# 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 <u>et seq</u>.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

### Veryfine Products, Inc.

is authorized to discharge from the facility located at

### 20 Harvard Road Littleton, MA 01460

to the receiving water named **Reedy Meadow Brook**, a Class B water, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

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

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

This permit supersedes the permit issued on September 1, 2006.

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements, and state permit conditions, Attachment A – Freshwater Chronic Toxicity Test Protocol (April, 2013), and 25 pages in Part II, Standard Conditions.

Signed this 19<sup>th</sup> day of September, 2013.

### /S/ SIGNATURE ON FILE

Ken Moraff, Acting Director Office of Ecosystem Protection Environmental Protection Agency Boston, MA David Ferris, Director Massachusetts Wastewater Management Program Department of Environmental Protection Commonwealth of Massachusetts Boston, MA

### PART I.A. Effluent Limitations and Monitoring Requirements

1. During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to discharge, reverse osmosis system (RO) reject water, RO backwash water, contact cooling water, non-contract cooling water and beverage product wastewater<sup>1</sup> from outfall serial number **001** to Reedy Meadow Brook. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS		<u>S</u> <u>MONITORING REQUIREMENTS</u>	
PARAMETER	AVERAGE <u>MONTHLY</u>	MAXIMUM <u>DAILY</u>	MEASUREMENT <u>FREQUENCY</u>	SAMPLE TYPE <sup>2</sup>
Flow	0.55 MGD	0.75 MGD	Continuous	Recorder <sup>3</sup>
Dissolved Oxygen	7.0 mg/l	as a minimum	1/Week	Grab
pH Range	6.5 -	- 8.3 s.u.	1/Day	Grab
Total Suspended Solids	10 mg/l	20 mg/l	1/Week	24-Hour Composite <sup>4</sup>
Biochemical Oxygen Demand, 5 day	10 mg/l	20 mg/l	1/Week	24-Hour Composite <sup>4</sup>
Total Recoverable Aluminum	0.1 mg/l	Report mg/l	1/Month	24-Hour Composite <sup>4</sup>
Temperature	******	83 °F	1/Week	Grab
Total Residual Chlorine <sup>5</sup>	12 ug/l	21 ug/l	1/Week	Grab
Total Phosphorus, April 1 – Oct. 31 <sup>6</sup>	0.23 lbs/day Report mg/l	1.25 lbs/day Report mg/l	1/Week	24-Hour Composite <sup>4</sup>
Total Phosphorus, Nov. 1 – March 31 <sup>6</sup>	0.46 lbs/day Report mg/l	1.25 lbs/day Report mg/l	1/Week	24-Hour Composite <sup>4</sup>
Total Ammonia Nitrogen	Report mg/l & lbs/day	Report mg/l & lbs/day	1/Month	24-Hour Composite <sup>4</sup>
Oil & Grease	******	15 mg/l	1/Quarter	Grab

Footnotes are listed on Page 4 through 6.

EFFLUENT CHARACTERISTIC	EFFLUE	ENT LIMITS	MONITORING	<u>G REQUIREMENTS</u>
PARAMETER	AVERAGE <u>MONTHLY</u>	MAXIMUM <u>DAILY</u>	MEASUREMENT <u>FREQUENCY</u>	SAMPLE TYPE <sup>1</sup>
Fecal Streptococcus, Apr. 1- Oct. 31 <sup>7</sup>	Report cfu/100 ml	Report cfu/100 ml	1/Month	Grab
Escherichia coli, Apr. 1- Oct. 31 <sup>7</sup>	Report cfu/100 ml	Report cfu/100 ml	1/Month	Grab
Priority Pollutant Scan <sup>8</sup>	Report ug/l	Report ug/l	1/Year	24-Hour Composite <sup>4</sup>
Whole Effluent Toxicity 9,10,11	$LC_{50} \ge 100\%$ ; (	C-NOEC ≥ 91%	1/Quarter	24-Hour Composite <sup>4</sup>
Total Recoverable Aluminum <sup>12</sup>	0.1 mg/l	Report ug/l	1/Quarter	24-Hour Composite <sup>4</sup>
Total Recoverable Cadmium <sup>12</sup>	******	Report ug/l	1/Quarter	24-Hour Composite <sup>4</sup>
Total Recoverable Copper <sup>12</sup>	******	Report ug/l	1/Quarter	24-Hour Composite <sup>4</sup>
Total Recoverable Lead <sup>12</sup>	******	Report ug/l	1/Quarter	24-Hour Composite <sup>4</sup>
Total Recoverable Nickel <sup>12</sup>	******	Report ug/l	1/Quarter	24-Hour Composite <sup>4</sup>
Total Recoverable Zinc <sup>12</sup>	******	Report ug/l	1/Quarter	24-Hour Composite <sup>4</sup>

