level are considered to be in compliance and requires that all values below the quantification level be assessed as zero for purposes of averaging results.

Comment NRWA #5: We believe that more detail should be given on the procedures and parameters required for these tests. For example, under what circumstances will the permittee be allowed to do a partial life cycle rather than a full life cycle test and what exactly is to be measured – growth, survival, reproduction or all three? Also, while the permit states that the permittee may request a reduction of the WET testing requirements after four consecutive sets of results that comply with the permit limits, we believe the permit should also specify the allowable parameters of that reduced testing.

Response NRWA #5: The chronic whole effluent toxicity test is a seven day exposure test measuring both growth and reproduction. The acute test measures survival after forty eight hours. The specific test protocol was included as Attachment A to the permit. Any decision to reduce the toxicity testing requirements based on testing results would depend on the specifics of those results.

Comment NRWA #6: In light of the permittee's significant history of noncompliance with its current NPDES permit, we believe that the new permit should specify precisely the remediation and/or new pre-treatment requirements that will be imposed after any significant noncompliance for metals, especially for cadmium, and also the enforcement steps that EPA intends to pursue should there be repeated noncompliance.

Response NRWA #6: See response to NRRC Comments above.

Comment NRWA #7: Finally, please note that their appears to be a typo on page 11 of the Fact Sheet, where the word "zinc" is used instead of the word "cadmium" in the paragraph entitled "Cadmium."

Response NRWA #7: The typographical error is noted for the record.

Invensys Systems Comments (October 31, 2011):

Comment IS General: Invensys's comments begin with three introductory or summary sections: the Introduction, Comment I ("Overview of Historical and Current Conditions at the Facility"), and Comment II ("The Agency has Failed to Justify the Extremely Stringent Permit Conditions Proposed").

Response IS General: These sections, while a useful guide to the reader as an overview of the subsequent detailed comments, are summary in nature and do not, as far as EPA can discern, contain information or arguments that are not found later in the detailed comments. Consequently, EPA's responses to the more detailed later comments address these summary comments. To the extent, if any, that a response to these introductory sections is necessary, the responses to the detailed comments should be construed as responding to these sections.

Invensys commented that its June 23, 2005 comments to the Agency on a previous draft permit should be incorporated by reference. EPA does not accept the incorporation by reference. EPA issued an entirely new draft permit in 2011. The public notice for the 2011 draft permit stated: "All persons, including applicants, who believe any condition of the draft permit is inappropriate, must raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period (See 40 C.F.R. § 124.13)." The fact sheet for the 2011 draft permit specifically noted: "Comments that were received on that draft permit were reviewed and this draft permit reflects appropriate changes. Such changes are summarized in this fact sheet. Several comments submitted by the permittee that did not result in changes to the permit are also summarized in the appropriate section of the fact sheet." (Fact Sheet at 1).

EPA provided an initial public comment period of more than the required 30-day minimum (August 3, 2011 to September 15, 2011) and then, at Invensys's request, EPA extended the comment period further to October 31, 2011. Therefore, Invensys had a full opportunity to restate any of its earlier comments that it believed continue to apply to the new draft permit. EPA is not required to review comments submitted on a different, now superseded draft permit and attempt to determine which of those comments continue to apply to the current draft permit. Consequently, EPA is responding only to significant comments that were stated with sufficient specificity during the 2011 comment period.

That said, in light of the passage of time between the close of the comment period and issuance of this final permit, EPA does note that in several comments, Invensys refers to analyses that it might conduct, sample data that it believes ought to have been collected or ought to be collected, or requests that it submitted or intends to submit. While EPA is not required to consider material

received after the close of the public comment period, EPA notes that Invensys has not submitted, nor has EPA received, any information after the close of the comment period that would affect EPA's final permit decision. Invensys did, however, submit a letter dated September 16, 2013, to EPA in which it appears to have restated and summarized its comments submitted during the comment period. This letter does not appear to contain any new sampling data or BMP plans. To the extent, if any, that this letter contains newly raised arguments or arguments restated in a materially different manner, EPA declines to consider such arguments given their untimeliness.

