

**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 **(See Footnote * below)**

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

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

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, Attachment A, and 25 pages in Part II including Standard Conditions and Definitions.

Signed this day of

Director
Office of Ecosystem Protection

Environmental Protection Agency
Boston, MA

Director
Massachusetts Wastewater Management
Program
Department of Environmental Protection
Commonwealth of
Massachusetts
Boston, MA

* This permit will become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will become effective no sooner than 30 days after signature.

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}

<u>Effluent Characteristic</u>	<u>Units</u>	<u>Discharge Limitation</u>		<u>Monitoring Requirement</u>	
		<u>Average Monthly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
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	126	409	See Footnote *6	Grab
Copper, Total ^{*7}	ug/l	5.2	7.3	See Footnote *6	24-Hour Composite
Lead, Total ^{*8}	ug/l	1.3	Report	See Footnote *6	24-Hour Composite
Zinc, Total	ug/l	66.5	66.5	See Footnote *6	24-Hour Composite
Cadmium, Total ^{*9}	ug/l	0.16	1.05	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, 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 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).
- *2. Report the National Weather Service data for Foxboro, MA for each sampling event. The permittee will 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.
- *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 limitations and monitoring requirements are effective from April 1st through October 31st. The monthly average limits are expressed as geometric means.
- *6. The permittee will conduct sampling once per week. 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.
- *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.
- *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.
- *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 LC₅₀ 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.

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 30 th July 31 th October 31 th January 31 th	<u>Ceriodaphnia dubia</u> (Daphnid) <u>Pimephales promelas</u> (Fathead minnow) See Attachment A	≥ 100 %	≥ 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 at the frequency specified in the permit until notice is received by certified mail from the EPA.

- *11. The LC₅₀ 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. 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}

<u>Effluent Characteristic</u>	<u>Units</u>	<u>Discharge Limitation</u>		<u>Monitoring Requirement</u>	
		<u>Average Monthly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
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	5.2	7.3	See Footnote *6	24-Hour Composite
Lead, Total ^{*7}	ug/l	1.3	33.8	See Footnote *6	24-Hour Composite
Zinc, Total	ug/l	66.5	66.5	See Footnote *6	24-Hour Composite
Cadmium, Total ^{*8}	ug/l	0.16	1.05	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 ^{*12}	24-Hour Composite
Whole Effluent Toxicity, C-NOEC ^{*10,*12,*13}	%	—	100	1 /Quarter ^{*12}	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 Robinson 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 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).
- *2. Report the National Weather Service data for Foxboro, MA for each sampling event. The permittee will 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 #26, or immediately after manhole #26, and prior to discharging into Robinson Brook.
- *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.
- *6. The permittee will conduct sampling once per week. 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.
- *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.
- *9. The minimum quantification level 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 LC₅₀ 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.

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 30 th July 31 th October 31 th January 31 th	<u>Ceriodaphnia dubia</u> (Daphnid) <u>Pimephales promelas</u> (Fathead minnow) See Attachment A	≥ 100 %	≥ 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 at the frequency specified in the permit until notice is received by certified mail from the EPA.

- *11. The LC₅₀ 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
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

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 Waste Prevention (Industrial)
20 Riverside Drive
Lakeville, MA 02347

Copies of toxicity tests only shall be sent to:

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

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.

**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-trichloroethane)

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

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 weather³. 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).

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

Whole Effluent Toxicity

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

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

Sampling frequency

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

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

VII. MONITORING AND REPORTING

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

VIII. ESSENTIAL FISH HABITAT DETERMINATION (EFH)

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

IX. STATE PERMIT CONDITIONS

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

X. STANDARD CONDITIONS

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

XI. STATE CERTIFICATION REQUIREMENTS

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

XII. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

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

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

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

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

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

XIII. EPA CONTACT

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

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

Kathleen Keohane
Department of Environmental Protection
Division of Watershed Management
627 Main Street
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Kathleen.Keohane@state.ma.us

Date

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

Attachment A.1.
Gudgeon Brook
Outfall 001 Conventional Pollutants

DATE	Flow (MGD)		Fecal Coliorm (#/100 ml)		pH (SU)	
	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

[illegible]

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
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 precipitation in previous 24 hour period = dry precipitation in winter onths may has been in the foram of snow. Also in winter, snow melt may have occurred on days with no precipitation

Gudgeon Brook Sumps Sampling Analytical Results - VOCs

[illegible]

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.

$$\text{Acute Copper Limit} = e^{(0.9422 * \ln 50) + (-1.7)} = 7.3 \text{ ug/l}$$

$$\text{Chronic Copper Limit} = e^{(0.8545 * \ln 50) + (-1.702)} = 5.2 \text{ ug/l}$$

Lead Limits:

Lead is dependent on the hardness of the receiving water.

$$\text{Acute Lead Limit} = e^{(1.273 * \ln 50) + (-1.46)} = 33.8 \text{ ug/l}$$

$$\text{Chronic Lead Limit} = e^{(1.273 * \ln 50) + (-4.705)} = 1.3 \text{ ug/l}$$