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

b. The pH of the effluent shall be in the range of 6.5 to 8.3 standard units and not more than 0.5 s.u. outside of the natural background range. There shall be no change from natural background conditions that would impair any use assigned to this Class.

- c. The discharge shall not cause objectionable discoloration of the receiving waters.
- d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
- e. The results of sampling for any parameter above its required frequency must also be reported.

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### Part I.A.1 (continued)

### Footnotes:

- 1. This beverage wastewater includes beverage wastewater from three local manufacturers. See Part I.D. of this permit for the provision which allows for the use of such wastewater in the permittee's biological treatment system and the procedure which the permittee needs to follow to receive approval for the use of beverage wastewater from another facility during this permit term. The permittee shall report the total amount of off-site beverage wastewater that it uses in its treatment system for each month in its Discharge Monitoring Report (DMR) cover letter.
- 2. Samples taken in compliance with the monitoring requirements specified above shall be taken after ultraviolet (UV) disinfection and prior to mixing with any other stream. A routine sampling program shall be developed in which samples are taken at the same location, approximately the same time, and the same days of every month, whenever feasible. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA. In addition, all samples shall be analyzed using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.
- 3. For flow, the maximum and minimum daily rates and total flow for each operating date shall be reported. This data shall be attached to each DMR. The permittee shall also estimate and report the monthly usage of all off-site beverage wastewater that is used in its treatment plant.
- 4. Composite samples shall be comprised of at least 24 flow-weighted individual samples taken throughout one full operational day (e.g., 0700 Monday to 0700 Tuesday).
- 5. The minimum level (ML) for Total Residual Chlorine (TRC) is defined as 20 ug/l using EPA approved methods found in the most currently approved version of <u>Standard Methods for the Examination of Water and Wastewater</u>, Method 4500 CL-E and G, or <u>USEPA Methods for Chemical Analysis of Water and Wastes</u>, Method 330.5. One of these methods must be used to determine TRC concentration. The ML is not the minimum level of detection, but rather the level at which the entire analytical system shall give recognizable signal and calibration points for a particular TRC method. If EPA approves a more sensitive method of analysis for TRC, the permit may be reopened to require the use of the new method with a corresponding lower ML. When reporting sample data below the ML, see the latest <u>EPA Region NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs)</u> for guidance.

