AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

Invensys Systems, Inc.
(formerly named "The Foxboro Company - Neponset Plant")

is authorized to discharge from a facility located at

38 Neponset Avenue
Foxboro, MA 02035

to receiving waters named the **Gudgeon Brook/Neponset Reservoir (001), and Robinson Brook (002)**

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

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.

This permit expires at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 30, 1991.

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, and Attachment A (USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol (May, 2007)), and 25 pages in Part II including Standard Conditions and Definitions.

Signed this 17th day of July, 2015

Ken Moraff, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.a. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge effluent from outfall serial number 001 (i.e., untreated ground water infiltration, untreated ground water from sump pumps in facility basements, treated ground water from a dry weather treatment system (treated for VOCs) and storm water) to Gudgeon Brook. Such discharges will be limited and monitored by the permittee as specified below.*1

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Rainfall / Precipitation*2	inches	Report	Report	Per Discharge Event	Total
Flow	MGD	Report	Report	Daily	See Footnote *3
pH	st. units	(See Footnote *4)		4/Week	Grab
E. coli Bacteria (April 1 – Oct. 31)*5	cfu/100 ml	Report	Report	1/Month	Grab
Copper, Total*7	ug/l	6.1	8.8	See Footnote *6	24-Hour Composite
Lead, Total*8	ug/l	1.7	Report	See Footnote *6	24-Hour Composite
Zinc, Total	ug/l	78.8	78.8	See Footnote *6	24-Hour Composite
Cadmium, Total*9	ug/l	0.2	1.3	See Footnote *6	24-Hour Composite
Aluminum, Total	ug/l	87	Report	See Footnote *6	24-Hour Composite
Tetrachloroethylene	ug/l	Report	Report	See Footnote *6	Grab
Whole Effluent Toxicity, C-NOEC *10,*11,*12	%	—	100	1/Quarter	24-Hour Composite

Footnotes:

*1. Samples taken in compliance with the monitoring requirements stated above will be taken at a point prior to mixing with other streams, will be representative of the discharge, and will be taken at the point of discharge into Gudgeon Brook (unless otherwise specified). All sampling, preservation, and analysis of samples will be in accordance with EPA approved methods found at 40 CFR Part 136 and all sampling shall be taken at the same time of day and the same day(s) of the week for each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report.

The permittee shall measure sump pump discharges from sumps H, I, O, and Z on a continuous basis. The time and duration of each sump pump activation, as well as an estimate of the discharge volume resulting from each sump pump activation, shall be reported in an attachment with each monthly Discharge Monitoring Report (see Footnote #6).

The sampling frequency during the term of the permit may be modified if the permittee provides sufficient justification that less frequent monitoring will adequately characterize the discharge(s) and ensure attainment of water quality standards. The permittee is required to continue sampling as specified in the permit until EPA informs the permittee in writing that the requirements have been modified.

*2. Report the National Weather Service data from the closest location to the facility for which National Weather Service data is available for each sampling event. The permittee will also report the intensity, duration, and volume of each precipitation event during, and for the three (3) days prior to, each sampling event. The precipitation data shall be reported in an attachment with each monthly Discharge Monitoring Report (see Footnote #6).

*3. The permittee will estimate the flow on a daily basis at the discharge point located in manhole #45 (or after manhole #45), and prior to discharge into Gudgeon Brook. Documentation of the method utilized to estimate flows, including information on the accuracy of the method, shall be submitted within 90 days of the effective date of the permit.

*4. The pH of the effluent will not be less than 6.5 nor greater than 8.3 standard units at any time.

*5. *Escherichia coli (E. coli)* bacteria monitoring requirements are effective from April 1st through October 31st. The monthly average values shall be expressed as geometric means.

*6. The permittee will conduct sampling once per week. In addition to being reported on the monthly Discharge Monitoring Report, the individual sampling results, along with the sampling date, the sump pump activation data, and the precipitation data, shall be reported in a table format as an attachment with each monthly Discharge Monitoring Report.

*7. The minimum quantification level (ML) for copper is defined as 3.0 ug/l. This value is the minimum quantification level for copper using the Furnace Atomic Absorption analytical method. Sample results of 3.0 ug/l or less will be reported as zero on the discharge monitoring report. All sample results that are below the ML but above the method detection limit shall be reported on a separate attached document to be submitted with the monthly discharge monitoring reports.

*8. The minimum quantification level (ML) for lead is defined as 3.0 ug/l. This value is the minimum

quantification level for lead using the Furnace Atomic Absorption analytical method. Sample results of 3.0 ug/l or less shall be reported as zero on the discharge monitoring report. All sample results that are below the ML but above the method detection limit shall be reported on a separate attached document to be submitted with the monthly discharge monitoring reports.

*9 The minimum quantification level (ML) for cadmium is defined as 0.5 ug/l. This value is the minimum quantification level for lead using the Furnace Atomic Absorption analytical method. Sample results of 0.5 ug/l or less shall be reported as zero on the discharge monitoring report. All sample results that are below the ML but above the method detection limit shall be reported on a separate attached document to be submitted with the monthly discharge monitoring reports.

*10. The permittee will conduct chronic toxicity tests four times per year. The permittee will conduct the chronic tests using the daphnid, Ceriodaphnia dubia and the fathead minnow, Pimephales promelas. Toxicity test samples will be collected during the first full week of the months of March, June, September, and December. The test results will be submitted by the last day of the month following the completion of the test. The results are due April 30th, July 31th, October 31th, and January 31th, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit. Chemical specific monitoring results from quarterly whole effluent toxicity testing can be used to satisfy the weekly monitoring requirement for the same chemical.

Test Dates during first full week of:	**Submit Results By:**	**Test Species**	**Chronic Limit C-NOEC**
March June September December	April 30th July 31th October 31th January 31th	Ceriodaphnia dubia (Daphnid) Pimephales promelas (Fathead minnow) See Attachment A	≥ 100 %

After submitting four consecutive sets of whole effluent toxicity (WET) test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction of the WET testing requirements. The permittee is required to continue testing as specified in the permit until EPA informs the permittee in writing that the requirements have been modified.

*11. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation. The "100%" limit is defined as a sample which is composed of 100% effluent (no dilution). This is a maximum daily limit.

*12. The permittee is authorized to use an alternate dilution water in accordance with Attachment A and is not required to run a receiving water control.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.b. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge effluent from outfall serial number 002 (untreated ground water infiltration, untreated ground water from sump pumps in facility basements, and storm water) to Robinson Brook. Such discharges will be limited and monitored by the permittee as specified below [*1]

Effluent Characteristic	Units	Discharge Limitation		Monitoring Requirement	
		Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Rainfall / Precipitation[*2]	inches	Report	Report	Per Discharge Event	Total
Flow	MGD	Report	Report	Daily [*3]	See Footnote [*3]
pH	st. units	(See Footnote *[4])		4 /Week	Grab
Copper, Total[*5]	ug/l	6.1	8.8	See Footnote *[6]	24-Hour Composite
Lead, Total[*7]	ug/l	1.7	Report	See Footnote *[6]	24-Hour Composite
Zinc, Total	ug/l	78.8	78.8	See Footnote *[6]	24-Hour Composite
Cadmium, Total[*8]	ug/l	0.2	1.3	See Footnote *[6]	24-Hour Composite
Aluminum, Total	ug/l	87	Report	See Footnote *[6]	24-Hour Composite
Iron, Total	ug/l	1000	Report	See Footnote *[6]	24-Hour Composite
Mercury, Total [*9]	ug/l	Report	Report	See Footnote *[6]	24-Hour Composite
Trichloroethylene	ug/l	30	Report	See Footnote *[6]	Grab
Tetrachloroethylene	ug/l	3.3	Report	See Footnote *[6]	Grab
Whole Effluent Toxicity, LC_{50} [*10,*11,*13]	%	—	100	1 /Quarter	24-Hour Composite
Whole Effluent Toxicity, C-NOEC [*10,*12,*13]	%	—	100	1 /Quarter	24-Hour Composite

Footnotes:

*1. Samples taken in compliance with the monitoring requirements stated above shall consist of a flow weighted composite from manhole #26 and manhole #39. All sampling, preservation, and analysis of samples will be in accordance with EPA approved methods found at 40 CFR Part 136 and all sampling shall be taken at the same time of day and the same day(s) of the week for each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report.

The permittee shall monitor sump pump discharges from sumps A, B, C, D, E, J, and L on a continuous basis. The time and duration of each sump pump activation, as well as an estimate of the discharge volume resulting from each sump pump activation, shall be reported in an attachment with each monthly Discharge Monitoring Report (see Footnote #6).

The sampling frequency during the term of the permit may be modified if the permittee provides sufficient justification that less frequent monitoring will adequately characterize the discharge(s) and ensure attainment of water quality standards. The permittee is required to continue sampling as specified in the permit until EPA informs the permittee in writing that the requirements have been modified.

*2. Report the National Weather Service data from the closest location to the facility for which National Weather Service data is available for each sampling event. The permittee will also report the intensity, duration, and volume of each precipitation event during, and for the three (3) days prior to, each sampling event. The precipitation data shall be reported in an attachment with each monthly Discharge Monitoring Report (see Footnote #6).

*3. The permittee will estimate the flow on a daily basis from manhole #26 and manhole #39. Documentation of the method utilized to estimate flows, including information on the accuracy of the method, shall be submitted within 90 days of the effective date of the permit.

*4. The pH of the effluent will not be less than 6.5 nor greater than 8.3 standard units at any time.

*5. The minimum quantification level (ML) for copper is defined as 3.0 ug/l. This value is the minimum quantification level for copper using the Furnace Atomic Absorption analytical method. Sample results of 3.0 ug/l or less will be reported as zero on the discharge monitoring report. All sample results that are below the ML but above the method detection limit shall be reported on a separate attached document to be submitted with the monthly discharge monitoring reports.

*6. The permittee will conduct sampling once per week. In addition to being reported on the monthly Discharge Monitoring Report, the individual sampling results, along with the sampling date, the sump pump activation data, and the precipitation data, shall be reported in a table format as an attachment with each monthly Discharge Monitoring Report.

*7. The minimum quantification level (ML) for lead is defined as 3.0 ug/l. This value is the minimum quantification level for lead using the Furnace Atomic Absorption analytical method. Sample results of 3.0 ug/l or less shall be reported as zero on the discharge monitoring report. All sample results that are below the ML but above the method detection limit shall be reported on a separate attached document to be submitted with the monthly discharge monitoring reports.

*8. The minimum quantification level (ML) for cadmium is defined as 0.5 ug/l. This value is the minimum quantification level for lead using the Furnace Atomic Absorption analytical method. Sample results of 0.5 ug/l or less shall be reported as zero on the discharge monitoring report. All sample results that are below the ML but above the method detection limit shall be reported on a separate attached document to be submitted with the monthly discharge monitoring reports.

*9. The minimum quantification level (ML) for mercury shall be 0.2 ug/l. If any future sampling indicates that there are detectable levels of mercury in outfall 002, the permittee shall notify EPA and MassDEP in an attachment to the DMR for that month and within three months of obtaining the sampling result shall, develop and submit a plan to EPA and MassDEP for eliminating the source of the mercury contamination, and within one year of obtaining the sampling result shall complete implementation of the plan and submit a report to EPA and MassDEP documenting the results.

*10. The permittee will conduct chronic (and modified acute) toxicity tests four times per year. The chronic test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. The permittee will conduct the chronic tests using the daphnid, Ceriodaphnia dubia and the fathead minnow, Pimephales promelas. Toxicity test samples will be collected during the first full week of the months of March, June, September, and December. The test results will be submitted by the last day of the month following the completion of the test. The results are due April 30th, July 31th, October 31th, and January 31th, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit. Chemical specific monitoring results from quarterly whole effluent toxicity testing can be used to satisfy the weekly monitoring requirement for the same chemical.

Test Dates during first full week of:	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
March June September December	April 30th July 31th October 31th January 31th	Ceriodaphnia dubia (Daphnid) Pimephales promelas (Fathead minnow) See Attachment A	$\geq$ 100 %	$\geq$ 100 %

After submitting four consecutive sets of whole effluent toxicity (WET) test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction of the WET testing requirements. The permittee is required to continue testing as specified in the permit until EPA informs the permittee in writing that the requirements have been modified.

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

*12. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation. The "100%" limit is defined as a sample which is composed of 100% effluent (no dilution). This is a maximum daily limit.

*13. The permittee is authorized to use an alternate dilution water in accordance with Attachment A and is not required to run a receiving water control.

Part I.A.1. (continued)

c. In addition to the effluent and monitoring requirements listed in Part I.A.1.a. and b. of this permit, the discharge will not cause or contribute to an exceedance of state water quality standards.

d. There will be no discharge of floating, suspended and settleable solids in concentrations and combinations that would impair any use assigned to Class B waters or would cause aesthetically objectionable conditions or impair the benthic biota or degrade the chemical composition of the bottom.

e. The effluent will be free from oil and grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.

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

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

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

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

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

(4) The level established by the Director in accordance with 40 C.F.R. Part 122.44(f).

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

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

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

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR Part 122.21(g)(7).

(4) The level established by the Director in accordance with 40 CFR Part 122.44(f).

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

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

4. Toxics Control

a. The permittee will not discharge any pollutant or combination of pollutants in toxic amounts.

b. Any toxic components of the effluent will not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants

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

B. UNAUTHORIZED DISCHARGES

This permit only authorizes discharge from two outfalls in accordance with the terms and conditions contained herein. Discharges of wastewater from any other point sources not authorized by this permit or other NPDES permit authorizing discharges from this facility, will be reported in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

C. STORM WATER POLLUTION PREVENTION PLAN

1. The permittee shall develop, implement, and maintain a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce, or prevent, the discharge of pollutants in storm water to the receiving waters identified in this permit. The SWPPP shall be a written document that is consistent with the terms of this permit. Additionally, the SWPPP shall serve as a tool to document the permittee's compliance with the terms of this permit. Development guidance and a recommended format for the SWPPP are available on the EPA website for the Multi-Sector General Permit (MSGP) for Storm water Discharges Associated with Industrial Activities (http://cfpub.epa.gov/npdes/stormwater/msgp.cfm).

2. The SWPPP shall be completed or updated and certified by the permittee **within 90 days after the effective date of this permit**. The permittee shall certify that its SWPPP has been completed or updated and shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of this initial certification shall be sent to EPA and MassDEP **within one hundred and twenty (120) days of the effective date of this permit.**

3. The SWPPP shall be prepared in accordance with good engineering practices and shall be consistent with the general provisions for SWPPPs included in the most current version of the MSGP. In the current MSGP (effective September 29, 2008, modified May 27, 2009), the general SWPPP provisions are included in Part 5.

Specifically, the SWPPP shall document the selection, design, and installation of control measures and contain the elements listed below:

a. A pollution prevention team with collective and individual responsibilities for developing, implementing, maintaining, revising and ensuring compliance with the SWPPP.

b. A site description which includes the activities at the facility; a general location map showing the facility, receiving waters, and outfall locations; and a site map showing the extent of significant structures and impervious surfaces, directions of storm water flows, and locations of all existing structural control measures, storm water conveyances, pollutant sources (identified in Part 3.c. below), storm water monitoring points, storm water inlets and outlets, and industrial activities exposed to precipitation such as, storage, disposal, material handling.

c. A summary of all pollutant sources which includes a list of activities exposed to storm water, the pollutants associated with these activities, a description of where spills have occurred or could occur, a description of non-storm water discharges, and a summary of any existing storm water discharge sampling data.

d. A description of all storm water controls, both structural and non-structural.

e. A schedule and procedure for implementation and maintenance of the control measures described above and for the quarterly inspections and best management practices (BMPs) described below.

4. The SWPPP shall document the appropriate best management practices (BMPs) implemented or to be implemented at the facility to minimize the discharge of pollutants in storm water to waters of the United States and to satisfy the non-numeric technology-based effluent limitations included in this permit. At a minimum, these BMPs shall be consistent with the control measures described in the most current version of the MSGP. In the current MSGP (effective September 29, 2008, modified May 27, 2009), these control measures are described in Part 2.1.2. Specifically, BMPs must be selected and implemented to satisfy the following non-numeric technology-based effluent limitations:

a. Minimizing exposure of manufacturing, processing, and material storage areas to storm water discharges.

b. Good housekeeping measures designed to maintain areas that are potential sources of pollutants.

c. Preventative maintenance programs to avoid leaks, spills, and other releases of pollutants in storm water discharged to receiving waters.

d. Spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur.

e. Erosion and sediment controls designed to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.

f. Runoff management practices to divert, infiltrate, reuse, contain, or otherwise reduce storm water runoff.

g. Proper handling procedures for salt or materials containing chlorides that are used for snow and ice control.

5. All areas with industrial materials or activities exposed to storm water and all structural control used to comply with effluent limits in this permit shall be inspected, at least once per quarter, by qualified personnel with one or more members of the storm water pollution prevention team. Inspections shall begin during the 1st full quarter after the effective date of this permit. EPA considers quarters as follows: January to March; April to June; July to September; and October to December. Each inspection must include a visual assessment of storm water samples from each outfall. The permittee shall document the following information for each inspection and maintain the records along with the SWPPP:

a. The date and time of the inspection and at which any samples were collected;

b. The name(s) and signature(s) of the inspector(s)/sample collector(s);

c. Weather information and a description of any discharges occurring at the time of the inspection;

d. Results of observations of storm water discharges, including any observed discharges of pollutants and the probable sources of those pollutants;

e. Any control measures needing maintenance, repairs or replacement; and,

f. Any additional control measures needed to comply with the permit requirements.

6. The permittee shall amend and update the SWPPP within 14 days of any changes at the facility that result in a significant effect on the potential for the discharge of pollutants to the waters of the United States. Such changes may include, but are not limited to: a change in design, construction, operation, or maintenance, materials storage, or activities at the facility; a release of a reportable quantity of pollutants as described in 40 CFR §302; or a determination by the permittee or EPA that the BMPs included in the SWPPP appear to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity.

7. Any amended, modified, or new versions of the SWPPP shall be re-certified and signed by the permittee in accordance with the requirements identified in 40 CFR §122.22. The permittee shall also certify, at least annually, that the previous year's inspections and maintenance activities were conducted, results recorded, records maintained, and that the facility is in compliance with this permit. If the facility is not in compliance with any aspect of this permit, the annual certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in 40 CFR §122.22. The permittee shall maintain at the facility a copy of its current SWPPP and all SWPPP certifications (the initial certification, re-certifications, and annual certifications) signed during the effective period of this permit, and shall make these available for inspection by EPA and MassDEP. In addition, the permittee shall document in the SWPPP any violation of numerical or non-numerical storm water effluent limits with a date and description of the corrective actions taken.

D. MONITORING AND REPORTING

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

data and reports in hard copy form and for submittal using NetDMR are described below:

a. Submittal of Reports Using NetDMR

NetDMR is accessed from: http://www.epa.gov/netdmr. **Within one year of the effective date of this permit**, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

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

b. Submittal of NetDMR Opt-Out Requests

Opt-out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt-out request and such request is approved by EPA. All opt-out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-1)
Boston, MA 02109-3912

And

Massachusetts Department of Environmental Protection
Wastewater Management Program
One Winter Street, 5th Floor
Boston, Massachusetts 02108

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. All reports required under this permit shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

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

MassDEP – Southeast Region
Bureau of Air and Waste
20 Riverside Drive
Lakeville, MA 02347

Copies of toxicity tests only shall be sent to:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, Massachusetts 01606

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

E. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

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

FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic (and modified acute) toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**

- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic and modified acute toxicity data shall be reported as outlined in Section VIII. The chronic fathead minnow and daphnid test data can be used to calculate an LC50 at the end of 48 hours of exposure when both acute (LC50) and chronic (C-NOEC) test endpoints are specified in the permit.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
One Congress St., Suite 1100
Boston, MA 02114-2023

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25s and LC50 values and ≥ two concentration intervals for NOECs or NOAECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://www.epa.gov/waterscience/methods/wet/pdf/wetguide.pdf . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete "Duty to Comply" regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times 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 and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(4) The permittee complied with any remedial measures required under B.3. above.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. Twenty-four hour reporting.