Zinc Limits:

Zinc is dependent on the hardness of the receiving water.

$$\text{Acute Limit} = e^{(0.8473 * \ln 50) + (0.884)} = 66.5 \text{ ug/l}$$

$$\text{Chronic Limit} = e^{(0.8473 * \ln 50) + (0.884)} = 66.5 \text{ ug/l}$$

Cadmium Limits:

Cadmium is dependent on the hardness of the receiving water.

$$\text{Acute Limit} = e^{(1.066 * \ln 50) + (-3.924)} = 1.27 \text{ ug/l}$$

$$\text{Chronic Limit} = e^{(0.7409 * \ln 50) + (-4.719)} = 0.16 \text{ ug/l}$$

Aluminum Limits:

Aluminum is not dependent on the hardness of the receiving water.

$$\text{Acute Limit} = (\text{acute criterion}) = (750 \text{ ug/l}) = 750 \text{ ug/l}$$

$$\text{Chronic Limit} = (\text{chronic criterion}) = (87 \text{ ug/l}) = 87 \text{ ug/l}$$

Attachment C.1.

Robinson Brook Discharge Wet Weather Sampling Analytical Results - Metals

[illegible]

Attachment C.2.

Robinson Brook Discharge Dry Weather Sampling Analytical Results - Metals

[illegible]

Robinson Brook Sump Sampling Analytical Results - Metals

[illegible]

Attachment C.4.

Robinson Brook Discharge Dry Weather Sampling Analytical Results - VOCs

[illegible]

Attachment C.5.

Robinson Brook Discharge Wet Weather Sampling Analytical Results - VOCs

[illegible]

Attachment C.6.

Robinson Brook Sumps Sampling Analytical Results - VOCs

[illegible]

[illegible]

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.

$$\text{Acute Copper Limit} = e^{(0.9422 * \ln 50) + (-1.7)} = 7.28 \text{ ug/l}$$

$$\text{Chronic Copper Limit} = e^{(0.8545 * \ln 50) + (-1.702)} = 5.15 \text{ ug/l}$$

Lead Limits:

Lead is dependent on the hardness of the receiving water.

$$\text{Acute Lead Limit} = e^{(1.273 * \ln 50) + (-1.46)} = 33.8 \text{ ug/l}$$

$$\text{Chronic Lead Limit} = e^{(1.273 * \ln 50) + (-4.705)} = 1.3 \text{ ug/l}$$

Zinc Limits:

Zinc is dependent on the hardness of the receiving water.

$$\text{Acute Limit} = e^{(0.8473 * \ln 50) + (0.884)} = 66.5 \text{ ug/l}$$

$$\text{Chronic Limit} = e^{(0.8473 * \ln 50) + (0.884)} = 66.5 \text{ ug/l}$$

Cadmium Limits:

Cadmium is dependent on the hardness of the receiving water.

$$\text{Acute Limit} = e^{(1.066 * \ln 50) + (-3.924)} = 1.27 \text{ ug/l}$$

$$\text{Chronic Limit} = e^{(0.7409 * \ln 50) + (-4.719)} = 0.16 \text{ ug/l}$$

Aluminum Limits:

$$\text{Acute Limit} = (\text{acute criterion}) = (750 \text{ ug/l}) = 750 \text{ ug/l}$$

$$\text{Chronic Limit} = (\text{chronic criterion}) = (87 \text{ ug/l}) = 87 \text{ ug/l}$$

Iron Limit:

$$\text{Chronic Limit} = (\text{chronic criterion}) = (1000 \text{ ug/l}) = 1000 \text{ ug/l}$$

Trichloroethylene Limit:

$$\text{Chronic Limit} = (\text{human health criterion for fish ingestion}) = 30 \text{ ug/l}$$

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02114

David Pincumbe

U.S. Environmental Protection Agency
5 Post Office Square, Suite 100-CMP
Boston, MA 02109-3912
Telephone: (617) 918-1695

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT PERIOD:

The public comment period for the draft permits begins on **August 3, 2011** and ends on **September 15, 2011**. 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). Comments should be directed to:

U.S. Environmental Protection Agency
5 Post Office Square, Suite 100-CMP
Boston, MA 02109-3912
Attn: David Pincumbe
Phone: (617) 918-1695
Fax: (617) 918-0695

Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest.

If during the public comment period, significant new questions are raised concerning the permit, EPA may require a new draft permit or fact sheet or may reopen the public comment period. A public notice will be issued for any of these actions.

In reaching a final decision on this draft permit the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISIONS AND APPEALS:

Following the close of the comment period, the Regional Administrator will issue a final permit decision and forward a copy of this final decision to the applicants 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 petition the Environmental Appeals Board (EAB) to review any condition of the permit decision. Procedures for appealing permits can be found at 40 CFR §§ 124.19 and 124.21 as amended by regulations effective June 14, 2000.

STEPHEN PERKINS, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION AGENCY

DAVID FERRIS, DIRECTOR
MASSACHUSETTS WASTEWATER MANAGEMENT PROGRAM
DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH of MASSACHUSETTS
BOSTON, MA