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- 6. The year round, daily maximum limit for phosphorus of 1.25 pounds per day is based on the concentration level of 0.2 mg/l and the maximum daily flow limit of 0.75 MGD. The monthly average phosphorus limit of 0.46 pounds per day for the period of November 1 through March 31 is based on the concentration level of 0.1 mg/l and the monthly average flow limit of 0.55 MGD. For the period of April 1 through October 31, the monthly average phosphorus limit of 0.23 pounds per day is based on the concentration level of 0.05 mg/l and the monthly average flow of 0.55 MGD. In addition, this limit is expressed as a sixty (60) day rolling average limit. Beginning on the 60<sup>th</sup> day after April 1, the 60 day average value shall be calculated for each week that sampling is conducted and the highest 60 day average value for that month must be reported on the monthly discharge monitoring report (DMR). For the months of April and May, the monthly average total phosphorus shall be reported. Consistent with Section B.1 of Part II of the Permit, the Permittee shall properly operate and maintain the phosphorus removal facilities in order to obtain the lowest effluent concentration possible. The minimum level (ML) for phosphorus is defined as 10 ug/l. This value is the ML for phosphorus using EPA approved methods found in the most currently approved versions of Standard Methods for the Examination of Water and Wastewater. One of these methods must be used to determine total phosphorus. Sample results of less than 10 μg/l shall be reported as zero on the DMR.
- 7. E.coli and fecal Streptococci shall be monitored seasonally, between April 1 and October 31 of each year.
- 8. A priority pollutant scan shall be conducted once per year during the second calendar quarter of the year (April through June) and during a period when any approved, off-site beverage wastewater is being used in the permittee's treatment system. The results of this scan shall be submitted with the June DMR. These submittals shall include all test results. The list of parameters to be tested is from EPA's Form 2C application, although there are some portions of the pollutant list that are not required to be analyzed. The permittee shall analyze for parameters 1M through 13M, and parameters 1V through 31V of the Form 2C application, as well as for ethanol.
- 9. The permittee shall conduct chronic whole effluent toxicity (WET) tests on samples collected during the second week of January, April, July and October of each year. The permittee shall test the fathead minnow, *Pimephales promelas*, only. Toxicity testing reporting is due the last day of the month following the month of the test. For example, the January toxicity test result shall be submitted no later than February 28<sup>th</sup>. The testing schedule is summarized in the table below. The test must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit and conducted during normal operating conditions.

Test Dates: Second Week in	Submit Results by:	<b>Test Species</b>	LC <sub>50</sub> Limit	Chronic Limit: C-NOEC
January April July October	February 28 <sup>th</sup> May 31 <sup>st</sup> August 31 <sup>st</sup> November 30 <sup>th</sup>	<u>Pimephales promelas</u> (Fathead Minnow)	≥ 100 %	≥91 %

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- 10.  $LC_{50}$  is the concentration of the effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate in the test species. The 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 as determined from hypothesis testing where the test results exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The permit limit of "91% or greater" is defined as a sample which is composed of 91% or greater effluent, the remainder being dilution water. This limit is derived as a percentage of the inverse of the dilution factor of 1.1.
- 11. For the purpose of conducting the toxicity tests on the fathead minnow, *Pimephales promelas*, alternate dilution water (ADW) may be used. For ADW, the permittee may use laboratory water as diluent and such diluent shall have characteristics such as hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids that are similar to those of the receiving water and that shall not illicit a toxic response. ADW tests must be run with a minimum of two controls: a receiving water (Reedy Meadow Brook) control and a toxicity-free alternate dilution water control. Chemical data of the receiving water control, including data for all metals listed in the protocol, must be included in the WET report.
- 12. For each WET test, the permittee shall report on the appropriate DMR, the concentrations of the total recoverable aluminum, cadmium, copper, lead, nickel, and zinc detected in a 100 % effluent sample. All these aforementioned chemical parameters shall be determined to at least the minimum quantification levels shown in **Attachment A** on page 4 of 7, or as amended. The permittee should note that all chemical parameter results must still be reported in the appropriate WET test report.

Part I.A. (continued):

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge stormwater from internal outfall serial number <b>002</b> , which discharges to Outfall 001. Such discharges shall be limited and monitored as specified below.				
EFFLUENT <u>CHARACTERISTIC</u>	EFFLUENT LIMITS	MONITORING REQUIREMENTS		
PARAMETER	MAXIMUM DAILY	MEASUREMENT <u>FREQUENCY</u>	SAMPLE TYPE <sup>1,2</sup>	
Flow	Report MGD	1/Month	Recorder	
Total Suspended Solids	100 mg/l	1/Month	Grab	
Oil and Grease	15 mg/l	1/Quarter	Grab	
pH Range	See part I.A.2.b. below	3/Quarter	Grab	
Total Phosphorus	Report mg/l	1/Month	Grab	

Part I.A.2. (Continued)

- a. The discharge shall not cause a violation of the water quality standards of the receiving waters.
- b. The range of 3 grab samples taken each quarter for pH shall be reported.
- c. The discharge shall not cause objectionable discoloration of the receiving waters.
- d. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
- e. The results of sampling for any parameter above its required frequency must also be reported.