(1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in "approved States", including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source", or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See "Point Source" definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States", the waters of the "contiguous zone", or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise "effluent limitations".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program".

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants";

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source"; and

(d) Which has never received a finally effective NPDES permit for discharges at that "site".

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants", the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System".

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a "POTW".

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a "primary industry category".

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of "sludge use or disposal practices" any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

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.

[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:

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U.S. Environmental Protection Agency
Office of Ecosystem Protection (CMP)
5 Post Office Square
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Kathleen.Keohane@state.ma.us

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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

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
Metal	**Acute**	**Chronic**	**Acute**	**Chronic**	**Potential"[1]**
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.

actually include the maximum potential effluent concentration of the pollutant of concern. In addition, the NPDES regulations at § 122.44(d)(1)(ii) require that permit writers consider the variability of the pollutant in the effluent when determining the need for WQBELs". At any time between 2002 and today, the permittee could have collected additional data if there was a concern that the available data was not representative of the discharges. See Response IS General. Instead, the permittee has chosen simply to claim that EPA lacks sufficient data regarding its discharge. Much of the data that is available had to be required through EPA's authority under Section 308 of the Clean Water Act. A permittee is not in a position to complain that a permitting agency is not basing its decision on sufficient data when the permittee itself declines to provide any more data. Whether Invensys has simply declined to collect further data, or has collected more data but has declined to provide it to EPA, the fact remains that the data that EPA has obtained supports a finding that pollutant concentrations in storm water/contaminated groundwater discharges have a reasonable potential to cause or contribute to water quality standards violations, and Invensys has had ample opportunity to submit data rebutting this point. The determination that the available data supports a conclusion that there a reasonable potential to cause or contribute to water quality standards violations is not inconsistent with the notion that the discharges would be better characterized for compliance purposes with more frequent sampling.

Where there is a reasonable potential for a discharge to cause or contribute to a water quality criteria violation, EPA is required to establish a water quality based limit that ensures attainment of the criteria. While available pollutant discharge data is an important consideration in determining reasonable potential, it was not utilized in the next step which is the establishment the necessary water quality based limits that will ensure that the discharges will result in attainment of applicable water quality criteria. Comments related to ecological risk assessment and the use of site specific criteria are addressed in Response IS #3 below.

The Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits does not preclude the imposition of numeric limits where appropriate. The policy states that "[i]n cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate." Furthermore, these discharges do not consist of storm water only but rather storm water commingled with contaminated groundwater and building sump discharges.

The simple fact that discharge concentrations vary does not preclude or prevent the establishment of limits necessary to ensure attainment of water quality criteria. The vast majority of discharges experience significant variability in discharge quality but are still subject to numeric limitations as necessary to ensure attainment of water quality criteria. Variability, particularly in cases where the discharge is diluted with the receiving water, can make it more difficult to determine reasonable potential and to establish protective limits. In this case, where there is no significant dilution in the receiving water, determining reasonable potential can be made by comparing discharge concentrations to applicable water quality criteria. These analyses are clearly documented in the Fact Sheet and where there is a reasonable potential to exceed the criteria, water quality based limits are included in the permit as required by the regulations at 40 CFR 122.44 (d).

The establishment of longer term average limits based on the chronic criteria and maximum daily limits based on the acute criteria is appropriate and addresses the issue that the discharges are intermittent and of limited duration when storm water dominates. Thus, intermittent discharges of limited duration are only required to comply with the higher criteria protecting against lethal effects while the longer term average limits protect against the chronic growth and reproduction effects of the continuous discharge of contaminated groundwater that is at times commingled with storm water and building sump discharges.

As indicated by the commenter, many actions and management practices have been implemented over a twenty year period to control sources and operations. Despite these efforts, the discharges still demonstrate clear potential to cause or contribute to an exceedance of water quality criteria. As stated in the Fact Sheet, EPA does not believe it reasonable to expect that the imposition of yet another round of BMPs will be sufficient to attain water quality criteria. The permittee has not identified BMPs that, if designed and constructed, would assure water quality criteria will be met.

40 CFR Section 122.44(k) addresses the inclusion of BMPs in permits. EPA concurs that BMPs are sometimes appropriate to include in permits and EPA has included BMPs in this permit. Under some circumstances, BMPs can be imposed in lieu of numeric limits including when numeric effluent limits are infeasible. For the reasons cited above, EPA believes that numeric limits are appropriate and feasible in this case. The decision to include numeric limits is made on a case by case basis after reviewing all relevant information.

The permittee also appears to proceed under a misapprehension regarding BMPs for water quality based requirements. Specifically, the permittee appears to assume that BMPs would mean that its discharge would not need to meet water quality standards. To the contrary, once it has been found that a pollutant is or may be discharged at a level which will have the reasonable potential to cause or contribute to an excursion above water quality standards, the permit must contain requirements that assure compliance with water quality standards. The mechanism for these requirements may be BMPs or it may be end-of-pipe numeric effluent limits, but in either case the permit requirement must assure compliance with water quality standards. The permit does not dictate how the criteria are to be met and does not preclude the use of additional BMPs (as opposed to treatment or other methods) for achieving the effluent limits. That said, EPA notes that the commenter also does not believe that BMPs will be sufficient to ensure attainment of criteria given the extensive discussions provided (see Invensys comment III.B.2.c.) as to the cost of treatment facilities that will be required as a result of the permit limits. If Invensys believed that BMPs could achieve the same results, it could have so stated.

Instead, Invensys offers that "[s]hould 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. . . . Invensys' proposal in this regard is dependent on the Agency agreeing to the use of BMPs in lieu of numeric effluent limits." In

other words, Invensys proposes that, *first* EPA should agree to the use of BMPs before EPA, or indeed Invensys itself, has any idea what BMPs would be involved, or whether they would be effective, and *then* Invensys would propose specific BMPs and whether they would work. This is precisely backwards. The Clean Water Act does not require EPA to commit in advance to a BMP-based permit absent any evidence that BMPs will actually succeed in meeting water quality standards. Of course, if Invensys can identify BMPs that will result in its discharge meeting the numeric water quality based effluent limits, then it is free to comply with the effluent limits in the permit by means of such BMPs; nothing in the permit requires treatment as a means of achieving compliance.

In a March 15, 2002 letter from Invensys, responding to EPA's March 7, 2002 monitoring requirement under Section 308 of the Clean Water Act, Invensys argued that sampling manhole #26 was not representative of the discharges from the facility because a facility drain line from manhole #39 entered the drainage system below manhole #26, along with storm water from the Town. Invensys further argued that the sampling should be conducted at the point on the East side of Neponset Avenue where the drain line leading from manhole #26 surfaces and Robinson Brook becomes visible. Now, Invensys is suggesting (comment III.A, note 31) that only manhole #26 should be sampled. Since sampling at manhole #26 would not be inclusive of all discharges from the facility EPA has clarified the final permit to indicate that all sampling for the Robinson Brook discharges shall consist of a flow weighted composite from manhole #26 and manhole #39.

While the June 15, 2001 sample referenced was collected downstream of town storm water sources, it was collected during dry weather. The September 25, 2001 sample is the only sample downstream of town storm water that may have been influenced by off-site storm water. Given the high level of metals coming from the site during both dry weather and wet weather, including high levels of copper, lead and cadmium measured in sumps as well as the history of contamination at the site, it is reasonable to conclude that even for the September 25, 2001 sample, there is a significant contribution from the site of metals that have the potential to exceed criteria.

Wet weather data collected on July 23, 2002 that reflects a flow weighted composite of manhole #26 and manhole #39, thereby excluding the storm water contributions from Town property, indicated very high levels of copper, lead, cadmium and zinc (see Fact Sheet Attachment C.1). Data collected on July 2, 2002 at the same location indicated that copper and lead were also high during dry weather. Given that the data indicate levels of metals that are at times much higher than chronic criteria and, in some cases, much higher than acute criteria, the limits established for individual metals as well as the whole effluent acute and chronic toxicity limits are justified.

Invensys states that EPA "ignore[d] [the 2003 post-cleanout data] for purposes of calculating limits." This statement again conflates a reasonable potential analysis with calculation of effluent limits. For the reasonable potential analysis, EPA most certainly did not ignore the data collected post cleanout. EPA explicitly noted that levels appear to have improved, at least under the discharge conditions associated with this limited sampling, but that values still exceed criteria. See Fact Sheet at 13 n.5. The mere possibility that things may have further improved does not lead one to conclude that there is no reasonable potential to exceed criteria. To the

contrary, the 2003 data shows continued exceedances after the cleanout. Specifically, Attachment C.7-B shows post-drain cleaning levels exceeding standards for cadmium, copper, lead, zinc, and iron. In some cases, levels at the final post-drain-cleaning sampling event (11/14/03) are barely different from those at the pre-drain-cleaning event (10/22/02). For example, during that year (with drain cleaning intervening), cadmium levels at MH 39 declined from 0.6 to 0.57 ug/l (as compared to an acute criterion of 1.05 and a chronic criterion of 0.16) – with an intervening measurement on 2/28/03 that is actually higher (1.1) than before drain cleaning. As another example, zinc levels declined from 800 ug/l to 530 ug/l a year after drain cleaning, which is certainly an improvement, but the standard is 66.6 ug/l and thus the post-drain-cleaning results are nearly ten times higher than the standard. As to the permittee's claim that "levels of various constituents did not decrease immediately following the cleanout at outfall 001, but rather took several years to stabilize at the lower levels," it was within the permittee's ability to collect further samples at any point after 11/14/03 and submit the data to EPA, if such data showed that pollutant levels in its discharge would meet water quality standards.

Invensys discusses numerous unrelated NPDES permits at various facilities across the Commonwealth of Massachusetts. Each NPDES permit is a case-specific adjudication based on the particular facts and circumstance of the facility's discharge, receiving water, and other relevant site-specific factors. EPA is not required to justify, in a permit proceeding for Facility A, why it did or did not impose a certain requirement on Facility B. *See In re City of Port St. Joe*, 7 E.A.D. 275, 305 n.44 (EAB 1997); *accord In re City of Attleboro*, 14 E.A.D. __, NPDES Appeal No. 08-08, slip op. at 36, 41 (EAB Sept. 15, 2009). Notwithstanding the preceding, EPA offers brief responses to the major examples offered in the body of Invensys's comment.

The Wyman Gordon facilities are storm water only as opposed to storm water commingled with contaminated groundwater and specific BMPs were identified which have sufficient potential to attain the criteria. These BMPs were identified and required as part of the permit.

Similarly, in the General Electric Pittsfield permit EPA determined that there were specific BMPs which have sufficient potential to attain water quality criteria in the receiving waters and these BMPs were identified and required as part of the permit.

The Logan Airport permit addresses storm water, some of which is likely contaminated with illicit connections. In this case, specific BMPs are identified and required to be implemented in order to address any potential impairments associated with the discharges.

Comment IS #2: In the 2011 Draft Permit, the Agency has once again established numeric effluent limits for metals based on the application of the National Recommended Water Quality Criteria, which do not consider the site-specific characteristics and species of the receiving waters. The application of the NRWQC in this case results in effluent limits which are far more stringent than necessary for the protection of human health and the environment and will be exceedingly costly to achieve, if they can indeed be achieved. As Invensys stated in its 2003 Comments and has argued on numerous occasions in the past with respect to proposed permit limits for the discharges, in light of the strong available evidence demonstrating that the regulated discharges do not present a risk to human health or the environment, as demonstrated by the ecological risk assessment conducted as part of the Phase II, the use of the NRWQC to

derive permit limits is inappropriate. Rather, effluent limits for the subject discharges should be based on SSWQC reflective of the unique physical, chemical and biological characteristics of the receiving waters. As a result, Invensys is, contemporaneously with the submittal of these Comments, submitting a formal request to MassDEP for the development of SSWQC for the Outfall 001 and Outfall 002 receiving waters. If EPA continues to believe that numeric effluent limits are necessary, it should delay finalization of the 2011 Draft Permit until appropriate SSWQC, on which to base such limits, can be adopted.[50]

1. The Development of SSWQC is Authorized by Relevant Regulations

The NRWQC are developed based on the laboratory protocols and species ranking procedures set forth in EPA's 1985 Guidelines for Deriving Numerical National Aquatic Life Criteria for Protection of Aquatic Organisms and Their Uses,[51] and they do not take into account local and regional water quality conditions or biota. As a result, in certain cases, effluent limitations based on such criteria do not accurately reflect the potential toxicity represented by a specific concentration of the pollutant in the receiving water. In such cases, the development of SSWQC is necessary.

Pursuant to both federal and state regulations and guidelines, the development of permit limits based on site-specific criteria is permissible and would be appropriate in the present case. Specifically, federal regulations expressly allow states to develop permit limits based on numeric criteria that have been "modified to reflect site-specific conditions."[52] Massachusetts water quality standards, in turn, provide that the development of site specific criteria for toxic pollutants is permissible where EPA recommended criteria are "invalid due to site specific physical, chemical or biological considerations."[53] The federal Water Quality Standards Handbook acknowledges that site-specific limits are appropriate when "the species at the site are more or less sensitive than those included in the national criteria data set" or "physical and/or chemical characteristics of the site alter the biological availability and/or toxicity of the chemical".[54] Similarly, MassDEP policy provides that site-specific limits are appropriate when

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[50] As noted above, Invensys continues to believe that the use of BMPs in lieu of numeric limits is appropriate in this case. Should SSWQC be developed for the receiving waters, Invensys does not concede that any effluent limitations based on such criteria must be numeric effluent limitations. Rather, the use of BMPs may be determined to be an appropriate means of achieving compliance with SSWQC.

[51] Guidelines for Deriving Numerical National Aquatic Life Criteria for Protection of Aquatic Organisms and Their Uses (EPA, 1985), updated in 2010 on-line version, available at http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/85guidelines.pdf (last visited October 31, 2011).

[52] 40 C.F.R. 131.11(b)(1)(ii).

[53] See 314 C.M.R. 4.05(5)(e)(1).

[54] Water Quality Standards Handbook: Second Edition (EPA, August 15, 1994), p. 3-39.

local conditions differ from those used to develop the recommended limit or to reflect the presence or absence of particular water uses.[55]

The MassDEP has acknowledged the appropriateness of the use of SSWQC to develop permit limits by revising its water quality standards to incorporate site-specific criteria for certain waters. Specifically, in January 2007, revisions to the state water quality standards to incorporate site-specific criteria for certain waters became effective. The revised regulation included site-specific criteria for copper in 23 specified streams and stream segments, resulting in the replacement of the NRWQC in determining NPDES permit limits for approximately 30 facilities. In 2009, an additional seven river segments were added to the site-specific copper list. The adoption of site-specific criteria was necessitated by the fact that many NPDES permits had "very stringent compliance limits for copper based on EPA national criteria that are difficult for most facilities to achieve, in many cases lower than is necessary to protect water quality."[56] Therefore, site-specific criteria were developed to "continue to protect water quality without requiring unwarranted levels of investment by regulated entities in an attempt to achieve the limits."[57] In fact, EPA recently revised the NRWQC for copper such that they no longer provide default numeric criteria but instead recommend that site specific water quality information be used in conjunction with the Biotic Ligand Model ("BLM") to derive SSWQC.[58] Further, Invensys understands that the MassDEP is in the process of adopting site-specific criteria for additional waters, including site-specific criteria for zinc in the lower Squannacook River near the Hollingsworth & Vose Company's West Groton facility.

Response IS #2: See Response IS #1 relative to the need for numeric limits. These limits are based on the current applicable water quality criteria as required by federal permitting regulations.

The federally-approved Massachusetts Surface Water Quality Standards at 314 CMR 4.05(5)(e) state: "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

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[55] See Implementation Policy for the Control of Toxic Pollutants in Surface Waters (MassDEP, February 23, 1990), available from http://www.mass.gov/dep/water/laws/policies.htm#npdes (last visited October 31, 2011), pp. 2-3.

[56] See Clean Water: Control Pollution from Point Sources – Surface Water Discharge Compliance (MassDEP, October 2005), available at www.mass.gov/dep/water/priorities/ppa06sum.doc (last visited October 31, 2011), p. 35.

[57] Id.

[58] See EPA's National Recommended Water Quality Criteria ("NRWQC")(EPA Office of Water and the Office of Science and Technology, 2009), available at, http://water.epa.gov/scitech/swguidance/standards/current/upload/nrwqc-2009.pdf (last visited October 31, 2011), p. 2 ("Freshwater criteria calculated using the BLM", and referencing Aquatic Life Ambient Freshwater Quality Criteria - Copper: 2007 Revision (EPA, February 2007), available at http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/pollutants/copper/upload/2009_04_27_criteria_copper_2007_criteria-full.pdf (last visited October 31, 2011)). The 2011 Draft Permit cites the outdated version of the NRWQC, rather than the current version adopted by the Agency in 2009.

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." The Massachusetts Surface Water Quality Standards also provide: "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." Id. § 4.05(5)(e)(1).

In short, the federally approved Massachusetts Surface Water Quality Standards for pollutants not otherwise listed in 314 CMR 4.00 are the 2002 National Recommended Water Quality Criteria unless and until MassDEP revises 314 CMR 4.00 to include site-specific criteria. That has not occurred for the pollutants and water bodies at issue here. *Cf. City of Attleboro,* slip op. at 80-81 (addressing similar issue under same regulation).

The permittee's request for MassDEP to issue SSWQC is a separate proceeding under Chapter 30A of the Massachusetts General Laws, and it is not cognizable in an EPA NPDES permit proceeding. Consequently, no further response is necessary in this permit decision to that portion of the comment requesting development of SSWQC. That said, EPA does provide some additional responses below.

SSWQC would have to be developed consistent with appropriate procedures identified in EPA water quality standards guidance documents. While Invensys has conducted an ecological risk assessment of the Neponset Reservoir downstream of Gudgeon Brook under the frame work of the Massachusetts waste site cleanup program, no demonstration has been made that this analysis supports the adoption of alternative criteria, consistent with federally approved methodologies for developing site specific criteria, that will be protective of all biota in Gudgeon Brook and Robinson Brook. Any proposed criteria change would have to be submitted to Massachusetts for approval and then formally adopted into the state standards, subject to EPA review and approval, before they can be used in establishing permit limits.

As to the comment's request that EPA delay permit issuance until SSWQC can be developed, EPA denies that request for several reasons. First, this permit has already been long delayed, and the permittee has had the ability to pursue this option with the State of Massachusetts at any time over the past decade. EPA notes that the supporting documentation provided with the comments indicate that Invensys has requested that MassDEP work with them on developing site specific criteria but that this request was not made until the final day of the comment period for the draft permit. Second, while the desire for site specific criteria is not sufficient reason to delay the application of permit limits required by current water quality criteria, EPA notes that, for various reasons, over three years have passed from the close of the comment period (and Invensys's request for MassDEP to develop SSWQC) to issuance of this final permit. In other words, although EPA has not agreed to delay permit issuance pending MassDEP's review of Invensys's submission, in fact Invensys has gained the benefit of over three years as if EPA had agreed to a delay for that reason.

Finally, development and approval of site specific criteria can form the basis for revised permit limits in future permit actions.

Comment IS #3: Invensys has time and again provided Region 1 with extensive evidence indicating that further reductions in the levels of constituents cannot be justified on the basis of risk to human health or the environment. The available evidence points to the fact that the discharges are not acutely toxic and do not appear to have an adverse impact on the ecological receptors of concern in Gudgeon Brook or the Reservoir, based on the results of acute toxicity bioassays conducted pursuant to the current NPDES Permit and subchronic and chronic toxicity bioassays conducted under the Phase II.

Specifically, as part of the current NPDES Permit requirements, Invensys has routinely collected effluent water samples for the purposes of whole effluent toxicity (WET) testing on two species: *Ceriodaphnia dubia* and *Pimephales* promelas. Such tests have been performed quarterly for over 17 years, resulting in a data set of 140 separate tests. The results of these WET tests overwhelmingly demonstrate that the effluent is not toxic – in the 13 years since the drain line cleanout, all WET tests for both species have showed 100% survival, except for a single test conducted in the 1st quarter of 2002, where *C. dubia* showed 83% survival.