Comment IS #1: The Agency's imposition of numeric limits is inappropriate in the present circumstances. Here, where the discharges at issue contain only storm water and groundwater (i.e., *no industrial discharges* such as process wastewater or non-contact cooling water), the discharges are variable in terms of flow and pollutant concentrations, additional monitoring data are needed to properly characterize the effluent, and numeric limits are not necessary to provide adequate water quality protection, the use of BMPs is both permissible and appropriate under the Agency's long-established policies. The use of BMPs in lieu of numeric criteria is also consistent with the Agency's recent permitting decisions in Region 1 in similar scenarios.

That the Agency may use BMPs in lieu of numeric limitations in appropriate circumstances is clear.[1] Further, as Invensys explained at length in 2003, the Agency's policy regarding the development of water quality-based standards for storm water discharges, the Interim Approach for Water Quality-Based Effluent Limitations in Storm Water Permits (the "Interim Approach")[2], supports BMPs to control storm water flows:

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[1] See 40 C.F.R. 122.44(k).

[2] Interim Approach for Water Quality-Based Effluent Limitations in Storm Water Permits (EPA, September 1, 1996). The Fact Sheet essentially concedes that the Interim Approach is relevant and applicable to this case, and this is one point on which Invensys and the Agency agree. See p. 9, n.3. It is true that EPA may reconsider the application of numeric limits to certain storm water discharges, as reflected in its November 12, 2010, Memorandum entitled "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs'" (the "Revised TMDL Memo") . The Revised TMDL Memo recommends that permitting authorities issue permits containing numeric effluent limitations for storm water discharges *where feasible*. For a number of reasons, however, the Revised TMDL Memo does not dictate the application of numeric limits in this case.

First, EPA is considering the withdrawal or modification of the Revised TMDL Memo, so it does not constitute final Agency policy at this time. In March 2011, EPA reopened the Revised TMDL Memo and announced that it would accept public comments in order to determine whether it should be withdrawn, reissued with revisions, or retained without change. Although EPA had announced its intention to make such determination by August 15, Invensys is not aware of such determination having been made. Second, as can be inferred from its title, the Revised TMDL Memo focuses on waters for which TMDLs with WLAs have been developed. TMDLs for the constituents of concern have not been developed in the Neponset River watershed. As a result, it is appropriate that the Fact Sheet refers to the Interim Approach but not to the Revised TMDL Memo. Third, the Revised TMDL Memo only allows for numeric limits when the permitting authority has conducted a reasonable potential analysis pursuant to 40 C.F.R. 122.44(d)(1)(iii) (see Revised TMDL Memo, p. 3), which EPA has failed to do here, as discussed in Section III.C.1, infra.

Finally, and most importantly, even if it were applicable, the Revised TMDL Memo, like the Interim Approach, would *not* require numeric limits in the present circumstances. The Revised TMDL Memo acknowledges that the use of BMPs in lieu of numeric effluent limitations is appropriate in cases where the development of numeric limits

> Under the Clean Water Act (CWA) and NPDES regulations, permitting authorities may employ a variety of conditions and limitations in storm water permits, including best management practices, performance objectives, narrative conditions, monitoring triggers, action levels (e.g., monitoring benchmarks, toxicity reduction evaluation action levels), etc., as the necessary water quality-based limitations, where numeric water quality-based effluent limitations are determined to be unnecessary or infeasible.[3]

The Interim Approach states that "numeric limitations for storm water permits can be very difficult to develop" because not enough is known "about the intermittent and variable nature of these types of discharges and their effects on receiving waters."[4] Specifically, "[s]torm water discharges are highly variable both in terms of flow and pollutant concentrations and the relationship between discharges and water quality can be complex."[5] As such, the Interim Approach stresses that the Agency has only provided guidance on a methodology for deriving numerical water quality-based effluent limitations "for process wastewater discharges which occur at predictable rates with predictable pollutant loadings under low flow conditions in receiving waters," not "intermittent wet weather discharges during high flow conditions."[6] For such variable discharges, the Agency's established policy has been to use BMPs where insufficient information exists to develop numeric effluent limits, rather than risking the implementation of inappropriate numeric water quality-based effluent limitations.[7]
The Interim Approach supports the application of BMPs here. The discharge from the Facility cannot be considered a "process wastewater discharge" that occurs "at predictable rates with predictable pollutant loadings under low flow conditions." On the contrary, the Facility discharges no process wastewater whatsoever, and has no control over pollutant loadings in the storm water or groundwater discharged, with the exception of VOCs that are voluntarily removed from dry weather flows. Discharge flows and loadings are a function of the volume