Footnotes:

- 1. Sampling for all parameters shall be conducted at the point that the detention basin discharges into the vault marked "S/N 002 monitoring point." Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP. All samples shall be tested using the analytical methods found in 40 CFR 136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR 136.
- 2. A representative storm event grab sample shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least seventy two (72) hours after a previously measurable (greater than 0.1 inches) storm event. Grab samples shall be collected within sixty (60) minutes after the initiation of such storm event. If there is no storm event that meets this definition for a particular month, the permittee shall report the "no discharge" (NODI) code of "9" on its DMR for that month.

### Part I.A. (continued):

### 3. Toxics Control

- a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.
- b. Any toxic components of the effluent shall 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.
- 4. Numerical Effluent Limitations for Toxicants

EPA or MassDEP may use the results of the chemical analyses 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.

5. Notice of Significant Change in Product Mix or Treatment System

The permittee shall notify EPA and MassDEP whenever it is planning to make a significant change to its raw ingredients or final product mix, or when it is planning to undergo a change or addition to its treatment system that may alter the quality or composition of its discharges. Upon such notification, EPA and MassDEP will review the information and make a determination regarding whether or not any permit modification is necessary to address any such changes. This notification should be made as far enough in advance as possible in order for the agencies to have ample time to consider it and make the appropriate determination.

- 6. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
  - a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - (1) One hundred micrograms per liter (100 ug/l);
    - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2methyl-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 §122.21(g)(7); or
- (4) Any other notification level established by the Director in accordance with 40 CFR §122.44(f).
- b. That any activity has occurred or will occur which could result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - (1) Five hundred micrograms per liter (500 ug/l);
  - (2) One milligram per liter (1 mg/l) for antimony;
  - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
  - (4) Any other notification level established by the Director in accordance with 40 CFR §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.

### **B. UNAUTHORIZED DISCHARGES**

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls listed in Parts I A.1 and I.A.2 of this permit. Discharges of wastewater from any other point sources not authorized by this permit shall be reported in accordance with Part II Standard Conditions Section D.1.e.(1) of this permit (Twenty-four hour reporting).

### C. STORMWATER POLLUTION PREVENTION PLAN

1. The permittee shall continue to implement and maintain a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce, or prevent, the discharge of pollutants in stormwater 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 Stormwater Discharges Associated with Industrial Activities (http://cfpub.epa.gov/npdes/stormwater/msgp.cfm).

- 2. The SWPPP shall be updated and certified by the permittee within ninety (90) days after the effective date of this permit. The permittee shall certify that its SWPPP has been updated and shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of this 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 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 stormwater flows, and locations of all existing structural control measures, stormwater conveyances, pollutant sources (identified in Part 3.c. below), stormwater monitoring points, stormwater inlets and outlets, and industrial activities exposed to precipitation such as, materials storage, disposal, and material handling.
  - c. A summary of all pollutant sources which includes a list of activities exposed to stormwater, the pollutants associated with these activities, a description of where spills have occurred or could occur, a description of non-stormwater discharges, and a summary of any existing stormwater discharge sampling data.
  - d. A description of all stormwater 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 stormwater to waters of the United States and to satisfy any non-numeric technology-based effluent limitations included in this pemrit. 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 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 technologybased effluent limitations:
  - a. Minimizing exposure of manufacturing, processing, and material storage areas to stormwater 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 stormwater 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 stormwater 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 stormwater and all structural controls 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 stormwater pollution prevention team. Inspections shall begin during the 1<sup>st</sup> full calendar quarter after the effective date of this permit. EPA considers calendar quarters as follows: January to March; April to June; July to September; and October to December. Each inspection must include a visual assessment of stormwater samples (from each outfall), which shall be collected within the first thirty (30) minutes of discharge from a storm event, stored in a clean, clear glass or plastic container, and examined in a well-lit area for the following water quality characteristics: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of pollution. 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. If applicable, why it was not possible to take samples within the first 30 minutes;
  - d. Weather information and a description of any discharges occurring at the time of the inspection;
  - e. Results of observations of stormwater discharges, including any observed discharges of pollutants and the probable sources of those pollutants;
  - f. Any control measures needing maintenance, repairs or replacement; and,
  - g. Any additional control measures needed to comply with the permit requirements.
- 6. The permittee shall amend and update the SWPPP within fourteen (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. Changes which may affect the SWPPP include, but are not limited to, the following activities: a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States; a release of a reportable quantity of pollutants as described in 40 CFR §302; or a determination by the permittee or EPA that the SWPPP appears to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with industrial activity.