In the Fact Sheet, EPA acknowledges that the "testing has shown that the discharge routinely meets its LC50 limit of 100 percent effluent".[59] However, while acknowledging that WET testing has demonstrated that the effluent does not cause acute toxicity, the Region indicates that it "believes there is a reasonable potential for the discharge to cause chronic toxicity in the receiving water."[60] Region 1 cites to no evidence to support this assertion. The Agency must rely on factual information contained in the administrative record rather than mere speculation.[61]

Although the currently required effluent WET testing is limited to evaluating acute toxicity, site-specific data from the Phase II indicate that the levels of constituents are also not causing chronic toxicity. Had the Region considered the available evidence, it would have determined that, contrary to its unsupported assertions, the discharge has not been demonstrated to cause chronic toxicity in the receiving waters. Specifically, data collected during the ongoing assessment activities in the Neponset Reservoir demonstrate that the historical discharge of higher concentrations of metals has not had an adverse impact on the ecological receptors of concern within the Reservoir. As discussed in Section I, supra, the Phase II findings demonstrate, among other things, that:

- The Reservoir reflects an active, diverse and abundant ecological setting.

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[59] Fact Sheet, p. 12.

[60] Id. at pp. 12 & 15.

[61] See 40 CFR § 124.9 (the provisions of a draft permit "shall be based on the administrative record"); Edison Electric Institute, 2 F.3d at 446; Corrosion Proof Fittings, 947 F.2d at 1227 ("Musings and conjecture are 'not the stuff of which substantial evidence is made.'").

- There is no evidence of stressed biota attributable to the release at the Reservoir.

- There is no evidence of significant biological harm to invertebrates (e.g., worms), plankton, fish, birds or other wildlife. While some individual measures of effect evaluated in the Phase II showed slight impairment, the effects were small and were not correlated with constituent concentrations in the surface water.

- Based on the 23 lines of evidence used to assess the environmental risk in the Reservoir, adverse effects of COCs in the Reservoir – to the extent that there are any effects – are minimal/negligible and collectively provide no evidence of a significant risk of harm to the environment.

The Massachusetts Department of Fish and Wildlife agreed with the Phase II's conclusion that the Reservoir supports a diverse and productive fauna, concluding that, "[the Phase II] study does show that fish metrics are within normative ranges, and that the Neponset Reservoir species composition is essentially the same as it was in 1958."[62] Indeed, the findings of the Phase II are consistent with an earlier MassDEP investigation of the Reservoir. Specifically, in 1986 the Massachusetts Department of Environmental Quality Engineering undertook a study of conditions in the Reservoir. Based on the study findings it was concluded that "the reservoir contains a healthy population of fish. None of the fish captured appeared to be stressed by conditions in the reservoir. Analysis of the fish tissue indicated levels which are safe and common for fish from this type of environment."[63]

The results of the Phase II environmental risk characterization suggest that the low levels of constituents occurring in the current discharges will not negatively impact the ecological communities of species present in the receiving waters. Further, specifically with respect to subchronic and chronic toxicity bioassays conducted under the Phase II, as part of the ecological risk characterization, sediment and surface water bioassays were conducted on several aquatic species. Results of the tests, which represented subchronic to chronic exposures, indicated that while toxicity was observed at certain individual sample stations, toxicity was neither consistently observed nor strongly correlated with concentrations of heavy metals in aquatic media, suggesting that the limited observed toxicity was related to factors other than the presence of metals in the surface water or sediment. Indeed, it is important to note that the concentrations of cadmium in samples used to conduct Phase II toxicity tests, in which no statistically significant chronic toxicity was observed, were ***higher*** than those characteristic of recent effluent

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[62] See Response to Comments on Phase II, Sept. 15, 2003, citing to August 28, 2001 written correspondence from Richard Kellar, Massachusetts Department of Fish and Wildlife, to Jonathan Hobill, MassDEP Bureau of Waste Site Cleanup. See also 2003 Comments, p. 10.

[63] 1987 Permit Fact Sheet (June 30, 1987), p. 3 (Attachment 3 hereto).

samples from Outfall 001.[64] Overall, bioassay results did not show strong evidence of chronic or subchronic toxicity to fish or macroinvertebrates.

Given the available data, and the fact that the discharges do not appear to be causing toxicity in the receiving waters, if the Agency continues to believe that numeric limits are necessary, it should allow for the development of SSWQC in order to provide a more accurate measure of the levels of metals that would be protective of the relevant species present in the receiving waters.

Response #IS 3: The permit contains both whole effluent toxicity (WET) and chemical specific limits consistent with EPA guidance for establishing water quality based limits for controlling toxicity. Chemical specific limits are established to ensure that each individual chemical discharges is not discharged at a level that will cause toxicity. WET limits are established to determine if there is a cumulative or synergistic toxicity effect associated with a combined discharge that contains multiple individual chemicals. Only one or two species are tested, consistent with national guidelines, as part of WET testing. The national guidelines specify the species to be tested, and these species may or may not be the most sensitive species for a given contaminant (see Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013). WET limits are not designed to protect all aquatic life in the receiving water and, by themselves, are not sufficient to ensure attainment of water quality standards. WET limits and chemical specific limits are intended to be complementary limits. *See also City of Attleboro*, slip op. at 79-80 (addressing similar issue).

The previous permit only required acute WET testing. The lack of acute toxicity does not mean that there is no chronic toxicity effect from a discharge. The chemical specific criteria exceedances in the discharges and lack of dilution are sufficient reason to conclude that the discharges have a reasonable potential to cause or contribute to chronic toxicity. Due to the evidence that the discharges to Gudgeon Brook are not acutely toxic, the final permit contains only a chronic limit and a chronic monitoring requirement.

The individual metals limits in the permit are established consistent with the regulatory requirement to establish limits that ensure attainment of acute and chronic water quality criteria wherever there is shown to be a reasonable potential to exceed the criteria. The reasonable potential demonstration and the calculation of the required permit limits are clearly documented in the Fact Sheet.

The commenter draws broad conclusions based on an ecological ("eco") risk assessment and a finding of "no significant impact" under a state hazardous waste cleanup law (Massachusetts General Laws Chapter 21E). This phrase is a term of art under Chapter 21E and reflects factual and legal conclusions drawn under that distinct framework, which differs from the legal requirements and factors to be considered in NPDES permit issuance. While EPA does not

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[64] See Attachment 4 hereto, showing detected dissolved cadmium concentrations measured at five locations in the Reservoir on two dates (March 1999 and January 2000) and corresponding toxicity results, and compare to Attachment 1 hereto, summarizing historical Outfall 001 cadmium data.

necessarily agree with the broad conclusions drawn under the Chapter 21E analysis (see discussion below), EPA's role here is not to review the Chapter 21E analysis. For purposes of the NPDES permit, it suffices to note that the permittee's discharge contains pollutants at levels that have a reasonable potential to cause or contribute to excursions above water quality standards. Furthermore, a Chapter 21E analysis is not an approved site specific criteria development method and does not negate the need for complementary limits for whole effluent toxicity and individual toxic pollutants. Until such time as a site specific analysis is completed and criteria are modified by MassDEP and approved by USEPA, permits necessarily must be based on current criteria.

That said, to the extent (if any) that the Chapter 21E "Phase II" study is relevant, EPA offers the following observations.

Sublethal impacts of heavy metals on the growth and reproduction (chronic impacts) of aquatic organisms is a significant concern associated with the discharges from Invensys. Three of the water column bioassay tests conducted for the Phase II environmental risk characterization (eco risk assessment) indicated significant chronic impacts. While cadmium is not the only heavy metal of concern, in all three tests cadmium exceeded the chronic criteria value. While some tests did not indicate significant chronic effects, there are many factors that can affect the test organisms response to metals levels and the fact that concentrations of cadmium that exceed the criteria only impact the organisms some of the time does little to alleviate the concern that the discharges may be negatively impacting the aquatic community.

Three of the sediment toxicity testing stations conducted for the eco risk assessment exhibited toxic impacts. Station #6 and #7 exhibited significant growth differences relative to the control station for *Chironomus Tentans*. Both of these stations are in the vicinity of the discharge. Additionally, station #6 and #12 exhibited significantly lower survival rates relative to the control station for *Hyalella Azteca*.

Metals levels measured at the mouth of Gudgeon Brook during a wet weather event in 1998 indicated high levels for copper (36 ug/l), zinc (130 ug/l), lead (4.6 ug/l), and cadmium (1.1 ug/l). All exceed the respective ambient criteria values. Additional data collected at the mouth of Gudgeon Brook indicate that copper ranged from 2 - 36 ug/l, zinc ranged from 18 - 130 ug/l, lead ranged from <0.5 - 4.6 ug/l, and cadmium ranged from 0.4 - 1.5 ug/l.

At the outlet to the Neponset reservoir, cadmium was measured as high as 0.8 ug/l, exceeding the ambient criteria value of 0.16 ug/l. Cadmium levels of over 1.0 ug/l were also measured at several other stations in the Neponset Reservoir.

The eco risk assessment indicates a general gradient of metals concentrations in the sediment from the highest values at the stations closest to the Gudgeon Brook discharge to the lowest values at the stations furthest from the Gudgeon Brook discharge. Additionally, while the study concludes that there is no significant impact to the macroinvertebrate community, there is a clear gradient relative to taxonomic richness with the least number of taxa seen at the stations nearest to the Gudgeon Brook discharge and the most number of taxa seen at the stations furthest from the Gudgeon Brook discharge.

Metals related toxicity in a system like the Neponset Reservoir is affected by many variables, and this is supported by Attachment 4 included with the comment. While at times, no toxicity is exhibited with relatively high values of cadmium (>1.0 ug/l), at other times toxicity is exhibited with cadmium values ranging from 2.0 ug/l down to as low as 0.5 ug/l. Toxicity measured at cadmium levels as low as 0.5 ug/l included both acute (survival) and chronic (reproduction) effects.

Comment IS #4: It is also clear that the use of site-specific criteria is appropriate based on the species present in the receiving waters and the "uses" that are being achieved in those waters. Both Gudgeon Brook and Robinson Brook are classified as "Class B" waters, and, as such, "are designated as habitat for fish, other aquatic life, and wildlife . . . and for primary and secondary contact recreation."[65] However, as the result of extremely low flows, neither Gudgeon Brook nor Robinson Brook support these uses. Gudgeon Brook is an approximately 200 foot long man-made channel with a flow that is highly variable and directly proportional with precipitation events[66] and, according to the Massachusetts Geographical Information System ("MassGIS"), is intermittent in its nature.[67] Given its limited reach, variable water levels and intermittent nature, Gudgeon Brook is not likely to be a suitable habitat for fish. Similarly, and as discussed in further detail in Section IV.B, infra, Robinson Brook is an intermittent stream, with no flow present during certain time periods during the year. As such, it has limited habitat value and no potential for recreational uses. The fact that the characteristics of Gudgeon Brook and Robinson Brook do not support a use of fish habitat, and therefore do not support many of the species used to develop the federal numerical criteria, demonstrates that site-specific criteria are appropriate.[68]

Even if the Neponset Reservoir, which does serve as a habitat for certain species of warm-water fish, is considered as the receiving water, the development of SSWQC is appropriate in order to take into account the fish communities that actually inhabit the Reservoir.[69] For example, as Invensys noted in its 2003 Comments, the basis of the derivation of the NRWQC for cadmium includes data on salmonids (trout-type species that inhabit cold-water systems). However, salmonids are not native to, or present in, the Neponset Reservoir or, if there were any doubt, either Gudgeon Brook or Robinson Brook. The inclusion of data from certain sensitive species not present in the Reservoir or the brooks in the derivation of the NRWQC has likely resulted in numerical criteria that are overly conservative for those waters.

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[65] 314 C.M.R. 4.05(3)(b).

[66] MACTEC, Final Phase II Comprehensive Site Assessment Report, Release Tracking No. 4-11387, Neponset Reservoir (September 2003).

[67] MassGIS, MassDEP Hydrography Layer (1:25,000), available at http://www.mass.gov/mgis/hd.htm (last visited October 31, 2011).

[68] As noted in the 2003 Comments, Invensys would be eligible for a variance from water quality standards based on the facts of this case. See 2003 Comments, pp. 11-12.

[69] As discussed in further detail in Section IV.A, infra., EPA has failed to explain why it has focused Gudgeon Brook, rather than the Neponset Reservoir, as the receiving water. If Gudgeon Brook is the receiving water, the relevant biotic community would be that present in Gudgeon Brook.

Response IS #4: Intermittent streams can support a diversity of aquatic life and are critical to the health of downstream waters (see: http://cwt33.ecology.uga.edu/publications/3060.pdf).

To the extent Invensys believes it can make a case that the species expected to be present in headwater streams are not impacted by higher concentrations of metals, it needs to make this demonstration to MassDEP (see response IS #2 above on site specific criteria) and also document that additional species that would be expected to be present downstream will also be protected at these higher levels of metals. While differing species is a reason why site specific criteria may be pursued, EPA notes that salmonids are not the only species that tested sensitive to cadmium.

Comment IS #5: Another factor favoring the development of site-specific limits is the extraordinarily high cost of complying with limits derived from the NRWQC. In adopting SSWQC for copper in certain waters in the Commonwealth, MassDEP acknowledged that such criteria would protect water quality "without requiring unwarranted levels of investment by regulated entities" in order to comply with limits based on the federal criteria.[70] In this case, the estimated costs of achieving compliance with the proposed limits are wholly out of proportion to any environmental benefits that would result from compliance. Further, even if costly treatment technologies are implemented, it is not known whether such treatment technologies will be able to achieve compliance with the stringent limits proposed in the 2011 Draft Permit.

Invensys' consultant, Woodard & Curran, has evaluated a number of options that could be used to achieve compliance with the proposed limits.[71] These options include treatment of the discharge and/or rehabilitation or replacement of the drain lines to eliminate groundwater infiltration. All of the engineering options are costly – ranging from $6 million to $17 million in capital costs, plus $300,000 to $900,000 in annual operation and maintenance costs – *and none have even been proven to achieve the discharge limits* proposed in the 2011 Draft Permit.

Due to the extremely stringent permit limits and the potential high volumes of storm water flow that would be treated, treatment of wet weather discharge would be complex and costly. Due to the high flow rate, two million gallons of equalization capacity, provided by three aboveground cylindrical storage tanks, each with a diameter of 55 feet and height of 40 feet, would be required. The treatment would require multiple processes to treat the water for metals, pH, E. coli and VOCs, with costly treatment technologies including a combination of ultrafiltration, reverse osmosis and ion exchange being used to meet the low limits for metals. The wet weather treatment option is expected to cost approximately $17 million in capital costs and have annual operation and maintenance costs of approximately $900,000. While the treatment technologies are theoretically expected to achieve the discharge limits proposed in the 2011 Draft Permit, Woodard & Curran and vendors with whom they have consulted have been unable to identify any treatment systems which have been constructed and are operating that achieve the discharge limits proposed in the 2011 Draft Permit. Therefore additional assessment of the technologies is

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[70] See MassDEP's "Clean Water: Control Pollution from Point Sources – Surface Water Discharge Compliance" (October 2005), supra, at p. 35.

[71] A copy of Woodard & Curran's report, Engineering Analysis of Options to Achieve Compliance with Draft 2011 NPDES Permit, is attached hereto as Attachment 5.

necessary to determine whether achieving compliance with the proposed limits is even technologically feasible.

Even options involving rehabilitation or replacement of the drain lines, which assume only treatment of dry weather or sump discharge, would still be exceedingly costly. Such options include replacement of the storm water drainage systems or sliplining or pipe bursting the existing drainage systems. Such options would require the same non-conventional treatment technologies required for a wet weather treatment system to treat groundwater infiltration and groundwater inflow to the building sumps, and therefore are subject to the same concerns related to feasibility. Further, some sections of the drain line are likely inaccessible and therefore not candidates for rehabilitation. The estimated costs of such options range from $6 million to $13 million in capital costs and would require annual operation and maintenance costs ranging from approximately $280,000 to $500,000.

The extremely high costs of achieving compliance with the proposed numeric effluent limits – if compliance with such limits is even technologically feasible – far outweigh any environmental benefits that could be obtained. Indeed, the abundance of overwhelming scientific evidence indicating that the discharges do not appear to be causing toxicity in the receiving waters calls into question whether compliance with the proposed limits would result in any material benefits whatsoever. Especially in light of the extreme imbalance in the costs and benefits, to the extent that numeric limits are to be included in the permit, such limits should be based on site-specific criteria.

Response IS #5: The Clean Water Act requires that water quality based limits be established at levels necessary to attain water quality criteria and that cost is not to be factored into that analysis. *See Upper Blackstone Water Pollution Abatement Dist. v. EPA,* 690 F.3d 9, 33 (1st Cir. 2012); *In re City of Moscow*, 10 E.A.D. 135, 168 (EAB 2001); *In re City of Fayetteville, Ark.*, 2 E.A.D. 594, 600-601 (CJO 1988) (Section 301(b)(1)(C) "requires unequivocal compliance with applicable water quality standards, and does not make any exceptions for cost or technological feasibility."). Cost is a consideration relative to implementation of the permit limits and can be a factor in development of compliance schedules where a determination is made that immediate attainment of water quality based limits is not possible. See Response IS #16 regarding compliance schedules.

Cost could also be part of the basis for modifying receiving water use designations if MassDEP were to develop, and EPA approve, a Use Attainability Analysis consistent with federal regulations at 40 C.F.R. 131.10(g). However, MassDEP has not developed and submitted such a UAA to EPA for review.

Comment IS #6: The possibility of establishing SSWQC for the subject receiving waters has been discussed with the Agency and MassDEP previously. At least as early as October 2001, Invensys proposed in written comments on a pre-draft version of the renewal permit that it and the Agency work cooperatively to develop appropriate site-specific discharge limits. Invensys also submitted detailed comments objecting to the Agency's interpretation and application of the

NRWQC in the pre-draft permit.[72] Subsequently, in January 2002, the Agency met with Invensys and discussed additional data that could be collected to support the development of effluent limits that would take into account site-specific conditions. In that meeting, the Agency agreed to review a scope of work ("SOW") for additional data collection. Dr. Charles Menzie, one of Invensys' former consultants, later met with an Agency representative to discuss the most effective means for responding to the Agency's questions. A scope of work was submitted to Region 1 in April 2003, along with Invensys' comments on the 2003 Draft Permit. The SOW noted that the estimated schedule for completing the work outlined in the scope of work was contingent upon the Agency's and MassDEP's review and approval of the SOW. Unfortunately, the agencies never responded to the proposal.

Contemporaneously with the submittal of these Comments, Invensys is submitting a written request to MassDEP requesting the development of SSWQC for the Outfall 001 and Outfall 002 receiving waters and seeking an opportunity to meet with MassDEP to present a work plan containing a detailed technical approach for a SSWQC determination.[73] In light of the demonstrated need for the development of SSWQC in this case and the absence of environmental harm caused by the discharges, a decision by the Agency to proceed with the proposed limits would be arbitrary and capricious. Accordingly, Invensys requests that the proposed permit limits be set aside and that the Agency defer issuance of a revised draft until site-specific criteria can be developed and approved for the receiving waters.

Response IS #6: MassDEP is the appropriate agency for Invensys to work with on development and implementation of a scope of work that might result in a modification of MassDEPs water quality criteria. MassDEP will determine what, if any, coordination is necessary with EPA relative to the scope of work. Any subsequent water quality criteria modification is subject to EPA review and approval. For purposes of this present proceeding, EPA simply notes that no SSWQC have been developed for the relevant receiving waters and pollutants at issue here. Indeed, MassDEP's most recent promulgation of site-specific criteria (adopted December 6, 2013 but not yet approved by EPA) included many site-specific metals criteria, but none applicable to this site. *See* 310 C.M.R. 4.06, Table 28 (Site Specific Criteria), *available at* http://www.mass.gov/eea/docs/dep/water/laws/i-thru-z/tblfig.pdf.

In the meantime, this permit (which expired in 1996) is long overdue for reissuance, and the currently-approved Massachusetts Surface Water Quality Standards are clear as to which criteria apply.