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is not feasible. Indeed, the Revised TMDL Memo makes clear that a permitting authority may rely on BMPs rather than numeric limits by *recommending* (not requiring) the use of numeric limits only "where feasible" and stating that, "[t]he permitting authority's decision as to how to express the WQBEL(s), either as numeric effluent limitations or BMPs . . . should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying WLA, including the nature of the storm water discharge, available data, modeling results or other relevant information." Revised TMDL Memo, p. 3. The Interim Approach, which also makes clear that the use of BMPs is appropriate in cases where the development of numeric limits is not feasible, remains the appropriate guidance to use in determining whether the facts and circumstances of a particular case make development of a numeric limit infeasible. A review of the facts and circumstances of the present case, in light of the guidance provided in the Interim Approach, makes clear that the use of BMPs is the appropriate approach here.

[3] Interim Approach, p. 1.

[4] Id. at p. 2.

[5] Id.

[6] Id. at pp. 2-3.

[7] Id. at pp. i & 4 ("Potential problems of incorporating inappropriate numeric water quality-based effluent limitations rather than BMPs in storm water permits at this time are significant in some cases.").

and intensity of any wet weather event, as well as groundwater elevation and characteristics, all of which can vary, and all of which are unrelated to current production at the Facility. In addition, discharge volumes can increase substantially during wet weather, high flow conditions. Finally, the relationship between Facility discharges and water quality does not support a simple, straightforward application of the NRWQC through numeric limits, which might be appropriate for an industrial wastewater discharge. Evidence from the Phase II that the Reservoir is healthy and that constituents present in the discharge pose no risk to human health or the environment, despite occasional exceedances of the NRWQC, suggests that the relationship between the variable storm water and groundwater flows currently discharged by the Facility and the water quality in the Reservoir is highly complex. Under these circumstances, numeric limits are neither necessary nor feasible, and EPA policy supports control through BMPs rather than numeric limits.

In the Fact Sheet, the Agency purports to respond to Invensys' prior comments regarding the use of BMPs in storm water permits, arguing: (1) that the use of BMPs is not appropriate here, where substantial data already exist "showing that pollutant concentrations in storm water discharges exceed applicable water quality criteria" and will not be diluted; and (2) that the remediation conducted at the Facility has already involved the implementation of BMPs such that it "is not reasonable to expect that the imposition of routine BMPs will be sufficient to attain water quality criteria."[8] These arguments are unconvincing for a variety of reasons.

First, the Agency's use of numeric water quality-based effluent limitations is inconsistent with its position that Invensys' discharges have demonstrated "significant variability in almost all parameters."[9] As noted, the variability of storm water discharges is one of the fundamental reasons that BMPs are appropriate in lieu of numeric criteria for storm water NPDES permits.[10] The Agency cannot rationally claim that Invensys' storm water and groundwater discharges are highly variable – so variable, in fact, that *weekly monitoring* is purportedly "necessary to characterize the discharge"[11] – while simultaneously imposing strict numeric water quality-based effluent limitations on those discharges. As the Agency has noted, "[d]eriving numeric water quality-based effluent limitations for any NPDES permit *without an adequate effluent characterization* . . . may result in the imposition of inappropriate numeric limitations on a discharge."[12] It is clear, based on the Agency's own statements in the Fact Sheet regarding the variability of the discharge and the purported necessity of weekly monitoring, that the discharges have not been characterized adequately to allow for development of numeric effluent limitations.

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[8] Fact Sheet, p. 9, n.3.

[9] E.g., id. at p. 12, n.4.

[10] Interim Approach, pp. i & 2-4.

[11] Fact Sheet, pp. 12 & 16. While Invensys concedes that the discharges are variable, such variability does not justify the onerous monitoring requirements contained in the 2011 Draft Permit. See Section V.A, infra.

[12] Interim Approach, p. 4 (emphasis added).