7. Any amended, modified, or new version 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, recertifications, 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 stormwater effluent limits with a date and description of the corrective actions taken.

### D. PROVISIONS FOR THE USE AND APPROVAL OF OTHER BEVERAGE FACILITY WASTEWATERS

The permittee is authorized to accept and store wastewater from three local beverage manufacturing facilities and to periodically add this wastewater to its biological wastewater treatment system, only as needed, in order to effectively provide the optimal conditions for treatment. The current providers of this wastewater are Epic Enterprises, Inc., Cpf, Inc, and Tate & Lyle. Upon accepting this water at its facility, this water becomes the responsibility of the permittee. In order to use wastewater from any other beverage manufacturer in its treatment system during this permit term, the permittee must provide to EPA and MassDEP information about the source of such water in advance including the name of the company, the range of its products, what type of tanker will be used to transfer such product, and any other uses for this tanker. The permittee shall also provide a priority pollutant scan of a sample of the beverage wastewater for which it is requesting approval for use in its treatment plant. At a minimum, this priority pollutant scan shall analyze for parameters 1M through 13M, and parameters 1V through 31V of the EPA's Form 2C application, as well as for ethanol and the permittee shall include all test results with its submittal.

The permittee shall not introduce such wastewater into its treatment system before getting written approval by the EPA and MassDEP. Upon written approval of accepting such wastewater, the permittee may use this water in its treatment plant and assure that the combination of all beverage wastewaters used in the treatment plant does not cause or contribute to any permit limits violations. Only beverage wastewater shall be used from each approved facility and such water shall not be commingled with any other wastewater from each approved facility. An annual priority pollutant scan requirement is established in this permit to assess whether any parameters that were detected in any of the off-site beverage wastewater sources are detected in the effluent. This would allow EPA and MassDEP to determine whether any such pollutants would cause or contribute to any violation of instream WQS. The sampling for this scan shall be conducted during the period of April through June of each year and during a period when the facility is using any off-site

beverage wastewater in its treatment system. The permittee is also required to record how much off-site beverage wastewater was used each calendar month and this amount shall be reported in each DMR.

### **E. REOPENER CLAUSE**

- 1. This permit shall be modified, or alternately, revoked and reissued, to comply with any applicable standard or limitation promulgated or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
  - a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
  - b. Controls any pollutants not limited in the permit.

### F. 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: <u>http://www.epa.gov/netdmr</u>. 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 electronic attachments to the DMRs. 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:

<u>Attn: NetDMR Coordinator</u> 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, 2<sup>nd</sup> 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 15<sup>th</sup> 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 (including those in Part I.D) shall be submitted to the State at the following address:

Massachusetts Department of Environmental Protection Central Regional Office Bureau of Waste Prevention (Industrial)

### 627 Main Street Worcester, MA 01608 Duplicate signed copies of all reports or notifications required above, with the exception of DMRs, shall be submitted to the State at the following address:

Massachusetts Department of Environmental Protection Division of Watershed Management 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.

### G. STATE PERMIT CONDITIONS

- 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 <u>et seq</u>.; 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 CMR 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 an NPDES 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, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

## FRESHWATER CHRONIC TOXICITY TEST PROCEDURE AND PROTOCOL USEPA Region 1

### I. GENERAL REQUIREMENTS

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

- Daphnid (<u>Ceriodaphnia dubia</u>) Survival and Reproduction Test.
- Fathead Minnow (<u>Pimephales promelas</u>) Larval Growth and Survival Test.

Chronic toxicity data shall be reported as outlined in Section VIII.