Comment IS #7: The Agency asserts in the Fact Sheet that the limits it has established are necessary because the effluent has "the reasonable potential" to cause or contribute to exceedances of the NRWQC, based on the Agency's review of certain data.[74] The Agency is correct that 40 CFR §122.44, which it cites throughout the relevant pages of the Fact Sheet in support of the numeric limits in the 2011 Draft Permit, requires the imposition of effluent

[72] See October 30, 2001 Letter from Paul Ahearn to Janet Labonte, pp. 1-5.

[73] See Attachment 6 hereto.

[74] See Fact Sheet, pp. 10-15.

limitations when a "reasonable potential" for exceedances has been found.[75] However, the regulations require EPA to perform a "reasonable potential analysis" in making such a determination. Indeed, 40 CFR §122.44(d)(1)(ii) *requires* the permitting authority to "use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water."

EPA's recently revised NPDES Permit Writer's Manual (the "Manual") establishes that a proper reasonable potential analysis involves "us[ing] any available effluent and receiving water data as well as other information pertaining to the discharge and receiving water (e.g., type of history, industry, existing TBELs, compliance history, stream surveys), as the basis for a decision" of whether a water quality-based effluent limit is necessary.[76] Moreover, when the reasonable potential analysis is being conducted with data, which EPA clearly purports to have done here,[77] the Manual lays out at page 6-23 four steps that must be followed:

1. Determine the appropriate water quality model;
2. Determine the expected receiving water concentration under critical conditions;
3. Determine whether there is reasonable potential; and
4. Document the reasonable potential determination in the fact sheet.

Nothing in the Fact Sheet or record indicates that the Agency ever engaged in such an analysis. This lack of documentation is itself a failure to properly conduct the analysis, given the final required step. As the Manual mandates at page 6-30:

> As a final step, permit writers need to document the *details* of the reasonable potential analysis in the NPDES permit fact sheet. The permit writer should clearly identify the information and procedures used to determine the need for the WQBELs. The goal of that documentation is to provide the NPDES permit applicant and the public a transparent, reproducible, and defensible description of how each pollutant was evaluated, including the basis (i.e., reasonable potential analysis) for including or not including a WQBEL for any pollutant of concern.

(Emphasis added.) The Agency has plainly not satisfied this requirement in preparing the 2011 Draft Permit. As the Environmental Board has made clear, the lack of a documented reasonable potential analysis is "clear error and grounds for a remand."[78] The Agency's failure to properly

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[75] As discussed in further detail in Section III.A, supra, such effluent limitations need not be numeric effluent limitations.

[76] NPDES Permit Writer's Manual (EPA, September 2010), p. 6-23.

[77] See Fact Sheet, pp. 10-15, all referencing data as bases for the numeric limits included in the 2011 Draft Permit.

[78] In re Wash. Aqueduct Water Supply Sys., 11 E.A.D. 565, 585 n.22 (EAB 2004).

conduct a reasonable potential analysis fails to follow procedures required by law and is unlawful, arbitrary and capricious.[79]

Response IS #7: Water quality models are seldom available for analyzing the effects of a discharge on receiving water quality. In this case, no water quality model is available (nor has Invensys proposed to develop one during the many years this permit proceeding was pending) for Gudgeon Brook, Robinson Brook, or the Neponset Reservoir. Reasonable potential analyses are routinely conducted using dilution calculations and the guidance (NPDES Permit Writers' Manual) recommends conducting such analyses under worst case conditions.

For each pollutant of concern, measured discharge values were compared to ambient criteria values to determine if the discharge might cause or contribute to an exceedance of water quality criteria. This is an appropriate comparison considering that there is no effective dilution at either discharge location. This same reasonable potential analysis was used to conclude that limits were not necessary for certain pollutants found in the discharge(s). In other words, if the measured discharge values (in Attachments A and C of the Fact Sheet) exceeded criteria, EPA found a reasonable potential, and where measured discharge values did not exceed criteria, EPA did not find a reasonable potential (e.g., arsenic, chromium, and nickel).

As part of this analysis, EPA evaluated all available data (including post-drain-cleanout data), including the variability within the data, compared it to the applicable instream criteria, and documented the analyses in the Fact Sheet. The Fact Sheet at pp. 9-15 clearly identifies the information used in the analyses and the procedure for determining reasonable potential.

Finally, even if the discharge were considered to be to the Neponset Reservoir, the limits would be the same since the evidence of water column toxicity, sediment toxicity, and high levels of metals measured at the mouth of Gudgeon Brook (see Response IS #3) indicate that the water in the reservoir is not able to effectively dilute the discharge.

Comment IS #8: Similarly, if EPA continues to insist upon the inclusion in the permit of numeric limits based on the NRWQC, it must revise those limits based on a hardness calculation that is reasonable given the actual data available and the Agency's past practice regarding hardness values.

In the 2011 Draft Permit, EPA uses a water hardness value of 50 mg $CaCO_3$/l as the basis for deriving the numeric criteria for the metals for which the NRWQC are hardness-dependent (i.e., copper, lead, zinc, and cadmium). EPA asserts that, for Gudgeon Brook, "[t]he hardness value of 50 mg/l was chosen as a reasonably protective value based on a review of the past three years

[79] The Agency's failure is particularly striking with respect to Outfall 001. As discussed in further detail in Section IV.A, infra., the Agency has failed to clearly identify, let alone characterize, the appropriate receiving water for Outfall 001. To the extent the Agency purports to have considered the reasonable potential of the Outfall 001 discharge to cause or contribute to a violation of water quality standards, such consideration appears to be based on Gudgeon Brook as the receiving water. However, as explained in Section IV.A , prior permits covering Outfall 001 listed Neponset Reservoir as the receiving water. The Agency has failed to provide any explanation for focusing on Gudgeon Brook in the 2011 Draft Permit. Until it provides an adequate explanation for this change, any analysis of potential to exceed water quality standards should be based on the Neponset Reservoir as the receiving water.

of data submitted by the permittee."[80] For Robinson Brook, "the hardness was assumed to be similar to Gudgeon Brook" due to a lack of hardness data.[81]

In actuality, EPA's chosen hardness value is unreasonably conservative, and it artificially lowers the numeric water quality-based limits contained in the permit. The value the Agency has chosen to use, 50 mg/l, is *lower* than the lowest observed hardness recorded in the relevant Outfall 001 effluent samples. This is clear even from the Fact Sheet itself, in which EPA states: "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".[82] When effluent samples collected through the second quarter of 2011 are also considered, that range is actually 52.4 mg/l to *86* mg/l.[83] Moreover, the fact that the effluent periodically reflected a hardness value in the low 50 mg/l range does not mean that such values represent the norm or average. Indeed, the average annual hardness of the effluent ranged in 2006-2011 from 61 to 86 mg/l, producing an overall average of 70 mg/l.[84] When the data is limited to the last three years – which EPA's current version of the Fact Sheet indicates is the appropriate method[85] – the overall average is 78 mg/l.[86] Thus, EPA's hardness value of 50 mg/l does not reflect typical hardness levels in the Outfall 001 discharge and is therefore extremely – and excessively – conservative.[87] This fact is supported by other Region 1 permits, in which EPA has used a hardness value equaling the *average* recorded hardness of the effluent[88] – not a value lower than the lowest value – in deriving effluent limitations.

This argument is important because the use of hardness levels more representative of the levels actually observed in the Outfall 001 effluent would result in less stringent (i.e., higher) numeric water quality-based limitations for copper, lead, zinc and cadmium. Specifically, if the average

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[80] Fact Sheet, p. 10.

[81] Id. at p. 13.

[82] Id. at p. 10 (emphasis added), citing Attachment A.2 (providing hardness data collected for Outfall 001 for WET tests).

[83] See Attachment 7 hereto, providing more recent hardness data for Outfall 001.

[84] See id.

[85] See Fact Sheet, p. 10.

[86] See Attachment 7 hereto.

[87] The historical hardness concentrations may have been lower (e.g., for 1992 and 1993), but those levels – from before the drain line cleanout – are not representative of the current reality. EPA apparently concedes this, focusing its own analysis only on data from 2006 and after.

[88] E.g., EPA's 2006 Responses to Comments on the Wyman Gordon Permit, supra, at p. 7 ("EPA determined that the hardness factor to be used in setting an effluent limit for hardness-dependent metals would be the average hardness of the effluent . . . reported in the WET reports," even where the receiving water "tends to be dominated by the facility's effluent."); see also NPDES Permit No. MA0032212 issued to Pine Brook Country Club in Weston, available at http://www.epa.gov/region1/npdes/permits/2010/finalma0032212permit.pdf (last visited October 31, 2011), Fact Sheet, p. 8 (using the average effluent and ambient hardness data from WET tests from June 2007 to September 2008).

hardness, using a value close to the minimum concentration expected provides for a greater level of assurance that criteria will be met under all conditions.

As documented in the Fact Sheet, hardness values in the Gudgeon Brook discharge ranged from 52.4 - 83.2 mg/l from 4th quarter 2006 through third quarter 2010. The value of 50 is a reasonably conservative value given this data set, as well as an expanded data set. For example, the value immediately before the period cited (i.e., Q3 2006) was 52.5 mg/l, and there were other values within the cited period that were only slightly higher (e.g., 55 mg/l in Q1 2007). If the full data set is reviewed, even focusing on post-drain-cleanout data, there is a value recorded *well below* 50 mg/l: 26 mg/l in Q2 2005. Additionally, as a general statistical matter, it is unlikely that a sampling of data four times per year will completely limit the range of actual values. A review of the more recent data from January, 2012 through July, 2013 indicates a hardness range of 43 - 73 mg/l.

Given these hardness values, the documented concerns with the accumulation of toxic metals in the Neponset Reservoir sediments, and the need to ensure that discharge limits will attain water quality standards under all receiving water conditions, the use of a conservative hardness value is appropriate and does not result in unreasonably conservative effluent limits.

Regarding other EPA-issued permits that used average effluent hardness data, as indicated in Response IS #1, each NPDES permit is a case-specific adjudication based on the particular facts and circumstance of the facility's discharge, receiving water, and other relevant site-specific factors. Permit writers are required to use their judgment in establishing reasonable worst case conditions in determining the need for water quality based limits, and in establishing water quality based limits. EPA is not required to justify, in a permit proceeding for Facility A, why it did or did not impose a certain requirement on Facility B. Each of the facilities cited incorporate a variety of other conservative assumptions and none of these facilities discharge immediately upstream of a reservoir with sediments already contaminated with heavy metals.

Given the lack of hardness data for Robinson Brook and the proximity of the two water bodies, it is a reasonable assumption that the hardness levels will be similar.

Comment IS #9: Outfall 001 has been subject to a NPDES permit since 1974, and it has discharged to the same place throughout that entire period. In all prior iterations of the permit[91] Outfall 001 is described as discharging "to receiving waters named Neponset Reservoir."[92] None of the five prior versions mentioned "Gudgeon Brook" in the description of the receiving waters into which Outfall 001 discharges. Indeed, even the current Fact Sheet illustrates that the prior iterations of this permit covered a discharge to the Reservoir: "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*."[93]

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[91] Many of these prior versions are not included in the administrative record.

[92] 1974 Permit (October 8, 1974), p. 1/1 (Attachment 8 hereto); 1984 Permit (June 29, 1984), p. 1/7 (Attachment 9 hereto); 1987 Permit (November 16, 1987) (Attachment 10 hereto); 1991 Permit (September 30, 1991), p. 1/7.

[93] Fact Sheet, p. 3 (emphasis added).

effluent hardness data from the last three years of sampling is used,[89] the average effluent hardness is 78 mg/l, the application of which would alter the numeric limits as follows:

Metal	Average Monthly	Maximum Daily
Copper	5.2 → 7.5 ug/l	7.3 → 11.1 ug/l
Lead	1.3 → 2.3 ug/l	33.8 → 59.5 ug/l
Zinc	66.5 → 97.1 ug/l	66.5 → 97.1 ug/l
Cadmium	0.16 → 0.23 ug/l	1.05 → 1.66 ug/l

It is unreasonable and scientifically unsupportable for EPA to impose numeric water quality-based effluent limits on the Outfall 001 discharge based on a hardness value that is inconsistent with, and far lower than, recent data collected from that discharge;[90] and it is unjustifiable for EPA to assume for Outfall 002 the same excessively conservative hardness it has unreasonably applied to Outfall 001. Accordingly, Invensys requests that, to the extent the final permit contains numeric limits based on the NRWQC, such limits be calculated based on a hardness value of 78 mg/l.

Response IS #8: The use of conservative, or worst case, assumptions is an appropriate means for ensuring that calculated NPDES permit limits ensure attainment of water quality standards under all receiving water conditions. Numeric water quality criteria contain a duration and frequency component in addition to a magnitude component. For example, the chronic metals criteria are not to be exceeded for more than a four day average once every three years and the acute metals criteria are not to be exceeded for more than a one hour average more than once every three years. Establishing limits using assumptions of average conditions will not ensure that criteria are attained under all receiving water conditions. As indicated in the NPDES Permit Writers' Manual (pg. 6-16), "In the majority of situations, and in all of the examples provided in this manual, permit writers will use a steady-state water quality model to assess the impact of a discharge on its receiving water. Steady-state means that the model projects the impact of the effluent on the receiving water under a single or *steady* set of design conditions. Because the model is run under a single set of conditions, those conditions generally are set at *critical conditions* for protection of receiving water quality". Additionally, relative to characterizing effluent concentrations, the NPDES Permit Writers Manual (pg. 6-17) indicates that "[p]ermit writers can determine the critical effluent concentration of the pollutant of concern (designated Cd) by gathering effluent data representative of the discharge. To 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 actually include the maximum potential effluent concentration of the pollutant of concern". In the case of

[89] See Fact Sheet, p. 10 (indicating that past three years of sampling data are relevant.

[90] It is also unreasonable for EPA to use a hardness value that is lower than the equivalent values applied by EPA in other permits.

In the Fact Sheet for the 1987 Permit, the Agency made clear that it understood Outfall 001 to be discharging to the Neponset Reservoir by not only expressly naming the receiving water "Neponset Reservoir"[94] and noting that the prior permit was "to discharge treated process wastewater and noncontact cooling water in to the Neponset Reservoir"[95] but also describing the substantial analyses of *the Reservoir* it had undertaken to determine what needed to be included in the NPDES permit for Outfall 001.[96] In finalizing the permit in November 1987, the Agency again noted that NPDES permit MA0004120 was "developed for the Foxboro Corporation for the discharge of noncontact cooling water and treated process wastewater to the *Neponset Reservoir*"[97] and reiterated that the purpose of the permit was to "protect the water quality standards in the *reservoir*" by "minimiz[ing] the discharge of pollutants to the *reservoir*."[98] Likewise, in the Fact Sheet for the 1991 Permit – which the present draft is to replace – the Agency listed the receiving water as "Neponset Reservoir"[99] and described the uses of the reservoir ("The reservoir is used for primary and secondary recreation, as well as warm water fishery, and is in close proximity to public and private drinking water supply wells"[100]). In additional documents contained in the record, EPA and MassDEP have periodically reiterated that they understand the permit being renewed to relates to the Reservoir.[101,102]
Despite its extensive history of treating Outfall 001 as discharging to the Neponset Reservoir, EPA has in the 2011 Draft Permit shifted its focus to "Gudgeon Brook/Neponset Reservoir" with

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[94] 1987 Permit Fact Sheet, supra, at p. 1 (Attachment 3 hereto).

[95] Id. at p. 2.

[96] Id. at p. 2 ("In June of 1986, the Massachusetts DEQE performed a water quality survey to assess the quality of the *Neponset Reservoir* and *its* assimilative capacity for the discharge from the Foxboro Company.").

[97] EPA's Response to Comments Received During Public Notice on the June 30, 1987 Draft Permit (November 17, 1987), p. 1 (emphasis added) (Attachment 11 hereto).

[98] Id. at pp. 1-2 (emphasis added).

[99] 1991 Permit Fact Sheet (September 30, 1991), p. 1.

[100] Id. at p. 3.

[101] E.g., July 29, 1997 Letter from EPA to I. Cook of the Neponset River Watershed Association (treating this permit as relating to the Neponset Watershed); Public Notice on 1997 Draft Permit and additional draft permits (June 22, 1997) ("Receiving Water: All to Neponset River [sic]"); NPDES Permit Rating Work Sheet (August 15, 2000) ("Receiving Water: Neponset Reservoir"). See also MassDEP approval of plan to continue operation of dry-weather treatment system to "remove volatile organic compounds (VOC's) from groundwater and storm water prior to its discharge to the Neponset Reservoir" (April 8, 1997) (Attachment 12 hereto); EPA/MassDEP approval of RAM Plan to cleanout the Outfall 001 drain lines (June 18, 1997) ("The RAM Plan proposes to eliminate or minimize any discharge of contaminants…to the Neponset Reservoir.").

[102] It is worth noting that the Town of Foxborough has a municipal storm water outfall that discharges into the same location. The company noted this fact in its first application for a NPDES permit to cover Outfall 001 and reiterated it in 2003, and EPA concedes it in the current Fact Sheet. Like Outfall 001, Foxborough's discharge point is covered under a NPDES permit and, like all the prior iterations of the present permit, that NPDES permit that also lists the Neponset Reservoir – *not* Gudgeon Brook – as the receiving water.

no explanation for why it is doing so. This is a violation of the basic tenant of administrative law that, because "[t]he law demands a certain orderliness," an administrative agency that decides "to depart significantly from its own precedent . . . must confront the issue squarely and explain why the departure is reasonable."[103] It is impermissible for EPA to "depart *sub silentio* from its usual rules of decision to reach a different, unexplained result in a single case . . . . An inadequately explained departure solely for the purposes of a particular case, or the creation of conflicting lines of precedent governing the identical situation, is not to be tolerated."[104]

EPA not only fails to provide an explanation for its change; it also seems unclear itself about the identity of the receiving water. In a number of respects the Fact Sheet suggests that Outfall 001 should be considered as discharging to the Reservoir. For instance, the Fact Sheet discusses the Reservoir and its characteristics and classification in the "Receiving Waters" section,[105] and it focuses entirely on the effect that the Outfall 001 discharge allegedly has on the ability of the Neponset Reservoir to support various uses, offering no discussion whatsoever of the effect of

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[103] Davila-Bardales v. INS, 27 F.3d 1, 5 (1st Cir. 1994) (also holding that remand is appropriate where an agency has "blazed a new trail that veers significantly from its own prior precedent" but "has failed to explain why it is changing directions (or even to acknowledge in the later decision that it is detouring from a beaten path)"); see also, e.g., Atchison, Topeka & Santa Fe Ry. Co. v. Wichita Bd. of Trade, 412 U.S. 800, 808 (1973) (an agency has a "duty to explain its departure from prior norms. . . . Whatever the ground for the departure . . . it must be clearly set forth so that the reviewing court may understand the basis of the agency's action and so may judge the consistency of that action with the agency's mandate."); Secretary of Agriculture v. United States, 347 U.S. 645, 653-54 (1954) (an agency must "adequately explaine[] its departure from prior norms . . . with the simplicity and clearness through which a halting impression ripens into reasonable certitude"; it cannot leave others to "spell out, to argue, to choose between conflicting inferences. Something more precise is requisite in the quasi-jurisdictional findings of an administrative agency.") (citations omitted); Shaws Supermarkets Inc. v. NLRB, 884 F.2d 34, 36 (1st Cir. 1989) ("The problem in this case for the Board, however, is that (a) it is not writing on a blank slate, but has written on the subject often in the past; (b) the Board has not said that it wishes to depart from its several prior cases on the subject; yet (c) . . . the prior cases dictate a result [contrary to the Board's decision in the instant case]. The law that governs an agency's significant departure from its own prior precedent is clear. The agency cannot do so without explicitly recognizing that it is doing so and explaining why."); Massachusetts Dep't of Ed. v. United States Dep't of Ed., 837 F.2d 536, 544-45 (1st Cir. 1988) (once an agency "builds a body of precedent . . . it cannot thereafter lightly disregard" that precedent, but must "follow, distinguish, or overrule" it); National Black Media Coalition v. FCC, 775 F.2d 342, 355 (D.C. Cir. 1985) ("it is also a clear tenant of administrative law that if the agency wishes to depart from its consistent precedent it must provide a principled explanation for its change of direction. . . . We have steadfastly held that an agency changing its course must apply a reasoned analysis indicating that prior policies and standards are being deliberately changed, not casually ignored.") (citations omitted); Baltimore Gas & Electric Co. v. Heintz, 760 F.2d 1408, 1418 (4th Cir. 1985) ("It is a well-settled proposition of administrative law that when an agency deviates from established precedent, it must provide a reasoned explanation for its failure to follow its own precedents . . . when an agency treats two similar transactions differently, an explanation for the agency's actions must be forthcoming.") (citations omitted); Democratic Union Organizing Committee v. NLRB, 603 F.2d 862, 871-72 (D.C. Cir. 1978) (when an agency "fails to distinguish contradictory decisions rendered in similar cases," it forfeits "the deference we would otherwise show to its very considerable expertise" in the matters of its competence); Greyhound Corp. v. ICC, 551 F.2d 414, 416 (D.C. Cir. 1977) (per curium) ("This court emphatically requires that administrative agencies adhere to their own precedents or explain any deviations from them."); K. Davis, Administrative Law Treatise § 11.5 at 206 (1994) ("The dominant law clearly is that an agency must either follow its own precedents or explain why it departs from them.").