The inadequacy of the Agency's justifications for imposing numeric water quality-based effluent limits is particularly clear in relation to the Robinson Brook discharge. The entire universe of data cited by the Agency as the basis for imposing stringent numeric limits for Outfall 002 is comprised of sampling data collected on *only five days*: June 15, 2001; July 17, 2001; September 25, 2001; July 2, 2002; and July 23, 2002.[13] Data collected on five days nearly ten years ago cannot possibly constitute "adequate sampling data" to justify the imposition of exceedingly stringent numeric effluent limits in lieu of BMPs.[14] This is especially true here, where two of the five sets of samples relied upon by EPA were actually collected at a point where Invensys' discharge had already left the Facility property and mingled with discharges from two municipal street drains located on Neponset Avenue,[15] and are therefore *not* representative of discharges coming solely from the Invensys Facility.[16] The Agency also mentions, without relying upon, data collected on three additional dates, including two in 2003 following the Robinson Brook drain line cleanout.[17] The Agency indicates that these later data demonstrate that, "while some metals levels did in fact decrease after the drain cleaning, metals levels are in many cases still well above criteria."[18] This means that, in addition to basing its imposition of effluent limits for Outfall 002 on an extremely limited set of data, some of which are not actually data reflective of the Facility's discharge, the Agency has also relied on data that are likely not representative of the current, post-cleanout discharge. Further, a review of the data collected after the cleanout of the Outfall 001 drain lines indicates that levels of various constituents did not decrease immediately following the cleanout, but rather took several years to stabilize at the lower levels acknowledged by the Agency.[19] A similar trend is probable for Robinson Brook. Thus, it is likely that even the data collected in 2003 – which EPA attaches to its Fact Sheet but ignores for purposes of calculating limits – are not representative of the current discharge to Robinson Brook. For all of these reasons, the Agency's imposition of numeric effluent limits for the Robinson Brook discharge is inappropriate.

As to the Agency's contention that the use of additional BMPs is not appropriate for the Facility because some have already been implemented by Invensys in its remediation efforts, that argument also fails. Indeed, it directly contradicts the Interim Approach, which allows for the

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[13] See Fact Sheet, p. 13 (citing Attachments C.1, C.2, C.4, & C.5).

[14] Id. at pp. 13-.15.

[15] See id. at Attachments C.1, C.2, C.4 & C.5, Facility Drainage Map (Attachment 2 hereto). The June 15, 2001 and September 25, 2001 samples were collected on the east side of Neponset Avenue, across the street from the Facility.

[16] Invensys respectfully submits that the only data that can reasonably be interpreted as measuring Invensys' contribution to Robinson Brook are the data from samples collected at manhole 26, before the discharge has mingled with storm drain discharges unrelated to the Facility, not data from samples collected at Outfall 002 or in Robinson Brook. As noted in Table 1, Invensys requests that the Agency clarify that sampling should be conducted at Manhole 26.

[17] Fact Sheet, p. 13, n.5 (citing Attachment C.7).

[18] Id.

[19] See id. at p. 4.

use of BMPs in first-round storm water permits, "*and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards*."[20] The Agency completely ignores the second half of its own stated approach in skipping over the "second-round" step of additional BMPs in favor of a far more conservative option, strict numeric water quality-based effluent limitations, despite the variability of the discharges.[21]

Further, it is unreasonable for the Agency to conclude that the existence of exceedances of the NRWQC (which fail to consider site-specific conditions and species) justify the imposition of numeric effluent limits here. This is particularly true where there is evidence indicating that the criteria being used as the basis for EPA's determination are not appropriate for the Neponset Reservoir. Specifically, the Phase II conclusions, which were based on 23 lines of evidence, including toxicological studies, fish and wildlife surveys and fish metrics, demonstrate that the constituents discharged from the Invensys site have not resulted in a significant risk of harm to human health or the environment in the Reservoir. As a result, it would be reasonable for the Agency to conclude that numeric limits are not necessary because the pollutant reduction efforts at the facility have been successful, and continued implementation of BMPs will be sufficient to control the discharges. Moreover, the levels of constituents in the discharges have only decreased over time. The Agency must consider these positive indicators when assessing the likely effectiveness of BMPs.