### **II. METHODS**

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

### **III. SAMPLE COLLECTION AND USE**

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

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

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

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

### **IV. DILUTION WATER**

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

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

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

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

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

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

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

Director Office of Ecosystem Protection (CAA) U.S. Environmental Protection Agency, Region 1 Five Post Office Square, Suite 100 Mail Code OEP06-5 Boston, MA 02109-3912

and

Manager Water Technical Unit (SEW) U.S. Environmental Protection Agency Five Post Office Square, Suite 100 Mail Code OES04-4 Boston, MA 02109-3912

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

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

### V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

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

V.1. Use of Reference Toxicity Testing

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

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

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

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

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

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall <u>slightly</u> outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall <u>well</u> outside the established **upper** control limits i.e.  $\geq 3$  standard deviations for IC25 values and  $\geq$  two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and <u>must</u> be repeated.

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

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

### VI. CHEMICAL ANALYSIS

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

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

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness <sup>1, 4</sup>	Х	X	0.5
Total Residual Chlorine (TRC) <sup>2, 3, 4</sup>	Х		0.02
Alkalinity <sup>4</sup>	Х	Х	2.0
$pH^4$	Х	Х	
Specific Conductance <sup>4</sup>	Х	Х	
Total Solids <sup>6</sup>	Х		
Total Dissolved Solids <sup>6</sup>	Х		
Ammonia <sup>4</sup>	Х	Х	0.1
Total Organic Carbon <sup>6</sup>	Х	Х	0.5
Total Metals <sup>5</sup>			
Cd	Х	Х	0.0005
Pb	Х	Х	0.0005
Cu	Х	Х	0.003
Zn	Х	Х	0.005
Ni	Х	Х	0.005
Al	Х	Х	0.02
Other as permit requires			
Notes:			
1. Hardness may be determined by:			

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

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

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

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing

4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.

5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4

6. Analysis to be performed on initial samples only

## VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

### A. Test Review

### 1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing <u>and</u> Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at

<u>http://water.epa.gov/scitech/methods/cwa/</u>. In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

### 2. Test Variability (Test Sensitivity)

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

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

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the PLC, the test is considered acceptable and does not have to be repeated.
- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.
- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.
- B. Statistical Analysis
- 1. General Recommended Statistical Analysis Method

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

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

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

2. Pimephales promelas

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

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

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

3. Ceriodaphnia dubia

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

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

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### PART II. A. GENERAL REQUIREMENTS

#### 1. Duty to Comply

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

- a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.
- b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed \$25,000 per day for each violation. Any person who <u>negligently</u> violates such requirements is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who <u>knowingly</u> violates such requirements is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.
- c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.

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

2. Permit Actions

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

#### 3. Duty to Provide Information

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

#### 4. <u>Reopener Clause</u>

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

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

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

#### 5. Oil and Hazardous Substance Liability

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

#### 6. Property Rights

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

#### 7. <u>Confidentiality of Information</u>

- a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).
- b. Claims of confidentiality for the following information will be denied:
  - (1) The name and address of any permit applicant or permittee;
  - (2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).
- c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

#### 8. Duty to Reapply

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

#### 9. State Authorities

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

### 10. Other Laws

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

### PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

#### 1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

#### 2. <u>Need to Halt or Reduce Not a Defense</u>

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

#### 3. Duty to Mitigate

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

#### 4. <u>Bypass</u>

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

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

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

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

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

- (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- (3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.

ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

#### 5. <u>Upset</u>

- a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

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

- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
  - (2) The permitted facility was at the time being properly operated;
  - (3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
  - (4) The permittee complied with any remedial measures required under B.3. above.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

### PART II. C. MONITORING REQUIREMENTS

- 1. Monitoring and Records
  - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application <u>except for the information concerning storm water discharges which must be retained for a total of 6 years</u>. This retention period may be extended by request of the Regional Administrator at any time.
  - c. Records of monitoring information shall include:
    - (1) The date, exact place, and time of sampling or measurements;
    - (2) The individual(s) who performed the sampling or measurements;
    - (3) The date(s) analyses were performed;
    - (4) The individual(s) who performed the analyses;
    - (5) The analytical techniques or methods used; and
    - (6) The results of such analyses.
  - d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.
  - e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by

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

#### 2. Inspection and Entry

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

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

### PART II. D. REPORTING REQUIREMENTS

- 1. <u>Reporting Requirements</u>
  - a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:
    - (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR \$122.29(b); or
    - (2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR §122.42(a)(1).
    - (3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
  - b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
  - c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