[104] NLRB v. International Union of Operating Engineers, Local 925, 460 F.2d 589, 604 (5th Cir. 1972) (citations omitted).

[105] Fact Sheet, p. 2.

the discharge on the biology of Gudgeon Brook or the uses attributed to Gudgeon Brook as a Class B water.[106] However, for purposes of dilution, EPA assumes that Gudgeon Brook alone is the receiving water into which Outfall 001 discharges.[107] The Agency's shift between focusing on Gudgeon Brook and on the Reservoir is inconsistent and biases the permit towards extremely stringent limits by maximizing the uses and species at issue while at the same time minimizing dilution. The Agency must focus on the Reservoir or Gudgeon Brook, but cannot have it both ways. The shift is also confusing, and EPA has ignored Invensys' requests for clarification on this point.[108]

Furthermore, EPA's lack of clarity regarding what the receiving water actually is demonstrates yet again that EPA has not properly derived the numeric water quality-based effluent limitations it seeks to impose for Outfall 001. As the Agency's own guidance establishes, the proper derivation of such limits requires, among other things, "an adequate receiving water exposure assessment".[109] The Agency cautions against implementing numeric criteria when such an assessment has not been conducted because doing so "may result in the imposition of inappropriate numeric limitations on a discharge" including "the imposition of numeric water quality criteria as end-of-pipe limitations without properly accounting for receiving water assimilation of the pollutant" which "could lead to overly stringent permit requirements, and excessive and expensive controls on storm water discharges, not necessary to provide for attainment of WQS."[110] Because EPA has failed to clearly establish the receiving water at issue, let alone conduct a receiving water exposure assessment, it cannot properly impose the numeric water quality-based effluent limitations for Outfall 001 that are included in the 2011 Draft Permit.

Response IS #9: Gudgeon Brook is the correct receiving water for the outfall 001 discharge and is consistent with the information, including maps, provided to EPA by Invensys on August 16, 2002 in response to a section 308 information request and on March 15, 2002 in a letter to EPA relating to the information request. Additionally, EPA staff have verified the discharge location during site visits to the facility. Previous permits were incorrect to the extent that they identified the Neponset Reservoir as the immediate receiving water. Furthermore, this comment provides no basis for disputing the determination that the receiving water for outfall 001 is Gudgeon Brook besides the fact that previous permits identified it otherwise. In other words, Invensys has not provided any photographs, maps, or other evidence that could lead to the conclusion that

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[106] See Fact Sheet, p. 2.

[107] See Fact Sheet, p. 9 ("The available dilution for the facility's discharge[] to Gudgeon Brook (Outfall 001)...was determined to be zero. [This] determination[was] based on the fact that [the] discharge location[is] at the headwaters of [a] small stream[] and so ha[s] little or no flow upstream of the discharge location.").

[108] 2003 Comments, Table 1, p. 1, No. 2 ("No justification or explanation as to exactly which water body (Gudgeon Brook or Neponset Reservoir) is the designated 'receiving water' for the Outfall 001 discharge."); see also 2003 Comments, p. 11 ("EPA nonetheless calculates the draft permit limits as if Gudgeon Brook is the receiving water, making no allowance for any dilution potential that exists in the Reservoir.").

[109] Interim Approach, p. 4.

[110] Id. at p. 4.

outfall 001 in fact discharges directly to the Neponset Reservoir. Rather, it simply rests on the fact that previous permits were erroneous and objects to the correction of a past error. Water quality criteria are required to be met both in the immediate receiving water (Gudgeon Brook) and in the downstream receiving water (Neponset Reservoir).

Comment IS #10: As Invensys noted in 2003, Robinson Brook is "is an intermittent stream, with limited habitat value and no potential for recreational, agricultural or industrial uses."[111] This characterization is confirmed by Massachusetts law,[112] under which the portion of Robinson Brook presently at issue[113] is understood to be an intermittent stream because it is listed as intermittent by MassGIS[114] and has a watershed of only 0.18 square mile.[115] Moreover, during the period August 2001 to March 2002 Invensys monitored the flow in Robinson Brook, making frequent observations regarding its contents.[116] On most days – including many stretches of four or more consecutive days[117] – little to no flow was observed in the Brook at the monitoring point, buttressing the conclusion that the relevant portion of the stream is intermittent.[118]

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[111] 2003 Comments, p. 11. The comment continued: "The first actual water body that might support any type of biotic community is located a significant distance away and EPA has identified no evidence suggesting that this community is actually affected by Invensys' discharge."

[112] 310 CMR 10.58(2)(a)(1)(c) ("A stream shown as intermittent or not shown on the current USGS map or more recent map provided by the Department, that has a watershed size of less than one square mile, is intermittent").

[113] The appropriate discussion for present purposes is whether the segment of Robinson Brook located in the vicinity of the plant is intermittent, not whether the Brook is intermittent along its entire length. 310 CMR 10.58(2)(a)(1):

> Intermittent streams are not rivers . . . because surface water does not flow within them throughout the year. When surface water is not flowing within an intermittent stream, it may remain in isolated pools or it may be absent. When surface water is present in contiguous and connected pool/riffle systems, it shall be determined to be flowing. Rivers begin at the point an intermittent stream becomes perennial or at the point a perennial stream flows from a spring, pond, or lake . . . Upstream of the first point of perennial flow, a stream is normally intermittent.

[114] MassGIS, MassDEP Hydrography Layer (1:25,000), available at http://www.mass.gov/mgis/hd.htm (last visited October 31, 2011). This information, compiled in March 2010, is the "more recent map provided by the Department" than the current United States Geological Service ("USGS") map (available at http://viewer.nationalmap.gov/viewer/), which is from 1987. See also MassDEP Priority Resource (21E) Map in the MassGIS (2011), available at http://maps.massgis.state.ma.us/21E/viewer.htm (last visited October 31, 2011).

[115] See Attachment 13 hereto, providing USGS StreamStats Output on the Drainage Basin Characteristics for the Subject Portion of Robinson Brook.

[116] A table summarizing those observations is attached hereto as Attachment 14.

[117] See 310 CMR 10.58(2)(a)(1)(d) (establishing that, even where the requirements of 310 CMR 10.58(2)(a)(1)(c) are not satisfied – which they are in this case – "the issuing authority shall find that any stream is intermittent based upon a documented field observation that the stream is not flowing...at least once per day, over four days in any consecutive 12 month period").

[118] As is apparent from Attachment 14, Robinson Brook was observed to be dry or with no observable flow for 33 consecutive days in August-September 2001, 21 consecutive days in September-October 2001, 14 additional consecutive days in October 2001, 13 consecutive days in November 2001, 11 additional consecutive days in November-December 2001, 20 consecutive days in February 2002, and at least 5 consecutive days in March 2002.

Notably, the Agency has neither acknowledged nor responded to Invensys' arguments that Robinson Brook is intermittent. The current Fact Sheet characterizes Robinson Brook by stating that it "is located at the headwaters of the Taunton River Basin, and it is a tributary to the Rumford River . . . is not specifically identified in the tables or maps in the Massachusetts Water Quality Standards . . . [and in the segment receiving the Invensys discharge] is also not identified in the 2008 Integrated List."[119] These observations are consistent with Robinson Brook being intermittent, as established under 310 CMR 10.58(2)(a)(1)(c), which makes EPA's failure to address this issue even more glaring.

EPA's own guidance (both current and pending) establishes that it may not exercise Clean Water Act jurisdiction over tributaries "whose flow is 'coming and going at intervals . . . broken, fitful,"[120] "ephemeral tributaries which flow only in response to precipitation,"[121] or "intermittent streams which do not typically flow year-round or have continuous flow at least seasonally,"[122] without first conducting a "fact-specific analysis"[123] well documented in the record[124]

It is true that these observations were made during a declared drought. However, these data are only used to confirm data that already establish that Robinson Brook is intermittent. Moreover, the data are overwhelming – thirty-three consecutive days with no flow is fairly conclusive.

[119] Fact Sheet, p. 2.

[120] EPA Guidance "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States" (December 2, 2008) ("2008 CWA Jurisdiction Guidance"), p. 7, quoting Scalia decision in Rapanos, 547 U.S. 715, 732-33, n.5 (2006); see also EPA's "Draft Guidance on Identifying Waters Protected by the Clean Water Act" (May 2, 2011), p. 27.

[121] Id.

[122] Id.

[123] 2008 CWA Jurisdiction Guidance, p. 1 ("The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water: Non-navigable tributaries that are not relatively permanent . . . . The agencies will apply the significant nexus standard as follows: A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters[;] Significant nexus includes consideration of hydrologic and ecologic factors"); see also pp. 8 (listing hydrologic and ecologic factors to be considered in significant nexus analysis) & 10-11 (describing what a significant nexus analysis should include).

[124] Id. at p. 11 ("EPA regions shall document in the administrative record the available information regarding whether a tributary and its adjacent wetlands have a significant nexus with a traditional navigable water, including the physical indicators of flow in a particular case and available information regarding the functions of the tributary and any adjacent wetlands. The agencies will explain their basis for concluding whether or not the tributary and its adjacent wetlands, when considered together, have a more than speculative or insubstantial effect on the chemical, physical, and biological integrity of a traditional navigable water."); see also pp. 12-13:

> EPA regions will ensure that the information in the record adequately supports any jurisdictional determination. The record shall, to the maximum extent practicable, explain the rationale for the determination, disclose the data and information relied upon, and, if applicable, explain what data or information received greater or lesser weight, and what professional judgment or assumptions were used in reaching the determination . . . EPA regions will also demonstrate and document in the record that a particular water either fits within a class . . . not requiring a significant nexus determination, or that the water has a significant nexus with a traditional navigable water. As a

demonstrating that there is a "significant nexus with a traditional navigable water."[125] The Agency has failed to provide *any* documentation of its jurisdictional determination for Robinson Brook. There is nothing in the record to indicate that EPA has so much as considered – let alone conducted a fact-specific analysis to determine – whether Robinson Brook has the capacity to "significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable'"[126] or whether jurisdiction under the Clean Water Act is appropriate at all. This dearth of record support is contrary to EPA's own guidance that it must "ensure that the information in the record adequately supports any jurisdictional determination…explain the rationale for the determination [and] disclose the data and information relied upon."[127]

Thus, EPA has failed to properly document its jurisdictional determination for Robinson Brook, as required by Agency policy. Absent such a determination, it has no authority under the CWA to require a permit for the discharge to Robinson Brook.

Response IS #10: The Robinson Brook stream channel is clearly shown on the USGS topographical maps (Mansfield Quadrangle) as originating at the Invensys System site and flowing to the Rumford River. The Rumford River ultimately flows to the Atlantic Ocean via the Taunton River and Mount Hope Bay. The fact that the headwaters of Robinson Brook, like the headwaters of most streams, flows intermittently does not determine whether or not it is a water body of the United States and therefore subject to the Clean Water Act and the State Water Quality Standards. Intermittent streams support a diversity of aquatic life and are critical to the health of downstream waters (see: http://cwt33.ecology.uga.edu/publications/3060.pdf) (see also Response IS4). EPA also notes that the permittee has previously applied for, and received coverage for discharges to Robinson Brook under EPAs Multi-Sector General Permit. Further, the fact that the state of Massachusetts has classified Robinson Brook as intermittent for purposes of a separate regulatory program is not relevant to NPDES permitting requirements.

> matter of policy . . . EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.
>
> All pertinent documentation and analysis for a given jurisdictional determination . . . shall be adequately reflected in the record and clearly demonstrate the basis for asserting or declining CWA jurisdiction. Maps, aerial photography, soil surveys, watershed studies, local development plans, literature citations, and references from studies pertinent to the parameters being reviewed are examples of the information that will assist staff in completing accurate jurisdictional determinations.

[125] Id. at pp. 7 ("'[R]elatively permanent' waters do not include ephemeral tributaries which flow only in response to precipitation and intermittent streams which do not typically flow year-round or have continuous flow at least seasonally. However, CWA jurisdiction over these waters will be evaluated under the significant nexus standard . . .") & 12 ("The agencies will also decide CWA jurisdiction over other non-navigable tributaries . . . based on a fact-specific analysis to determine whether they have a significant nexus with traditional navigable waters.")

[126] Rapanos, 547 U.S. at 780; see also 2008 CWA Jurisdiction Guidance, p. 3.

[127] 2008 CWA Jurisdiction Guidance, p. 12.

As it applies to non-navigable tributaries and their adjacent wetlands, the term "waters of the United States" was construed by the Supreme Court in *Rapanos v. United States*, 547 U.S. 715 (2006). Accordingly, EPA has evaluated the jurisdictional status of the streams on the Site in light of the *Rapanos* decision.

In *Rapanos* no single opinion commanded a majority of the Court. Rather, *Rapanos* set forth two distinct standards for evaluating CWA jurisdiction over wetlands adjacent to non-navigable tributaries: the plurality standard (authored by Justice Scalia) and the standard in Justice Kennedy's concurring opinion. Justice Scalia's four-justice plurality opinion interpreted the term "waters of the United States" as encompassing (1) "relatively permanent, standing or continuously flowing bodies of water" connected to traditional navigable waters, 547 U.S. at 739, and (2) wetlands with a continuous surface connection to a relatively permanent water. *Id.* at 742. Justice Kennedy's concurrence interpreted "waters of the United States" to encompass wetlands and other waters that "possess a 'significant nexus' to waters that are or were navigable in fact or that could reasonably be so made." *Id.* at 759. According to Justice Kennedy, a significant nexus exists where "the wetlands either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'" *Id.* at 779-80.

Because there was no majority opinion in *Rapanos* interpreting the scope of "waters of the United States," several courts have addressed whether CWA jurisdiction must be established under Justice Scalia's plurality standard or Justice Kennedy's concurrence standard. Massachusetts is in the First Circuit, which is one of several circuits to hold that either standard can be applied. *See United States v. Johnson*, 467 F.3d 53, 66 (1st Cir. 2006) (federal government can establish jurisdiction over waters that "meet either the plurality's or Justice Kennedy's standard as laid out in *Rapanos*"); *see also United States v. Bailey*, 571 F.3d 791, 799 (8th Cir. 2009) (same). The First Circuit's approach is consistent with the position taken by DOJ, EPA and the Corps. [128]

EPA's Office of Research and Development (ORD) has recently (January 2015) finalized the science report, *Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence (*Connectivity Report*)*. The purpose of the Connectivity Report was to summarize the current scientific understanding about the connectivity and mechanisms by which streams and wetlands, singly or in aggregate, affect the physical, chemical, and biological integrity of downstream waters. In completing the report, EPA conducted a thorough review of the literature regarding the effects that streams, nontidal wetlands, and open waters have on larger downstream waters such as rivers, lakes, estuaries, and oceans. One of the main goals of the Report was to determine what are the physical, chemical, and biological connections to, and effects of, ephemeral, intermittent, and perennial streams on downstream waters, including streams such as Robinson Brook which, for some distance from its source, is intermittent. The Report concluded that the scientific literature unequivocally

[128] U.S. Army Corps of Engineers, Department of the Army, Department of Defense; and EPA recently published a Rule that defines jurisdiction for streams and wetlands under *Rapanos* (see 33 CFR Part 328; 40 CFR Part 230), **"Definition of Waters of the United States"**. That Rule will become effective 60 days after its publication in the Federal Register.

demonstrates that streams, regardless of their size or frequency of flow, are connected to downstream waters and strongly influence their function.

Page 3-2 of Report states, with respect to the importance of headwater streams: "First-order streams typically are most abundant, although individually they have the smallest drainage areas and shortest average stream lengths (Horton, 1945; Schumm, 1956; Ijjasz-Vasquez et al., 1993). When considering drainage area and stream length of headwater streams together, however, they can represent most of the river watershed and network. Thus, despite their small individual size, these headwater streams cumulatively can have a large influence on downstream waters. As stated in the Connectivity Report Conclusions, at pages 6-1 and 6-2,

> The scientific literature unequivocally demonstrates that streams, individually or cumulatively, exert a strong influence on the integrity of downstream waters. All tributary streams, including perennial, intermittent, and ephemeral streams, are physically, chemically, and biologically connected to downstream rivers via channels and associated alluvial deposits where water and other materials are concentrated, mixed, transformed, and transported. Streams are the dominant source of water in most rivers, and the majority of tributaries are perennial, intermittent, or ephemeral headwater streams. Headwater streams also convey water into local storage compartments such as ponds, shallow aquifers, or stream banks, and into regional and alluvial aquifers; these local storage compartments are important sources of water for maintaining baseflow in rivers. In addition to water, streams transport sediment, wood, organic matter, nutrients, chemical contaminants, and many of the organisms found in rivers. The literature provides robust evidence that streams are biologically connected to downstream waters by the dispersal and migration of aquatic and semiaquatic organisms, including fish, amphibians, plants, microorganisms, and invertebrates, that use both upstream and downstream habitats during one or more stages of their life cycles, or provide food resources to downstream communities. In addition to material transport and biological connectivity, ephemeral, intermittent, and perennial flows influence fundamental biogeochemical processes by connecting channels and shallow ground water with other landscape elements. Physical, chemical, and biological connections between streams and downstream waters interact via integrative processes such as nutrient spiraling, in which stream communities assimilate and chemically transform large quantities of nitrogen and other nutrients that otherwise would be transported directly downstream, increasing nutrient loads and associated impairments due to excess nutrients in downstream waters.

The information reflected in the Connectivity Report clearly demonstrates that headwaters streams such as Robinson Brook, especially when considered in the aggregate with other similarly situated streams in the region, as authorized under the Justice Kennedy Standard, have a significant physical, chemical and biological effect on downstream navigable waters. The Connectivity Report informs the EPA's and U.S. Army Corps of Engineers' recently published Clean Water Rule, which, when it becomes effective, will confirm the jurisdictional status of headwaters streams such as Robinson Brook, provided that they meet the definition of tributary in the Rule.[129] The Connectivity Report has been subject to scientific peer review and is

[129] Robinson Brook meets the definition of tributary in the Clean Water Rule at 33 CFR §328.3(c)(3); 40 CFR §230.3(s)(3)(iii), because it contributes flow to waters used in interstate commerce, such as the Taunton River, and

scientific record support for a determination that Robinson Brook satisfies the "significant nexus" test established under Justice Kennedy's concurring opinion in *Rapanos*.

Robinson Brook performs several of the important functions of headwaters streams described in the Connectivity Report, and its performance of these important functions demonstrates its significant nexus to downstream rivers, including the Rumford and Taunton Rivers, especially when considered in the aggregate with other similarly situated streams in the region. Specifically, observations in the field confirm that Robinson Brook, along with other headwaters streams in the area, conveys groundwater and overland surface flows to downstream waters, helping to maintain baseflows in downstream waters during low flow periods, and also helping to maintain stream temperature regimes during such low flow periods. These functions are critical for survival and reproduction of instream and riparian biota. Robinson Brook also mitigates downstream flooding impacts through its connectivity to groundwater, riparian areas and wetlands, where waters can be stored during excessive runoff or precipitation events.