The Agency's justifications for ignoring its own established policy are also unconvincing because they are contradicted by the Agency's recent practice in comparable cases, in which similarly situated permittees have been issued permits requiring the use of BMPs rather than applying numeric water quality-based effluent limitations, *even where data demonstrating water quality exceedances exists and/or other BMPs had been previously undertaken at the site* but were unsuccessful in eliminating water quality exceedances. It is a fundamental tenet of administrative law that an agency may not single out a particular applicant for stringent treatment, but must treat similarly situated dischargers consistently.[22]

The final modified version of the permit issued to the General Electric ("GE") facility in Pittsfield in 2009, NPDES Permit No. MA0003891 (the "GE Permit"), is one such example. Invensys submitted comments on a prior iteration of the GE permit in 2005 (the "2005 Comments"), which described in detail the Agency's unjustified differential and more stringent

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[20] Interim Approach, p. I (emphasis added).

[21] The Agency may in fact be skipping the proper first step as well. Given the many improvements made by Invensys at the Facility since the issuance of the 1991 Permit, the industrial discharges as they currently exist (i.e., as only storm water and groundwater discharges involving no process wastewaters) have never been covered by a NPDES permit tailored to their characteristics. As such, Invensys has never yet been issued a "first-round storm water permit" focused on the use of BMPs.

[22] See, e.g., Shaws Supermarkets Inc. v. NLRB, 884 F.2d 34, 36 (1989) ("An [agency's] inadequately explained departure solely for the purposes of a particular case . . . is not to be tolerated."), quoting NLRB v. International Union of Operating Engineers, Local 925, 460 F.2d 589, 604 (5th Cir. 1972).

treatment of Invensys in the 2003 Draft Permit.[23] Specifically, Invensys noted that the Agency had relied almost entirely on BMPs rather than numeric water quality-based effluent limitations in issuing the GE permit.[24] This was true even with respect to GE's discharge of PCBs, a contaminant which EPA acknowledged continued to be discharged at levels exceeding water quality standards and was "found at elevated levels in fish tissues in the receiving waterbodies, resulting in the issuance of advisories limiting the consumption of certain species"[25] – something that is not true in the Invensys context.[26] EPA has provided *no* response whatsoever to Invensys' 2005 Comments regarding the GE Permit, let alone any explanation for the Agency's disparate treatment of Invensys.

Notably, the GE Permit was modified after Invensys submitted its 2005 Comments, with the Agency issuing a revised permit in September 2008 and the actual final permit in August 2009, after an appeal by GE. The 2008 version of the GE Permit was based (like Invensys' permit) on recent monitoring data,[27] which demonstrated that the effluent was variable and exceeded the water quality criteria for PCBs.[28] However, in the final GE Permit, the Agency declined to include numerical effluent limitations for PCBs in the untreated discharges, opting instead to require new BMPs,[29] which were deemed sufficient despite the fact that "site remediation activities . . . and other improvements" had already been undertaken at the site and "generally reduced PCB concentrations,"[30] though not enough to eliminate PCB water quality criteria exceedances.[31] In other words, the Agency imposed *only* BMP requirements in conditions strikingly similar to those the Agency now claims mandate numeric limits. The August 2009 GE Permit was even more lenient and flexible (e.g., requiring less frequent sampling for PCBs and other constituents at seven outfalls[32]), despite the facts that: (a) the GE site is a federal Superfund

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[23] Invensys submitted its 2005 Comments to the Agency on June 23, 2005. As many of the flaws identified in the 2005 Comments remain relevant to the 2011 Draft Permit, and as EPA has entirely failed to respond to those comments, Invensys incorporates by reference its 2005 Comments.

[24] 2005 Comments, p. 1 ("Where the Invensys permit would impose unjustified and in many cases unachievable numeric effluent limits, the GE permit, consistent with EPA policy, relies almost entirely on Best Management Practices ('BMPs') to reduce environmental impacts from storm water and groundwater.").

[25] Id. at pp. 2-3.

[26] See id. at p. 3.

[27] GE Permit 2008 Fact Sheet, available at http://www.epa.gov/region1/npdes/permits/attachments/ma0003891fs.pdf (last visited October 31, 2011), p. 1 & Attachments D-Q.

[28] Id. at pp. 9-16.

[29] Id. at p. 9.

[30] Id. at p. 9.

[31] Id. at pp. 9-16.