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

- d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
  - (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.
  - (2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.
  - (3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.
- e. Twenty-four hour reporting.
  - (1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

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

- (2) The following shall be included as information which must be reported within 24 hours under this paragraph.
  - (a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
  - (b) Any upset which exceeds any effluent limitation in the permit.
  - (c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)
- (3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

- f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.
- h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

### 2. Signatory Requirement

- a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)
- b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

### 3. Availability of Reports.

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

### PART II. E. DEFINITIONS AND ABBREVIATIONS

### 1. Definitions for Individual NPDES Permits including Storm Water Requirements

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

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

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

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

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

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

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

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

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

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

Construction Activities - The following definitions apply to construction activities:

- (a) <u>Commencement of Construction</u> is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.
- (b) <u>Dedicated portable asphalt plant</u> is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.
- (c) <u>Dedicated portable concrete plant</u> is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

- (d) <u>Final Stabilization</u> means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.
- (e) <u>Runoff coefficient</u> means the fraction of total rainfall that will appear at the conveyance as runoff.

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

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

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

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

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

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

#### *Discharge of a pollutant*\_means:

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

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

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

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

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

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

EPA means the United States "Environmental Protection Agency".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- (a) From which there is or may be a "discharge of pollutants";
- (b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;
- (c) Which is not a "new source"; and
- (d) Which has never received a finally effective NPDES permit for discharges at that "site".

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

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

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

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

NPDES means "National Pollutant Discharge Elimination System".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);
- (2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and
- (3) satisfies at least one of the following criteria:
  - (i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
  - (ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
  - (iii) are pollutants for which EPA has published acute or chronic water quality criteria.

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

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

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

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

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

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

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

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

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

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

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

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

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

Waters of the United States means:

- (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;
- (b) All interstate waters, including interstate "wetlands";
- (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  - (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;
  - (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - (3) Which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;
- (f) The territorial sea; and
- (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

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

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

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

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

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

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

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

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

- (1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and
- (2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Range land is open land with indigenous vegetation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified	
CBOD	Carbonaceous BOD	
CFS	Cubic feet per second	
COD	Chemical oxygen demand	
Chlorine		
Cl <sub>2</sub>	Total residual chlorine	
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)	

TRO	Total residual chlorine in marine waters where halogen compounds are present	
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)	
Coliform		
Coliform, Fecal	Total fecal coliform bacteria	
Coliform, Total	Total coliform bacteria	
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.	
Cu. M/day or M <sup>3</sup> /day	Cubic meters per day	
DO	Dissolved oxygen	
kg/day	Kilograms per day	
lbs/day	Pounds per day	
mg/l	Milligram(s) per liter	
ml/l	Milliliters per liter	
MGD	Million gallons per day	
Nitrogen		
Total N	Total nitrogen	
NH <sub>3</sub> -N	Ammonia nitrogen as nitrogen	
NO <sub>3</sub> -N	Nitrate as nitrogen	
NO <sub>2</sub> -N	Nitrite as nitrogen	
NO <sub>3</sub> -NO <sub>2</sub>	Combined nitrate and nitrite nitrogen as nitrogen	
TKN	Total Kjeldahl nitrogen as nitrogen	
Oil & Grease	Freon extractable material	
РСВ	Polychlorinated biphenyl	
рН	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material	
Surfactant	Surface-active agent	

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

# VIII. TOXICITY TEST REPORTING

A report of results must include the following:

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

In addition to the summary sheets the report must include:

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

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# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND - REGION I 5 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 PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NO. MA0004936

DATE OF PUBLIC NOTICE: December 7, 2012 – January 5, 2013

## NAME AND ADDRESS OF APPLICANT:

Veryfine Products, Inc. 20 Harvard Road Littleton, MA 01460

## NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Veryfine Products, Inc. 20 Harvard Road Littleton,MA 01460

**RECEIVING WATER**: Reedy Meadow Brook (Segment MA84B-01)

**RECEIVING WATER CLASSIFICATION:** Class B (Warm Water Fishery)

LATITUDE: 42E 32' 25" N LONGITUDE: 71E 30' 55" W

**SIC CODE:** 2086 – Water, flavored, manufacturing; Beverages, fruit and vegetable drinks, cocktails, and ades, manufacturing