In addition, Robinson Brook and similarly situated headwaters streams in the watershed help to maintain water quality through nutrient uptake, attenuating nutrient loads downstream. Instream and riparian plants observed in and along Robinson Brook show evidence of nutrient uptake from surrounding nutrient pollution sources. Robinson Brook and similarly situated headwater streams in the watershed also transport sediment loads, woody debris and detritus further downstream for utilization as food sources. Robinson Brook plays a role in breaking down these materials for consumption by aquatic species downstream. Aquatic species dependent on these functions were observed in Robinson Brook by EPA staff. Robinson Brook and other similarly situated streams in the watershed also provide seasonal habitat for key organism life stages.

Thus, while the Connectivity Report provides record support for the proposition that all tributaries are connected to downstream waters and strongly influence their function, field observations confirm that Robinson Brook specifically performs many of the important functions described in the Connectivity Report, and combined with other similarly situated streams in the watershed, its importance to the quality and integrity of downstream navigable waters is clear (see Memo to the file from Hilary Snook (6/1/15): Robinson Brook). This is true even though Robinson Brook is a heavily impacted urban stream that does not perform its natural functions to the same degree that it would as an unimpacted stream. It should be noted that one of the goals of the Clean Water Act, as specified in Section 101 of the Act, is to "restore" the chemical, physical, and biological integrity of the Nation's waters. The NPDES permit is one of the mechanisms for achieving that goal, and in the long term a restored stream with reduced pollutant levels might bring about, for example, an improved stream habitat and a more diverse species composition that more effectively supports downstream waters.

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possesses a bed and bank and ordinary high water mark. Thus, under the Clean Water Rule (when it becomes effective), Robinson Brook is a water of the United States. However, before the Rule was published, EPA had already developed an analysis in this Response to Comments demonstrating that Robinson Brook satisfies the Justice Kennedy significant nexus test. That analysis is retained in this Response to Comments as an additional and alternative basis for jurisdiction that does not depend on the Clean Water Rule becoming effective.

In addition to meeting the significant nexus test from Justice Kennedy's *Rapanos* opinion, the status of Robinson Brook as a water of the United States may also be established under the Scalia or Plurality Standard from *Rapanos*. As noted above, the Scalia or Plurality Standard from the *Rapanos* opinion holds that "waters of the United States" include (1) relatively permanent, standing or continuously flowing bodies of water" connected to traditional navigable waters. The Rapanos plurality noted that its reference to "relatively permanent" waters did "not necessarily exclude streams, rivers, or lakes that might dry up in extraordinary circumstances, such as drought," or "*seasonal* rivers, which contain continuous flow during some months of the year but no flow during dry months . . . ." 547 U.S. at 732 n.5 (emphasis in original).

While Robinson Brook is intermittent upstream of the point where it emerges from an underground pipe at Mechanic Street, it becomes perennial (flowing at all times) at the point it crosses Mechanic Street (see http://viewer.nationalmap.gov/viewer/). This is consistent with the commenter's understanding and also with observations made by the Foxborough Conservation Commission (12/18/2013 email from Jane Sears Pierce). Thus, under the Scalia or Plurality Standard, Robinson Brook is a water of the United States *at least* from the point where it has been observed to carry perennial flow at Mechanic Street. Moreover, while there is uncertainty as to the precise point at which Robinson Brook becomes perennial, it likely is a "relatively permanent" or seasonally flowing water at a point some distance above the Mechanic Street location where it has been observed to be perennial.

Current information does not allow a determination of the precise point where Robinson Brook becomes a relatively permanent water or seasonally flowing water and therefore subject to jurisdiction under the Scalia standard. Given its observed status as a perennial stream where it crosses Mechanic Street, the point at which it becomes relatively permanent is some point above Mechanic Street. As Invensys acknowledges in its comment, the flow data it has presented was collected during a drought year and is not necessarily reflective of normal flows. Further, Invensys's data only spans the period only from August of 2001 to March of 2002 and does not include spring flows which tend to be the highest. Thus, it has not been demonstrated that Robinson Brook is not a relatively permanent water even at the point of discharge. Thus, the point at which Robinson Brook becomes jurisdictional under the Scalia or Plurality standard of Rapanos, which requires at least seasonally flowing water, is at some undetermined point between the outfall and Mechanic Street.

Discharges from Outfall 002 ultimately reach the perennially flowing stretch of Robinson Brook and are therefore subject to NPDES permitting requirements even if Robinson Brook is assumed to be jurisdictional only from the point at which it becomes perennial. Moreover, even if the Kennedy Standard basis for establishing jurisdiction over all of Robinson Brook is ignored, and jurisdiction is assumed to exist under the Scalia Standard only from the point of observed perennial flow at Mechanic Street, the resulting permit would contain the same effluent limits, because during critical, low flow conditions the flow reaching the perennial portion of Robinson Brook is dominated by effluent from Outfall 002.

If the compliance point for the Robinson Brook discharge is established at the point where the receiving water flow is known to be perennial (Mechanic Street), the limits would continue to be established at the ambient criteria level due to the lack of any significant dilution during the

worst case low flow conditions under which the water quality standards are required to be met (7Q10 flow). At the point where a stream transitions from intermittent flow to perennial flow, the flow available for dilution under 7Q10 flow conditions would be insignificant. Additionally, the sampling point for determination of compliance with the limits remains at the point of discharge (composite sample of manhole #26 and manhole #39) due to the inability to segregate the Invensys discharge from municipal storm discharges that enter Robinson Brook downstream of the Invensys discharge but upstream of Mechanic Street. As indicated in Comment IS #1, upon leaving the Facility property, the Invensys discharge is mingled with discharges from two municipal street drains located on Neponset Avenue.

In conclusion, it is not necessary to determine the precise point at which Robinson Brook becomes a relatively permanent water because it is perennial and therefore jurisdictional under the Plurality test at least from Mechanic Street and beyond, and during critical low-flow conditions the discharge from Outfall 002 will reach the perennial portion of Robinson Brook in an essentially undiluted state. Thus, existing information is sufficient to confirm that the discharge from Outfall 002 is a regulated discharge and subject to the same effluent limits whether Robinson Brook is considered jurisdictional at the point of discharge or at Mechanic Street.

Moreover, reliance on the Scalia test for jurisdictional status of Robinson Brook is not necessary in light of the Connectivity Report and its unequivocal scientific support for the proposition that all tributary streams, including perennial, intermittent, and ephemeral streams, are physically, chemically, and biologically connected to and have a significant effect on downstream rivers, and in light of observations of Robinson Brook confirming that it performs many of the functions described in the Connectivity Report as supporting the physical, chemical and biological integrity of downstream waters. Finally, the status of Robinson Brook as a water of the United States will also be established, upon its effective date, under the recently published Clean Water Rule.

Comment IS #11: Even if there were a basis for concluding that EPA has jurisdiction to regulate Robinson Brook under the CWA, the Agency has failed to provide a sufficient justification for removing Outfall 002 from coverage under the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP). In a June 2002 letter to Invensys, the Agency set forth two purported bases for removing Outfall 002 from coverage under the MSGP: (1) the nature of the discharges, which include groundwater and sump pump discharges "not authorized by the MSGP"; and (2) EPA and MassDEP's "belie[f] that the storm water discharges alone are a significant contributor of pollutants" based on "effluent sampling data collected by the company from [Outfall 002] during dry and wet weather on July 15, 2001[130] and July 17, 2001". EPA's conclusion that coverage under the MSGP is inappropriate is flawed.

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[130] While the June 2002 letter refers to sampling data collected on July 15, 2001, Invensys is not aware of any sampling having been conducted on that date. Rather, Invensys believes that the Agency is likely referring to sampling conducted on June 15, 2001.

First, the sump discharges should be considered authorized non-storm water discharges in that they constitute "foundation or footing drains where flows are not contaminated with process materials." The sumps dewater groundwater from building basements, which does not come in contact with Facility processes. Second, with respect to groundwater discharges, while the limited dry weather sampling data available do identify exceedances of NRWQC for certain constituents[131], such data were collected prior to the 2002-2003 drain line cleanout, and are therefore not likely to be representative of the current groundwater. Further, it is not clear that the fact of such exceedances necessarily results in the water being considered "contaminated", especially here where, as described in Section III.B.2, supra, the exceedances are of NRWQC which fail to consider site-specific conditions and species.

In addition, Invensys strongly disagrees with the Agency's contention that the storm water discharges are a "significant contributor of pollutants." As an initial matter, Invensys is unaware of *any* existing data which would allow the Agency to determine the concentrations of constituents in storm water alone. Rather, the available data is representative of the combined flow of storm water, sump discharge and groundwater.[132] Therefore, the Agency lacks a scientific basis for its conclusion. Further, the Agency does not have a sufficient basis on which to determine that the Outfall 002 discharges, even as a combined stream, are a significant contributor of pollutants to Robinson Brook. The entire basis for the Agency's conclusion is monitoring data collected on *two* dates in 2001. As noted in Section III.A, supra, this monitoring data is likely not representative of the current discharge, and the Agency has not provided any analysis of whether the discharges are likely to significantly contribute pollutants using all available data. Finally, as described in Section III.B, supra, any exceedances are of NRWQC, which fail to consider site-specific conditions and species. Given the circumstances of this case, the use of such criteria is inappropriate.

Accordingly, Invensys requests that the Agency reconsider its determination to terminate coverage of the Robinson Brook discharge under the MSGP.

Response IS #11: While the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) does allow for the discharge of authorized non-storm water discharges that constitute "foundation or footing drains where flows are not contaminated with process materials", EPA does not concur that the groundwater being discharged via the sumps is not contaminated with process materials. The groundwater at this site contains significant levels of contamination associated with process materials that have been used at this facility. In particular, the sump discharges contain levels of cadmium, copper, and lead that are significantly higher than values that could reasonably be expected from groundwater that is not contaminated by process materials, and certainly higher than aquatic criteria values (see Fact Sheet Table C.3). See Response IS #1 for a detailed discussion of pre and post cleanout data. See Response IS #3 for a discussion of site specific conditions and site specific criteria.

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[131] See Fact Sheet, Attachment C.2.

[132] Certain of the data also likely reflect the discharges of two non-Invensys municipal storm drains from Neponset Avenue located between the Facility and Outfall 002, as discussed in Section III.A, supra.

Furthermore, even if the sump discharges were considered an authorized discharge under the MSGP, the commingled discharges represent a significant contributor of pollutants. Section 122.28(b)(3)(i) of the regulations allows EPA to require an individual permit where a discharge constitutes a significant contributor of pollutants. EPA reaffirms its 2002 determination that these discharges meet the criteria of Section 122.28(b)(3)(i)(G). Relevant factors considered in making this determination include the location of the discharge at the vulnerable headwaters of Robinson Brook, the size of the discharge with respect to the relatively small flow of the brook, and the quantity and nature of the pollutants discharged (See Fact Sheet Appendix C).

As documented in the Fact Sheet, data collected for outfall 002, subsequent to the 2002 letter, confirms EPA's position that the discharges contain contaminants that warrant an individual permit in order to ensure that the discharges do not cause or contribute to water quality standards violations.

Comment IS #12: The 2011 Draft Permit requires Invensys to sample for toxics on a weekly basis. The Agency has failed to provide an adequate justification for the imposition of such an excessive requirement. Further, such requirement cannot be squared with the Agency's well-established policy that needless and burdensome monitoring is to be avoided. Nor can it be squared with the Agency's treatment of other permittees in Region 1.

Faced with a draft permit in 2003 that increased sampling for toxics in the Outfall 001 discharge *twelve-fold*, from once per quarter to once per week, Invensys argued that such a change was excessive and requested a justification from EPA for the striking departure from its established policy and prior requirements.[133] Citing EPA's then-current NPDES Permit Writers' Manual, Invensys explained that the Agency's own guidance prohibits the imposition of unnecessary or burdensome monitoring.[134] Invensys reiterated the same argument in its 2005 Comments on the GE Permit.[135] Since the submission of those comments, the Manual has changed, but EPA's stated policy has not. Monitoring frequencies must still be "sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, *the potential cost to the permittee*," and they "should not be excessive" or unnecessary "to provide sufficient information about the discharge."[136]

Despite the fact that the new Manual expressly states that "decisions for setting monitoring frequency should be described in the fact sheet,"[137] the Agency has provided no explanation for why it is has completely ignored the cost to Invensys of weekly monitoring. Weekly monitoring will involve significant additional expense compared to the monitoring that is required under the current permit. Indeed, Invensys anticipates that compliance with the monitoring requirements

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[133] E.g., 2003 Comments, Table 1, p. 3, No. 10 & Table 2, p. 1., No. 1.1

[134] 2003 Comments, p. 13 (quoting EPA's 1996 NPDES Permit Writers' Manual, p. 119) & Table 1, p. 3, No. 10.

[135] 2005 Comments, p. 3.

[136] Manual, p. 8-5 (emphasis added).

[137] Id.

proposed in the 2011 Draft Permit will require Invensys to expend $200,000 in initial outlay for sampling equipment, plus annual monitoring costs ranging from approximately $40,000 to $100,000. On the facts of this case, such costs are shockingly excessive on their face. The imposition of such burdensome and costly monitoring requirements is contrary to Agency policy, and is inconsistent with virtually all other permits within Region 1 that Invensys has reviewed.

Indeed, rather than responding to Invensys' comments by providing a meaningful explanation for why it believes weekly monitoring to be appropriate for Outfall 001,[138] EPA has moved to an even more extreme position, ***doubling*** the monitoring frequency for toxics in the Outfall 002 discharge from twice per month[139] to once per week without mentioning the fact that it is doing so or providing any justification for its action. This is, again, a blatant violation of the EPA's own guidance, which requires the Agency to describe its "decisions for setting monitoring frequency" in the fact sheet.[140]

As to Outfall 001, EPA attempts to justify the onerous monitoring requirements on the grounds that the discharge is variable, stating that "[t]he 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 numerous sump pumps." It is undisputed that a key factor in establishing what monitoring frequency is truly necessary is the expected variability of the discharge. However, there is no evidence to support that Invensys' discharges are so variable as to merit the extremely costly requirement of ***weekly*** monitoring. As noted in Section III.A, supra, storm water discharges are variable, which is the very reason EPA's established policy is to employ BMPs rather that numeric effluent limitations in storm water permits. However, such variability simply does not necessitate weekly monitoring. Indeed, as discussed in further detail below, Invensys has reviewed numerous NPDES permits for storm water or commingled storm water and groundwater discharges issued by Region 1 and has not located another permit that requires such frequent monitoring for toxics.

As noted, EPA does not so much as mention the increased frequency of toxics monitoring required for Outfall 002 under the 2011 Draft Permit, so it is not clear whether data variability is the EPA's purported justification for imposing such frequent monitoring. What is clear is that EPA has based this increase on data that was not only insufficient to justify such a frequency in

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[138] Invensys previously noted that EPA said "nothing whatsoever regarding the frequency of monitoring." 2003 Comments, p. 13. EPA's new assertion at page 12 of the Fact Sheet that it "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" is a statement of EPA's conclusion, not a substantive justification, and it does no more than the prior lack of explanation to justify such frequent, costly monitoring. EPA may not rely on *ipse dixit* to justify permit requirements. E.g., American Petroleum Institute v. EPA, 661 F.2d 340, 349 (5th Cir. 1981) ("Courts require that administrative agencies articulate the criteria employed in reaching their result and are no longer content with mere administrative ipse dixits based on supposed administrative expertise.") citing Appalachian Power Co. v. EPA, 477 F.2d 495, 507 (4th Cir. 1973).

[139] As Invensys noted in 2003, twice-monthly monitoring of Outfall 002 toxics in 2003 Draft Permit was itself an unexplained, unjustified increase in monitoring frequency from prior drafts of the permit, as EPA had increased VOC sampling six-fold from once per quarter to twice per month and created a brand new requirement for metals testing twice per month. See 2003 Comments, Table 1, p. 3, No. 13.

[140] Manual, p. 8-5.

2003, but is also outdated. As Invensys noted in 2003, the "proposed sampling frequencies for Outfall 002 are based on effluent sampling conducted in 2001 and 2002."[141] At that time, EPA interpreted such data as requiring twice-monthly sampling of metals and VOCs. The Robinson Brook sampling frequencies in the current draft are *still* based on data from 2001 and 2002,[142] but now EPA is inexplicably requiring twice as much sampling (i.e., once per week). EPA has provided no explanation for this change of position because, as noted, it has not mentioned changes to the Robinson Brook sampling at all, anywhere in the Fact Sheet or record. Furthermore, and as noted in Sections III.A and IV.C, supra, the 2001 and 2002 data is outdated. In 2003, Invensys argued that it was unreasonable for the Outfall 002 sampling frequency to be based on data from 2001 and 2002 because more recent and representative sampling data was available. Specifically, Invensys noted that February 2003 data was available from sampling that had been conducted "at the conclusion of a major drain line cleanout program to remove accumulated sediment from within the drain lines leading to Robinson Brook indicat[ing] that post-cleanout contaminant levels are generally lower than pre-cleanout levels."[143] This is only more true today, as *additional* post-cleanout data (e.g., from November 2003) was made available to EPA after the 2003 Comments were submitted. Indeed, EPA not only received this more recent data from Invensys; it actually attached it to the Fact Sheet and referenced it.[144] Nevertheless, EPA persists in ignoring it for purposes of establishing the toxics sampling frequency for Outfall 002.

The frequency of the monitoring EPA is now requiring in the Outfall 001 discharge for tetrachloroethylene (PCE) also merits particular attention, as it highlights the manifest unreasonableness of the 2011 Draft Permit. EPA has removed all numeric VOC limits for Outfall 001,[145] but it has nevertheless increased the report-only sampling frequency for PCE *twelve-fold* from the once per quarter that was required under the 1991 Permit to once per week under the present draft. Thus, the sampling requirements have increased from four sampling events per year to 52 sampling events per year. As Invensys noted in 2003, this increased monitoring frequency is entirely unjustified. Since the 1991 permit was issued (with once per quarter VOC sampling), the Outfall 001 drain line has been cleaned. EPA admits that this effort by Invensys "resulted in a substantial reduction in the concentration of...VOC" in the Outfall 001 discharge[146] – "up to 70% lower."[147] Moreover, as Invensys informed EPA earlier this year, "VOC levels detected in the [Outfall 001] discharge were all below applicable MCP standards

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[141] 2003 Comments, Table 1, p. 3, No. 14 & p. 4, No. 17.

[142] Fact Sheet, p. 13.

[143] 2003 Comments, Table 1, p. 3, No. 14 & p. 4, No. 17.

[144] Fact Sheet, p. 13, n.5 & Attachment C.7.

[145] This is not true for Outfall 002, where EPA has added or increased numeric standards for both TCE and PCE, which Invensys also believes to be unjustified, as discussed above.

[146] Fact Sheet, p. 4.

[147] 2003 Comments, Table 1, p. 3, No. 14 & p. 4, No. 17; see also Table 1, p. 3, No. 10.

and were determined by an LSP to pose no significant risk."[148] Even EPA itself has "not found that [there is] reasonable potential to exceed the criteria . . . [because PCE] has not been detected in the effluent monitoring."[149] While these circumstances are more than sufficient to cast doubt on EPA's drastic increase in the frequency of required PCE monitoring in the Outfall 001 discharge, additional information demonstrates that EPA's PCE requirements for Outfall 001 are unreasonable. Specifically, EPA bases its PCE monitoring requirement determination on data from a single sump[150] that contributes minimal flow to the Outfall 001 discharge, and considers that sump data in light of the human health criterion for the ingestion of fish (i.e., 3.3 ug/l),[151] which Invensys has repeatedly explained is an irrelevant concern for Gudgeon Brook.[152]

EPA has not even attempted to justify the increased costs associated with this twelve-fold increase in sampling events or explained what environmental benefits might result from it. Nor could it, as the costs of such increased monitoring far outweigh any environmental benefit that could come from increased monitoring for a constituent that has not been detected in the effluent monitoring.