[32] EPA agreed to reduce the required wet weather sampling for PCBs, oil and grease, total dissolved solids, and pH at outfalls 005, 05A, 05B, 006, 06A, 009, 09B and SR05. Compare 2008 GE Permit, available at http://www.epa.gov/region1/npdes/permits/2008/finalma0003891permit.pdf (last visited October 31, 2010), pp. 5-7, 9-11 & 13 and 2009 Final GE Permit, available at

site[33]; (b) there are periodic exceedances of instream PCB water quality criteria downstream of GE's discharges[34]; (c) there are high concentrations of PCBs in fish tissue[35]; and (d) the GE site discharges to a waterbody that is on the MassDEP "303d list" as impaired by PCBs in Fish Tissue[36] and is undergoing significant stream restoration as part of the PCB clean-up effort.[37]

Another Region 1 permit which demonstrates that the Agency's treatment of Invensys is inconsistent and overly stringent is NPDES Permit No. MA0004341, issued to the Wyman Gordon Company in North Grafton in 2008 (the "Wyman Gordon Permit"). The Agency's response to comments developed in conjunction with the 2006 version of the permit notes that there were exceedances of water quality criteria, yet the permit modification in 2008 removed numeric limits in favor of the use of BMPs, despite the fact that BMPs had already been implemented at the facility. In language very similar to the purported justification the Agency now provides to explain the present permit, the EPA stated as follows in its responses to comments received regarding the 2006 version of the Wyman Gordon Permit:

> [M]onitoring data reported by the permittee to EPA as required under the existing permit, clearly show "excursions" over water quality criteria…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 about the applicable water quality standards, and therefore EPA must develop effluent limitations.[38]

However, the permit was modified in February 2008 after negotiations with the Agency and significant changes were made, including the recognition of BMPs as a legitimate approach to addressing the presence of constituents. As the Agency wrote, "the Region agrees to modify the Final Permit to impose [BMPs for certain outfalls] in lieu of specified numeric effluent limits

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http://www.epa.gov/region1/npdes/permits/2009/finalma0003891permitmod.pdf (last visited October 31, 2011), pp. 5, 7-8, 10-12 & 14.

[33] GE 2008 Fact Sheet, supra, at p. 48.

[34] Id. at pp. 6-8.

[35] See 2005 Comments, pp. 2-3.

[36] GE 2008 Fact Sheet, supra, at pp. 6-8; see also Final 2008 Integrated List of Waters, available at http://www.mass.gov/dep/water/resources/08list2.pdf (last visited October 31, 2011), p. 119; Proposed 2010 Integrated List of Waters, available at http://www.mass.gov/dep/water/resources/10list3.pdf (last visited October 31, 2011), p. 123

[37] GE 2008 Fact Sheet, supra, at p. 21.

[38] EPA's 2006 Responses to Comments on the Wyman Gordon Permit, available at http://www.epa.gov/region1/npdes/permits/attachments/finalma0004341rtc.pdf (last visited October 31, 2011), p. 8.

and [WET] reporting requirements."[39] Specifically, the Agency removed numeric effluent limitations for metals and reporting requirements for WET testing for multiple outfalls[40] and instead required the permittee to implement new BMPs and comply with BMP deadlines.[41]

The Agency has also issued a NPDES permit for the Wyman Gordon facility situated adjacent to the North Grafton property on Route 122. That permit, NPDES Permit No. MA0001121 (the "Wyman Gordon Route 122 Permit"), provides another compelling example of EPA's use of BMPs instead of numerical limits. Aluminum levels were 3-6 mg/l after one round of BMPs was implemented. The permit allows and requires a second, more comprehensive, BMP approach rather than numeric limits, even though the data clearly show violations of water quality criteria.[42]

As a final example, EPA issued NPDES Permit No. MA0000787 for Logan International Airport (the "Logan Airport Permit") in 2007, in which BMPs are utilized in lieu of numeric limits for known problem pollutants at the site. Specifically, the permit only requires monitoring and the development of a BMP plan,[43] despite the facts that: (a) substantial data collected by MassPort for fecal coliform at outfall 002 has shown median values of 400 cfu/100 ml,[44] which is above the Massachusetts Water Quality Standard; and (b) the discharges are to the Boston Harbor, which is listed on the Commonwealth's 303(d) list as impaired by pathogens.[45] Similarly, it has

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[39] EPA's Statement of Basis regarding the Wyman Gordon Permit, available at http://www.epa.gov/region1/npdes/permits/draft/attachments/draftma0004341sob.pdf (last visited October 31, 2011), p. 2.

[40] The relevant outfalls were 007, 008 and 009, which discharge storm water only. As to Outfalls 001 and 010 which, unlike Invensys' discharges, contain not only storm water but also mixed process wastewater and noncontact cooling water, EPA retained numeric effluent limits. Id.

[41] These included the structural repair of catch basins, the cleaning of storm sewer lines, the installation and maintenance of silt sacks, monthly vacuum sweeping of all paved or impervious areas from spring through fall, the mitigation of winter deicing impacts, and good housekeeping of the site. Id. at pp. 3-5; see also 2008 Final Wyman Gordon Permit, available at http://www.epa.gov/region1/npdes/permits/2008/finalma0004341permitmod.pdf (last visited October 31, 2011), pp. 11-13.

[42] See EPA's Response to Comments on the Draft Wyman Gordon Route 122 Permit (i.e., NPDES Permit No. MA0004341), available at http://www.epa.gov/region1/npdes/permits/attachments/finalma0004341rtc.pdf (last visited October 31, 2011), pp. 8 & 18.

[43] 2007 Final Logan Airport Permit, available at http://www.epa.gov/region1/npdes/logan/pdfs/finalma0000787permit.pdf (last visited October 31, 2011), pp. 37-41.

[44] Logan Airport Permit Fact Sheet, available at http://www.epa.gov/region1/npdes/logan/pdfs/finalma0000787fs.pdf (last visited October 31, 2011), p. 21.

[45] Final 2008 Integrated List of Waters, supra, at pp. 90-91; Proposed 2010 Integrated List of Waters, supra, at pp. 97-98.

been demonstrated that the site suffers from extremely high levels of BOD from the glycol that is used in deicing,[46] but only BMPs are required to address the problem.[47]

It would be arbitrary and capricious for EPA to apply a different standard to Invensys than it has applied to other similarly situated permittees, particularly where EPA's established policies counsel against the use of numeric water quality-based effluent limits in the circumstances present here. The Agency has failed to provide an adequate justification for its disparate treatment of Invensys.

Pursuant to Agency policy and consistent with EPA's past practice in other similar cases, the new permit for the Facility should require "expanded or better-tailored BMPs" or "an integrated suite of BMPs" in order "to provide for the attainment of water quality standards."[48] Should the Agency agree that the use of BMPs in lieu of numeric limitations is appropriate, Invensys is willing to retain a third-party consultant to undertake an assessment of BMPs that could be implemented at the Facility and their likely effectiveness. Invensys would agree to provide EPA and MassDEP with a report within six months of completion of the assessment which summarizes the results of such assessment and identifies a list of BMPs Invensys proposes to undertake at the Facility.[49]

In sum, the use of BMPs is not only permissible under the Agency's established policies, but also the appropriate approach in the present circumstances. It is also consistent with the Agency's recent permitting decisions in similar scenarios. Accordingly, Invensys requests that in the final permit the Agency require the Facility to undertake BMPs in lieu of incorporating the numeric limitations proposed in the 2011 Draft Permit.

Response IS #1: The commenter is confusing the reasonable potential analysis required under the Clean Water Act permitting regulations with procedures for establishing water quality based effluent limits (WQBELs). A reasonable potential analysis utilizes all available information to determine if there is a reasonable potential for a discharge to cause or contribute to water quality criteria violations. In accordance with the NPDES Permit Writers' Manual (pg. 6-23), "when determining the need for a WQBEL, a permit writer should use any available effluent and receiving water data as well as other information pertaining to the discharge and receiving water (e.g., type of industry, existing TBELs, compliance history, stream surveys), as the basis for a decision". The NPDES Permit Writers' Manual (pg. 6-17) further indicates that "[t]o establish the critical effluent pollutant concentration from the available data, EPA has recommended considering a concentration that represents something close to the maximum concentration of the pollutant that would be expected over time. In most cases, permit writers have a limited effluent data set and, therefore, would not have a high degree of certainty that the limited data would

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[46] Logan Airport Permit Fact Sheet, supra, at pp. 24-25 & 31-32.

[47] 2007 Final Logan Airport Permit, supra, at pp. 35-36.

[48] Interim Approach, pp. i & 6.

[49] Invensys' proposal in this regard is dependent on the Agency agreeing to the use of BMPs in lieu of numeric effluent limits.