The weekly toxics monitoring requirements EPA proposes to impose are not only inconsistent with the Agency's stated policies and guidance; they are also unprecedented in their stringency and excess. *All* the other industrial storm water permits issued by Region 1 that Invensys has been able to locate require much less frequent monitoring for toxics.

As Invensys noted in 2005, before the aforementioned GE Permit was modified in 2009, it required monitoring no more than monthly and frequently quarterly. Weekly sampling was not even required for PCBs, which EPA specifically acknowledged have shown significant variability in the GE discharges.[153] EPA has never acknowledged Invensys' comments regarding the GE Permit, let alone explained why increased monitoring requirements are warranted here. The frequency required under the GE Permit has since increased somewhat, but at most to twice-monthly during dry weather.[154] This is still *half* the monitoring required under the 2011 Draft Permit, despite greater evidence of variability in the GE discharges.[155] Moreover, the GE Permit only requires wet weather sampling one to three times per quarter – not weekly as for Invensys. This constitutes inconsistent implementation of the Manual criteria and unequal treatment of similarly situated parties, and it is therefore impermissible.

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[148] February 16, 2011 E-mail of Paul Ahearn to David Pincumbe.

[149] Fact Sheet, pp. 11-12.

[150] Id. at p. 11 & Attachment A.7.

[151] See id. at p. 11.

[152] E.g., October 30, 2001 Letter from Paul Ahearn to Janet Labonte, pp. 3-4; 2003 Comments, p. 7, n.13.

[153] 2005 Comments, pp. 1 & 3-4.

[154] 2009 Final GE Permit, supra, at pp. 2-14.

[155] See 2005 Comments, pp. 3-4.

Similarly, the Wyman Gordon Permit requires quarterly (report-only) monitoring for metals.[156] The Logan Airport Permit requires monthly (report-only) monitoring for bacteria – a problem pollutant at the site – and only quarterly (report-only) sampling for PAHs (report only).[157] And a multitude of other Region 1 permits reflect that quarterly or at most monthly monitoring – and *not* EPA's attempted imposition of weekly monitoring requirements on Invensys – is the established norm.[158]

Finally, EPA has ignored Invensys' repeated requests that, if the unprecedented weekly sampling requirements are retained over Invensys' objection, a mechanism for relief be provided in the permit. Such a mechanism was first suggested by EPA.[159] In 2003, Invensys expressly asked that the permit "provide for the frequency of the monitoring to be reduced to once per quarter after twelve months of consistent results."[160] As the 2003 Comments noted, this would have been consistent with the provisions in the 2003 Draft Permit for adjusting the frequency of WET testing – provisions which also exist in the 2011 Draft Permit.[161] EPA has failed to respond to Invensys' comment in this regard. Invensys therefore reiterates its request that, if the excessive weekly monitoring requirements are retained in the permit over Invensys' objection, the final

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[156] 2008 Final Wyman Gordon Permit, supra, at pp. 5-7.

[157] 2007 Final Logan Airport Permit, supra, at pp. 3, 5-6 (nn.3-4), 7, 9-10 (nn.8-9), 20, 22 & 23 (n.17).

[158] See, e.g., the NPDES permits by EPA Region 1 for: CSX Transportation in Allston (Permit No. MA0025704), available at http://www.epa.gov/region1/npdes/permits/finalma0025704permit.pdf, pp. 2 & 5 (monthly samples at most and only twice yearly monitoring for priority pollutants); Massachusetts Bay Transportation Authority ("MBTA") in Somerville (Permit No. MA0003590), available at http://www.epa.gov/region1/npdes/permits/2007/finalma0003590permit.pdf, p. 2 (monthly samples at most and only quarterly monitoring for priority pollutants); Texas Instruments in Attleboro (Permit No. MA0001791), available at http://www.epa.gov/region1/npdes/permits/2010/finalma0001791permit.pdf, pp. 2-3 & 5-6 (monthly samples at most, quarterly samples for some VOCs, and only yearly monitoring for priority pollutants); Clean Harbors in Braintree (Permit No. MA0031551), available at http://www.epa.gov/region1/npdes/permits/2011/finalma0031551permit.pdf, p. 2 (monthly samples at most, and annual report-only monitoring of metals); Cornell-Dubilier in New Bedford (Permit No. MA0003930), available at http://www.epa.gov/region1/npdes/permits/2008/finalma0003930permit.pdf, p. 2 (quarterly samples at most, including for problem pollutant PCBs); Eastman Gelatine in Peabody (Permit No. MA0003956), available at http://www.epa.gov/region1/npdes/permits/finalma0003956permit.pdf, pp. 2 & 4 (quarterly monitoring for most pollutants, but metals monitoring only twice per year); Solutia in Chicopee (Permit No. MA0001147), available at http://www.epa.gov/region1/npdes/permits/2008/finalma0001147permit.pdf, pp. 2-31 (at most monthly; report-only metals at most once per quarter and often less, i.e., once or twice per year; and report-only bacteria monitoring once per year); Saint-Gobain Abrasives, Inc. and Saint-Gobain Ceramics & Plastics, Inc. in Worcester (Permit No. MA0000817), available at http://www.epa.gov/region1/npdes/permits/2009/finalma0000817permit.pdf, pp. 2-3 & 7 (metals monitoring quarterly at most, sometimes only twice yearly). All websites last visited October 31, 2011.

[159] See 2003 Comments, Table 2, p. 1, No. 1.1.

[160] Id. at p. 14.

[161] Id. at Table 1, p. 3, No. 12.

permit contain a provision which automatically scales back the frequency at either or both outfalls after a period of twelve months of consistent results.

Response IS #12: The monitoring guidance in the Permit Writers' Manual indicates that the "permit writer should establish monitoring frequencies sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, the potential cost to the permittee." The rationale for the monitoring frequency and why EPA does not believe that it is appropriate to reduce the frequency of monitoring is explained on page 12 of the Fact Sheet, including footnote #4, under the section pertaining to outfall 001. The same rationale is included in the section pertaining to outfall 002. Although EPA did not repeat footnote #4 in this section, the footnote clearly applies to both outfalls.

Both discharges contain a complex mix of contaminated groundwater, storm water, and sump discharges with limited treatment capability, significant variability in contaminant concentrations and receiving waters that afford no dilution in the near field. Dry weather discharge contaminant levels vary with changing groundwater levels and with whether or not one or more sumps are activated. In addition to the normal variability of storm water with the precipitation amount, precipitation intensity, and length of time between precipitation events, wet weather discharges also vary with the level of sump activation.

In response to comments received from Invensys on the draft 2003 permit, EPA reduced the monitoring requirements significantly. Specifically, EPA eliminated the once per month sampling requirement targeting wet weather conditions. While EPA did not agree with arguments for reducing the once per week monitoring requirement, EPA did conclude that the once per week monitoring would be sufficient to also capture enough wet weather events throughout the year to justify eliminating the once per month monitoring targeted at specific wet weather events. It is our judgment that pollutant discharge levels under the many different conditions for which these discharges occur are best characterized by weekly sampling. Adequate characterization of the discharges allows for ensuring that the discharges are in compliance with the permit limits as well as to verify that contaminants for which there are not water quality based limits in the permit are not being discharged at levels that might result in toxic impacts in the receiving waters. EPA does not agree that the sampling frequency is needless or overly burdensome. The commenter has not provided any supporting evidence that the discharges can be adequately characterized with less frequent monitoring.

There is no basis for comparing the frequency of monitoring in this permit to the frequency of monitoring in the 1991 permit that only covered non-contact cooling water and storm water and was issued long before the level of contamination at this site was adequately characterized. As for the other permits cited in the comment, see Response IS #1 regarding case-specific permit determinations. The sampling frequency in this permit is more frequent than permits that just cover storm water or permits that discharge to receiving waters with significant dilution. The Wyman Gordon permit cited addresses storm water only and the Logan Airport permit discharges to the Atlantic Ocean. Relative to the General Electric permit, as indicated in Response IS #1, specific BMPs which have sufficient potential to attain water quality criteria in the receiving waters were identified and these BMPs were required as part of the permit. Additionally, the General Electric facility is the subject of a federal Consent Decree with direct federal oversight of ongoing remediation activities. In that case, EPA believed that less frequent

monitoring was justified. EPA has included language in the final permit indicating that the sampling frequency during the term of the permit may be modified if sufficient justification is provided that less frequent monitoring will adequately characterize the discharge(s) and ensure attainment of water quality standards.

Relative to cost considerations, the Permit Writers' Manual indicates that cost of monitoring should be considered relative to the discharger's capabilities. Invensys, being a multinational corporation operating in over 180 countries and with annual revenues of over 3 billion, has the capability to conduct the necessary monitoring. More importantly, EPA regulations require monitoring at a frequency sufficient to yield data which are representative of the monitored activity (40 CFR 122.48), and require reporting at a frequency that takes into account the nature and effect of the discharge and assures compliance with permit limitations (40 CFR 122.44(i)). As discussed above, the monitoring frequencies established in the permit reflect these requirements.

Comment IS #13: The requirement for 24-hour composite samples for the monitoring of certain parameters remains unclear, despite the fact that Invensys has twice expressed confusion and requested clarification. Specifically, in October 2001, Invensys asked how monthly averages and daily maximum values were supposed to be reported using 24-hour composites.[162] In 2003, Invensys reiterated the comment: "The sampling for metals is proposed as using 24-hour composites, but the discharge limits are expressed as monthly averages or daily maximum values. How are the 24-hour composite samples to be used in such comparisons?"[163] EPA has still provided no response.

Moreover, Invensys has repeatedly objected that 24-hour composite sampling is excessive and unnecessary, requesting that EPA justify the requirement.[164] EPA has completely neglected to *mention* the requirement or Invensys' related comments anywhere in the Fact Sheet.

As Invensys explained in 2003, composite sampling is used to account for variability over 24 hours.[165] Invensys repeated this argument in its 2005 Comments, stating that 24-hour composite sampling "is a far more burdensome and expensive sampling method than the more typical grab sampling. Like frequent monitoring, composite sampling is appropriate only where variability within the sampling period is expected to be significant."[166] EPA has provided no argument or data demonstrating that such 24-hour variability exists in this case. Indeed, the available data demonstrate that EPA has no basis for assuming that such variability will exist in Invensys' discharges.

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[162] October 30, 2001 Letter from Paul Ahearn to Janet Labonte, Exhibit 2.

[163] 2003 Comments, Table 1, p. 2, No. 7.

[164] E.g., id. at Table 2, p. 1, No. 1.2 & p. 3, No. 2.

[165] Id. at p. 14.

[166] 2005 Comments, p. 3.

Almost all of the other Region 1 NPDES permits listed in the foregoing section require grab sampling, not 24-hour composites, and certainly not 24-hour composites every week. In fact, the only such permits to require any 24-hour composite sampling of similar discharges are the GE Permit, which includes some *twice-monthly* or *quarterly* 24-hour composite sampling of its *report-only* parameters, and the Texas Instruments permit, which does require 24-hour composite sampling for priority pollutants, but only *once per year*.[167] EPA has provided no justification for requiring such frequent 24-hour composites here or for its differential treatment of Invensys.

Invensys strenuously objects to this requirement and requests that the sampling requirement be altered to require only grab sampling.

Response IS #13: Grab samples are appropriate for intermittent short term discharges, such as discharges of storm water only from short duration rain events where acute toxicity is the only concern. Grab samples may also be appropriate where there is little variability throughout a day in pollutant discharge levels.

In addition to storm water discharges being extremely variable throughout a typical storm event, ground water contamination is rarely well mixed and the quantity of contaminated groundwater entering the drainage system will vary over time. Additionally, the activation of individual sump pumps and contamination levels in individual sump pumps vary over time. The discharge data, as documented in the Fact Sheet, clearly indicate that there is significant variability in almost all parameters. In other words, a grab sample might happen to occur at a time of relatively low contaminant concentrations in the discharge, even though concentrations could have been higher a short time before or after the grab sample was taken. Use of 24 hour composites alleviates this issue. In this case, the monitoring of continuous discharges that vary significantly and that have acute and chronic toxicity concerns is more appropriately conducted with composite sampling.

Composite samples are routinely used in permits for determining compliance with monthly average and daily maximum permit limits. All composite sample results during the month are averaged to determine the monthly average discharge value and the highest composite sample result for a month is used to determine compliance with the daily maximum limit.

Comment IS #14: The 2011 Draft Permit allows with respect to Outfall 001 that "[a]fter submitting four consecutive sets of whole effluent toxicity (WET) tests results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction of the WET testing requirements."[168] EPA therefore concedes that quarterly WET testing is not necessary after one year of such testing has demonstrated compliance.[169]

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[167] 2009 Final GE Permit, supra, at pp. 2-4, 6, 9 & 12-13; Texas Instruments Permit No. MA0001791, supra, at pp. 2 & 5. The Saint-Gobain Permit requires 24-hour composite sampling of its non-contact cooling water, but only once per quarter.

[168] 2011 Draft Permit, p. 4, n.10.

[169] EPA is not the only agency to espouse this interpretation. In 1991, in reviewing the permit which the present draft is intended to replace, multiple persons at MassDEP indicated that the frequency of toxicity testing should be reduced from once per quarter to once per year after one year of testing. September 26, 1991 Memorandum from Laurie Kennedy to Richard Chretien (Attachment 15 hereto) ("If acute toxicity is not detected in the discharge after

In 2003 Invensys noted that "[t]here already exists an overwhelming data base which: (i) clearly demonstrates that the Outfall 001 discharge to Gudgeon Brook is not toxic, and (ii) provides the basis for an immediate reduction of WET testing levels from the quarterly frequency proposed by EPA to annual testing."[170] EPA has not responded to this argument. Now there are over eight *additional* years of quarterly WET testing. Indeed, whereas Invensys was able to reference nine years' worth of data in 2003, its position is now supported by additional years of WET test results. As noted above, in the 13 years since the 1997-1998 drain line cleanout, all WET tests for both species have showed 100% survival, except for the test conducted in the 1st quarter of 2002, where *C. dubia* showed 83% survival. Thus, the available information *still* indicates that Invensys' discharges are not acutely toxic to humans, aquatic life, or wildlife, and the frequency of WET testing should be reduced now to once per year,[171] if not eliminated entirely.[172]

Response IS #14: Previous test results are all based on acute toxicity testing only and do not measure sub lethal effects on growth and reproduction (i.e. chronic toxicity). If a demonstration can be made that the discharge(s) consistently do not show acute or chronic toxicity, EPA may reduce the toxicity monitoring requirements. See Permits Part I.A.1.a footnote 10 & I.A.1.b footnote 10.

Comment IS #15: EPA has added new details since the 2003 Draft Permit, which render the already excessive monitoring requirements more onerous still. Specifically, the current draft requires all sampling to take place "at the same time of day and the same day(s) of the week for each month,"[173] and toxicity samples are now mandated to be collected "in the first full week" of the listed months.[174] EPA has provided no basis for these restrictions. Invensys requests that these arbitrary restrictions be removed the final permit.

Response IS #15: The requirement is not arbitrary and is designed to ensure that discharge sampling is representative. The requirement prevents selective sampling of discharges designed to avoid certain discharge conditions. As stated in the Fact Sheet, routine sampling, along with the reporting of precipitation data, will ensure that the reported discharge data will reflect both dry weather and wet weather conditions while reducing the total number of required sampling events and significantly reducing the logistical costs inherent in conducting targeted wet weather

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one year of testing, the monitoring frequency could be reduced from quarterly to annually."); September 30, 1991 Memorandum from Paul Hogan to Richard Chretien (Attachment 16 hereto) ("the permittee could request, after one year of 'passable' data, a lessening of the toxicity monitoring requirement to once per year").

[170] 2003 Comments, Table 1, p. 5, No. 5; see also pp. 3 & 7.

[171] Various NPDES permits require annual WET testing, including the aforementioned permits issued to the MBTA in Somerville and Clean Harbors in Braintree.

[172] See the aforementioned final NPDES permits issued to Wyman Gordon, Logan International Airport, and Cornell-Dubilier, none of which require WET testing.

[173] 2011 Draft Permit, pp. 3 & 6, n.1.

[174] Id. at p. 4, n.10 & p. 7, n.10.

sampling. Note also that the permit specifically authorizes occasional deviations from the routine sampling program. See Permit Parts I.A.1.a footnote 1 & I.A.1.b footnote 1.

Comment IS #16: The 2011 Draft Permit does not include a schedule for compliance with the extremely stringent limitations established therein. While Invensys strenuously objects to the need for the numeric permit limits proposed in the 2011 Draft Permit, rather than BMPs, the Agency's failure to include a reasonable compliance schedule also warrants a response.

The 2003 Draft Permit included a one-year schedule of compliance. In its 2003 Comments, Invensys noted that the proposed one-year compliance schedule was unreasonable and that construction of any of the available methods of achieving compliance with the permit limits could not be completed within the one year time frame. Accordingly, Invensys requested that a three-year compliance schedule be incorporated in the final permit.[175]

Rather than responding to Invensys' request for a more reasonable schedule of compliance, Region 1 has eliminated *any* schedule of compliance from the 2011 Draft Permit. Region 1 has provided no justification for the failure to include a compliance schedule in the 2011 Draft Permit,[176] nor is there anything in the record provided to Invensys to suggest that Region 1 even considered the impact of such removal.[177] A compliance schedule should be included in the final Permit.

EPA's own guidance calls for the inclusion of schedules of compliance in the circumstances of this case. First, EPA guidance documents make clear that compliance schedules are allowed for effluent limitations based on standards adopted after July 1, 1977 if a state has indicated in its water quality standards that it intends to allow them.[178] The relevant state regulations squarely allow for schedules of compliance as a matter of Massachusetts law, providing that "[a] permit may, when appropriate, specify a schedule leading to compliance with the Massachusetts and Federal Clean Water Acts and regulations."[179] The regulations make clear that incorporation of a

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[175] 2003 Comments, p. 15.

[176] Region 1 states in the Fact Sheet that "[c]ompliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit." Fact Sheet, p. 6. However, this statement relates to the use of schedules for compliance with technology based standards, and is not applicable to the water quality-based limits imposed in the 2011 Draft Permit.

[177] In re Wash. Aqueduct Water Supply Sys., 11 E.A.D. 565, 566 ("the administrative record must reflect the permit issuer's 'considered judgment,' meaning that the permit issuer must articulate with reasonable clarity the reasons for its conclusions and the crucial facts it relied upon in reaching those conclusions").

[178] See May 10, 2007 Memorandum from James A. Hanlon to Alexis Strauss regarding Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits (the "Hanlon Memo"). See also Manual at pp. 9-8 - 9-9.

[179] 314 CMR 4.03(1)(b).

schedule of compliance is appropriate to afford a permittee additional time to comply with new permit limitations.[180]

Second, factors to be considered in determining whether a compliance schedule is appropriate weigh heavily in favor of including such a schedule here. The applicable Massachusetts regulations allow for inclusion of a schedule of compliance where "the permittee either cannot comply with such permit requirements or limitations, or there is insufficient information available to determine whether the permittee can comply".[181] Further, relevant Agency guidance notes a number of factors that are relevant to whether inclusion of a compliance schedule is appropriate in a specific permit, including: whether the discharger has already had to meet the WQBELs under prior permits; and, the need for "modifications to treatment facilities, operations or measures to meet the WQBELs" and the time those steps would take.[182] Consideration of these factors points strongly in favor of including a compliance schedule in the present case.

As noted in the attached report by Woodard & Curran, Invensys will be unable to immediately comply with the water quality-based effluent limitations proposed in the 2011 Draft Permit upon the effective date of the permit, if compliance with such limits is even technologically feasible. As discussed in Section III.B.2.c, supra, in order to comply with the proposed limitations Invensys would be required to install complex, non-conventional controls, including complicated, multi-phase treatment systems, accompanied by the construction of equalization tanks, the rehabilitation of existing drain lines or replacement of storm water drainage system. Estimates of the costs of the technologies that would be required to be implement range from $6 million to $17 million in capital costs, plus $300,000 to $900,000 in annual operation and maintenance costs. Invensys anticipates that the performance of necessary characterization and treatability studies, preparation and permitting of designs, and completion of construction will take approximately 2 to 3 years. More importantly, it is not even known at this time whether any of the potential approaches would even be able to attain compliance. To require immediate compliance with strict numeric effluent limits when it is not even known if compliance is possible is not just unreasonable and unfair; it borders on the absurd.

Accordingly, Invensys requests that, if Region 1 were to issue a final permit in a form similar to the 2011 Draft Permit, such permit include a compliance schedule providing for three (3) years to come into compliance with the effluent limits.

Response IS #16: EPA understands that implementation of measures necessary to meet the permit limits will take time, and is open to development of a compliance schedule. However, EPA does not agree that the compliance schedule must be included within the permit itself, as opposed to an administrative compliance order. While the agency is authorized to include a

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[180] Id. Specifically, the relevant regulations make clear that the purpose of a compliance schedule is to allow the "permittee adequate time to comply with one or more permit requirements or limitations that are based on new, newly interpreted or revised water quality standards that became effective after both issuance of the initial permit for a discharge and July 1, 1977."

[181] Id.

[182] Hanlon Memo, pp. 2-3.

compliance schedule in permits, it is not required to do so. ("A permit *may, when appropriate*, specify a schedule leading to compliance with the Massachusetts and Federal Clean Water Acts and regulations." 314 CMR 4.03(1)(b). Due to the complexities and uncertainties associated with implementing measures that may be necessary to comply with the permit limits, the agency believes that an appropriate administrative compliance schedule should be developed by EPA's compliance program upon issuance of the final permit and after consultation with Invensys Systems as appropriate. Pursuant to its common practice, EPA Region 1 regularly issues administrative compliance orders to NPDES permittees in Massachusetts to provide compliance schedules for newly-reissued permits.

Comment IS #17: Even if it were acceptable for EPA to rely on 2001-2002 pre-cleanout data in establishing permit conditions for Outfall 002 (which it is not), the 2001-2002 data do not support EPA's imposition of an acute criterion for lead. The 2011 Draft Permit imposes an acute criterion of 33.8 ug/l. However, as the Fact Sheet explains, "[a] review of the effluent data submitted by the facility show concentrations ranging from 6.0 ug/l to 23.4 ug/l during wet weather, and 32 ug/l during dry weather"[183] – that is, *never* over the 33.8 ug/l limit.[184] Thus, inconsistent with all its other explanations demonstrating that numeric water quality-based effluent limits are being imposed because at least one exceedance has taken place,[185] EPA has imposed a numeric acute criterion for lead where there are no data demonstrating even one exceedance. Notably, EPA has taken the affirmative step of eliminating from the present permit a numeric acute criterion for lead in the Outfall 001 discharge. The data mandates that it must do the same for Outfall 002.

Response IS #17: The question is not whether an exceedance has been recorded in the discharge, but rather whether the discharge has the *reasonable potential* to cause or contribute to an excursion above a state water quality standard. EPA has however dropped the maximum daily lead limit for the Robinson Brook discharge as the monthly average limit (1.3 ug/l) is stringent enough that compliance with it will ensure that the acute criteria is not exceed in the receiving water. Retention of the monthly average limit is justified given the frequent exceedances (even post-drain-cleanout) of 1.3 ug/l in individual sampling events. See Attachment C.7-B.

Comment IS #18: Between 2003 and 2010, EPA eliminated bacteria monitoring from the permit requirements for Outfall 001, stating that "a review of the discharge data indicate[d] that there is no reasonable potential to exceed criteria."[186] However, EPA has now added a bacteria

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[183] Fact Sheet, p. 14.

[184] This is also true for the more current data which EPA attaches to the Fact Sheet but neglects to consider in establishing limits on the Outfall 002 discharge. Id. at Attachment C.7-B.

[185] As discussed in Section III.C.1, supra, Invensys submits that this method is itself inappropriate, as it does not constitute the required reasonable potential analysis.

[186] 2010 Fact Sheet, p. 7.

limit and monitoring requirement for Outfall 001,[187] with requirements more onerous than pre-existing versions. Specifically, EPA has reduced the average monthly limit to 126 cfu/100 ml and drastically increased the frequency of required sampling, from once per month in wet weather from April through October, to once per week during the same period, regardless of weather conditions.[188]

EPA's stated basis for adding these stringent requirements into the permit for Outfall 001 is unspecified "discharge data submitted by the facility," which allegedly indicate recent exceedances, "although the majority of the data is still within the permit limits."[189] In reality, a few exceedances of a given limit do not necessarily correspond to a reasonable potential to exceed. As discussed in Section III.C.1, supra, EPA may not impose numerical WQBELs without demonstrating a reasonable potential to exceed the WQC. Moreover, to the extent that any high bacteria levels do exist in the Outfall 001 discharge, such levels are likely to stem from upstream, off-site drainage conditions out of Invensys' control (e.g., wild animal or pet waste affecting storm water, septic systems affecting groundwater, etc.). Finally, EPA's new bacteria requirements for Outfall 001 are inconsistent with the bacteria requirements EPA has included in other permits, most of which are report-only (i.e., do not include numeric criteria) and do not include onerous weekly sampling, if any bacteria limits exist at all.[190] For instance, the 2007 Logan Airport Permit imposes no numeric bacteria limit and requires its report-only monitoring once per month,[191] despite the fact that – unlike in the present case – bacteria was one of the central pollutants of concern for the site given "the bacteria problem identified in the Logan area."[192]

For the foregoing reasons, Invensys respectfully requests that the bacteria limit and monitoring requirement for Outfall 001 be removed, consistent with the Outfall 002 portion of the permit. If EPA concludes that bacteria must be monitored in the Outfall 001 discharge, Invensys respectfully submits, in the alternative, that the permit requirements should conform to other

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[187] As to the Outfall 002 discharge, EPA has done the opposite for bacteria, eliminating all bacteria sampling since the 2010 draft, with no explanation for why it is doing so or why the two outfalls are being treated differently.

[188] 2011 Draft Permit, p. 2 & p. 3, nn.5-6.

[189] Fact Sheet, p. 10.

[190] Many permits include *no* bacteria limit. E.g., 2009 Final GE Permit, supra; 2008 Final Wyman Gordon Permit, supra; CSX Transportation Permit No. MA0025704, supra; Texas Instruments Permit No. MA0001791, supra; Clean Harbors Permit No. MA0031551, supra; Cornell-Dubilier, Permit No. MA0003930, supra; Eastman Gelatine Permit No. MA0003956, supra; Saint-Gobain Abrasives, Inc. and Saint-Gobain Ceramics & Plastics, Inc. Permit No. MA0000817, supra.

[191] 2007 Final Logan Airport Permit, supra, at pp. 3, 7, 20 & 22. See also MBTA Permit No. MA0003590, supra, at pp. 2 & 3, n.4 (requiring report-only monitoring once per month); Solutia Permit No. MA0001147, supra, at pp. 6, 14, 18, 22 & 26 (requiring report-only monitoring once per year).

[192] EPA's Responses to Comments on the Logan Airport Permit, available at http://www.epa.gov/region1/npdes/logan/pdfs/finalma0000787rtc.pdf, p. 148.

Region 1 permits by requiring, at most, report-only monitoring once a month during the April-October period identified by EPA as relevant.

Response IS #18: The bacteria limit for outfall 001 has been removed from the permit. The final permit contains a report-only requirement.

The current Massachusetts bacteria criterion for Class B waters is a monthly geometric mean of 126 colonies/100 ml. See 314 CMR 4.05(3)(b)(4). Data presented in the Fact Sheet indicate that the two most recent samples exceeded the applicable fecal coliform bacteria criteria. Due to the uncertainty over the source of the bacteria and a change in the applicable bacteria indicator, the final permit includes a monitor only requirement of once per month. This still reflects an increased frequency relative to the previous permit. If monitoring indicates that bacteria are at levels such that there is a reasonable potential for criteria to be exceeded as a result of discharges from Invensys, then a water quality based permit limit will be included in a future permit action. If Invensys wishes to assert at some point that the bacteria content of its discharges to Gudgeon Brook are influenced by offsite bacteria, it is the responsibility of the discharger to provide documentation quantifying such offsite contributions.

Comment IS #19: In another example of unnecessary stringency in the present Draft, EPA has unreasonably removed from the pH limits the words "unless exceeded due to natural causes" – a phrase that appears in many other Region 1 NPDES permits imposing pH limits.[193]

The lower pH levels observed in the Outfall 001 effluent (5.5-6.4) are not atypical for eastern Massachusetts and conform to common, regionally-occurring surface water conditions resulting from acid rain. Indeed, the Massachusetts Acid Rain Monitoring (ARM) Program, which has been monitoring pH and alkalinity of Massachusetts ponds, lakes and streams since 1983, reported in June 2011 that pH levels in Massachusetts streams range from 3-7.8, with many reported values well below the lower limit imposed in the 2011 Draft Permit (i.e., 6.5).[194] The permit should specify a range of pH levels that, at a minimum, reflects regional water quality, rather than imposing a national recommended WQC default range that does not reflect the regional conditions.

EPA has previously recognized the propriety of such an approach, not only in the context of other recent NPDES individual storm water permits,[195] but even in prior iterations of this very same permit. Specifically, the 1991 Permit included a provision that allowed for pH to be "not

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[193] E.g., 2009 Final GE Permit, supra, at p. 17, n.21; MBTA Permit No. MA0003590, supra, at p. 4, n.b; Eastman Gelatine Permit No. MA0003956, supra, at p. 5, n.4; Solutia Permit No. MA0001147, supra, at p. 34, n.b.

[194] Acid Rain Monitoring Report, FY2011 End of Fiscal Year Report (June 30, 2011), available at http://www.umass.edu/tei/wrrc/arm/ARM_FY11_Annual_Report.pdf (last visited October 31, 2011), pp. 9-12, Table 5.

[195] See, e.g., 2007 Final Logan Airport Permit, supra, at pp. 3, 7 & 24, n.11 (*6.0* to 8.5); Texas Instruments Permit No. MA0001791, supra, at pp. 2 & 3, n.b ("not more than 0.5 units outside of the natural background range"); Saint-Gobain Abrasives, Inc. and Saint-Gobain Ceramics & Plastics, Inc. Permit No. MA0000817, supra, at pp. 2-3, n.b (same); Clean Harbors Permit No. MA0031551, supra, at p. 5, n.10 ("If the pH results of the discharge are outside the range of 6.5 – 8.5 s.u. due to background conditions, the pH must be within 0.2 s.u. of the rainfall's pH level.").

more than 0.5 units outside of the naturally occurring background range."[196] Therefore, the current text of footnote 4 on pages 3 and 6 should be revised as follows:

> The pH of the effluent shall not be less than 6.5 standard units (SU), nor greater than 8.3 SU at any time, unless these values are exceeded due to natural causes. The pH shall be no more than 0.5 units outside the natural background range. To demonstrate that the pH values of the effluent are outside the permitted pH range due to natural causes, the permittee must show that pH measurements of the source water and the effluent are the same. When the values are exceeded due to natural causes, documentation of such conditions must be submitted by the permittee with the monthly DMR and recorded in the SWPPP.

Such an approach is consistent with EPA's comment in the current Fact Sheet that Invensys should "submit data along with the discharge monitoring reports documenting the extent to which rainwater pH [a]ffects the pH of the final discharges,"[197] but it also avoids the unnecessary stringency EPA has introduced into the 2011 Draft Permit by removing the common natural exceedances clause.

Response IS #19: The pH limit is not based on a "national recommended WQC default range" but rather is based on the Massachusetts Surface Water Quality Standards. The standards require that the pH in the receiving waters "shall be in the range of 6.5 through 8.3 standard units **and** not more than 0.5 units outside of the natural background range." 314 CMR 4.05(3)(b)(3) (emphasis added). The permit limit has been established to ensure that the discharge does not contribute to an exceedance of the allowable receiving water range of 6.5 - 8.3 standard units. The criterion for pH does not allow for an exception for natural causes. While it is true that some older EPA NPDES permits issued in Massachusetts included such exceptions, EPA's more recently issued permits track the Massachusetts Surface Water Quality Standards more accurately and do not contain the natural causes language (see permits for Sprague Operating Resources, Boston and Maine Corporation, MW Custom Papers, Radiant Fuel Company; all available from http://www.epa.gov/region1/npdes/permits_listing_ma.html). The standards do allow for a site specific adjustment of the instream criteria based on natural background levels in the receiving water but no such determination has been made by MassDEP or approved by EPA.

While acid rain does not represent "natural" conditions, EPA recognizes that acid rain may be a contributing factor in a discharge exceeding the allowable pH range. If the permittee believes that an exceedance of the limit is due primarily to the pH levels in precipitation then the permittee may submit supporting documentation, including concurrent measured pH values for precipitation, with the monthly monitoring reports.

Comment IS #20: The Agency has not provided a reasonable basis for requiring monitoring for mercury at Outfall 002. The Agency acknowledges that most data collected from the Outfall 002 drainage area indicated non-detectable levels for mercury. The Agency then cites to two

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[196] 1991 Permit, pp. 2 & 3, n.a.

[197] Fact Sheet, p. 10.

sampling results – one from 2002 collected *prior* to the drain cleaning and one from 2003 – which indicated detectable levels for mercury, as the basis for imposing the monitoring requirement.[198] However, the samples to which the Agency refers were collected at catch basin number 24, an internal outfall. As such, the sampling results are not representative of the overall Facility discharges and form an insufficient basis for imposing a monitoring requirement for mercury at Outfall 002.

Response IS #20: The sampling results are, respectively, 1.8 ug/l (pre-drain-cleanout) and 170 ug/l (post-drain-cleanout). The chronic criterion is 0.77 ug/l and the acute criterion is 1.4 ug/l. The post-drain-cleanout result is therefore 220 times higher than the acute criterion. Invensys has not provided additional mercury sampling data (whether from an internal outfall or anywhere else) in the past 10 years that it has been discharging since that 170 ug/l value was measured. Levels detected in an internal outfall that, in one case, are over two orders of magnitude higher than the water quality criteria, coupled with the lack of any data from the final outfall, are sufficient reason to incorporate the required monitoring.

Comment IS #21: It is unreasonable for EPA to require Invensys to submit data from the National Weather Service, which is equally available to EPA. Invensys highlighted this point in both 2001[199] and 2003,[200] but EPA has still failed to respond in any way to the argument. Invensys respectfully requests that records of the National Oceanic and Atmospheric Administrative (NOAA) for Taunton be used instead.

Response IS #21: It is appropriate for EPA to require the reporting of information necessary to determine compliance with permit conditions as well as information necessary to determine if permit conditions are sufficient to ensure attainment of water quality standards. The effort and cost involved in obtaining and organizing this NWS data from the Internet, while not zero, is small and not overly burdensome. Moreover, it is more appropriate for the discharger, rather than the public in general, to bear this small cost.

It is not clear why the commenter has requested that the data be reported for Taunton. The requirement remains in the permit but has been modified to require that the data be provided for the closest location to the facility for which National Weather Service data is available.

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[198] Id. at p. 14.

[199] October 30, 2001 Letter from Paul Ahearn to Janet Labonte, Exhibit 2, Comment 6.d ["The requirement to submit National Weather Service data seems to be excessive in view of the fact that such data are readily available to the Agency via the internet (i.e., the same data source that the Company would access to compile the information.)"] Please explain rationale/need for this requirement.

[200] 2003 Comments, Table 1, p. 1, No. 4 ["No justification given by EPA. Compilation and submittal of weather data for 3 days prior to, and the day of, each sampling event is excessive and unnecessary since NWS data is readily available to EPA via the internet (i.e., the same data source that the Company would access to compile the information)."]

Additional comments from Table 1 of Invensys Systems October 31, 2011 comment letter that were not cited in the body of the comment letter:

Comment IS #22: For purposes of evaluating risks to aquatic biota, dissolved concentrations (rather than totals) should be used for all of the monitored metals (i.e., copper, lead, zinc, cadmium, aluminum and iron).

Response IS #22: Massachusetts's Surface Water Quality Standards provide: "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." 314 CMR 4.05(5)(e).

The reasonable potential analyses here were based on total metals concentrations because the available discharge data were in terms of total metals. Discharge metals were not compared to dissolved metals criteria but rather to the total metal equivalent of the dissolved criteria. The permit limits are written in terms of total metals in accordance with the Massachusetts Surface Water Quality Standards.

Comment IS #23: Metals back-up data contained in the quarterly whole effluent toxicity testing reports should also satisfy a metals monitoring event required by the permit.

Response IS #23: Yes, metals data from the whole effluent toxicity testing can be used to satisfy a metals monitoring event. Footnote #10 of the permit for outfalls 001 and 002 has been revised to reflect this.

Comment IS #24: Numeric average monthly limits for lead and cadmium that are lower than the ML are unreasonable.

Response IS #24: Consistent with water quality based permitting regulations, limits are established to ensure that applicable criteria will be met and are not based on the current limitations of analytical quantification levels, which can change over the life of the permit. Compliance with the limits is assumed if discharge levels are below the applicable ML.

Comment IS #25: The Remediation General Permit contains a monthly average effluent limitation for cadmium of 0.2 ug/l based on a hardness of 50 mg/l. The monthly average effluent limitation for cadmium in the draft permit is calculated based on the same assumptions but is 0.16 ug/l.

Response IS #25: EPA rechecked the criteria calculation using the most current hardness based equation, as adopted by MassDEP in its surface water quality standards. The equation is found in Attachment B and D and derives from the Massachusetts Surface Water Quality Standards at

314 CMR 4.05(5)(e). Using this equation, the correct value for the chronic cadmium criteria is 0.16 ug/l.

Comment IS #26: The requirement to measure sump pump discharges on a continuous basis and report time, duration, and estimated discharge volume for each sump pump activation is unnecessary and overly burdensome, and is inconsistent with the other monitoring requirements present in the draft permit.

Response IS #26: There is very little available data on sump pump discharges and what data there is indicates that the pollutant loads discharged from sump pumps may be significant. Collecting this data is critical to determining the significance of these discharges as well as whether the effluent monitoring requirements in the permit are adequately capturing the effect of the sump pump discharges. The comment does not provide sufficient information (e.g., cost or time estimates) to support the claim that continuous measurement of sump pump discharges is overly burdensome. Flow recorders are commonly used to provide the required information on frequency, volume, and duration of discharges.

Comment IS #27: All of the discharges from the Cocasset Facility discharge to Robinson Brook downstream of the Outfall 002 headwall. The Cocasset Facility is covered by a No Exposure Certification for Exclusion from NPDES Storm Water Permitting. The discharges to outfall 002 are from the southern portion of the Neponset Facility. Only discharges which discharge at the Outfall 002 headwall will be covered by this site-specific NPDES permit.

Response IS #27: The clarification is noted for the record.

Comment IS #28: The Gudgeon Brook headwall contains two separate discharges: Outfall 001 and a second outfall pipe which is owned by the Town of Foxborough and discharges stormwater from Chestnut Street and nearby (non-Invensys) neighborhoods. EPA's explanation for why the municipal stormwater outfall was not taken into account in the development of limits for Outfall 001 is unconvincing because it is not Invensys' fault that there is insufficient information about the quantity, timing or water quality of the additional flow, and – under EPA's established policies – such uncertainties in storm water permits weigh in favor of BMPs, not numeric limits, particularly not numeric limits tied to extremely onerous weekly monitoring requirements.

Response IS #28: Outfall 001 conveys flows from Invensys only and the reasonable potential analyses and water quality based limits apply to Outfall 001 only. Allowing some benefit of dilution as a result of the additional storm water discharges is not appropriate given the high levels of pollutants typically found in urban runoff and the lack of site specific data for this particular municipal storm water discharge. In particular, urban runoff typically contains high levels of many heavy metals, including several heavy metals found in the Invensys discharges, e.g., cadmium, copper, lead, and zinc. The fact that there is another discharge into the headwaters of Gudgeon Brook does not change our conclusions relative to the need for numeric limits to adequately address water quality standards violations resulting from discharges by Invensys. In addition to being contaminated with a variety of urban runoff pollutants, stormwater runoff provides no dilution during the worst case low flow conditions under which the water quality standards are required to be met (7Q10 flow).