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Table 1 -	Outfall 001	Discharge	Monitoring	Report Data

 Table 2 - Outfall 001 Discharge Monitoring Report Data Summary

 Table 3 - Outfall 002 Discharge Monitoring Report Data Summary

Figure 1 - Facility Location

Figure 2 - Location of Outfalls

Figure 3 - Process Flow diagram

Figure 4 - Wastewater Treatment Plant Schematic

Figure 5 - Water Pre-Treatment and Reverse Osmosis Filtration System

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#### I. Proposed Action, Type of Facility, and Discharge Location

Veryfine Products, Inc., the "Permittee", is a wholly owned subsidiary of Sunny Delight Beverages Company and is engaged in the manufacture of flavored water, fruit-based juices, and other beverages. The company also co-manufactures flavored waters and juices for its customers. The facility produces roughly 5 million cases of flavored water products and about 6 million cases of fruit juice and tea products annually.

The permittee has applied to the U.S. Environmental Protection Agency (EPA) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge treated process wastewater, reverse osmosis (RO) reject water, RO system backwash water, RO system cleaning rinse water, non-contact cooling, and contact cooling water to Reedy Meadow Brook, via Outfall 001. The permittee is also authorized to discharge storm water from an on-site retention pond to Outfall 002, an internal outfall, which combines to Outfall 001 prior to discharge to Reedy Meadow Brook. See Figure 1 for a map of the facility location and Figure 2 for the location of the outfalls.

The current permit ("2006 Permit") was issued on September 1, 2006 and expired five years from the effective date, on November 1, 2011. EPA received a completed permit renewal application from the applicant dated March 30, 2011, with supplemental information submitted on June 21, 2011. Since the permit renewal application was deemed timely and complete by EPA, the permit has been administratively continued pursuant to 40 CFR § 122.6.

## II. Description of Treatment System and Discharges

This facility historically processed fresh apples and fresh and frozen cranberries into juice products. All fruit based juices are now made with fruit concentrates and no processing of fresh fruits occurs on the premises. During the last few years, this plant has increased its production of flavored water and tea products, which has led to a decline of fruit juice production. As of February 2012, this facility's product mix is roughly 55% juice products and 45% flavored water products. The facility has noted that this product mix is evaluated periodically and changes slightly over time. As required by Part I.A.5 of the permit, the permittee shall notify EPA and MassDEP when it is planning to make a significant change to its product mix or when it is planning to undergo a change or addition to its treatment system that may alter the quality of the effluent. This will allow the agencies the time to determine whether or not such changes would result in changes to effluent quality which would necessitate a permit modification.

The facility employs several bottling lines for its products. Fruit juice products typically undergo a pasteurization step which heats the products up to 195<sup>0</sup>F. There are also bottle washing operations and non-contact cooling waters from heat exchangers that are routed to the wastewater treatment plant (WWTP). As proportionately less fruit juice is being produced at the plant, there has been a reduction in heated waters from the bottling lines and a reduction in the Biochemical

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Oxygen Demand (BOD) content of these waters, which is typically high in the fruit juice wastewater. The floor drains in the bottling and canning operations collect washdown water and any spills and send them to the WWTP. The cans of juices that undergo pasteurization are cooled with contact cooling water which is returned to rooftop cooling towers for heat removal and periodically discharged to the treatment plant. Each bottling line has a semi-closed loop cooling water recycle system, consisting of recirculating pumps and chiller systems located on the roofs of its building. See Figure 3 for a process flow diagram of the bottling and canning operations at the facility.

In 1993, Veryfine completed the construction of a new biological treatment system for its process wastewater and the permit issued in 1993 included extensive monitoring due to water quality concerns and also to get sufficient operating data for this plant, which at the time represented relatively new treatment technology. The plant treats high strength (high BOD) wastewater, low strength (low BOD) wastewater, non-contact cooling water (NCCW), and Reverse Osmosis reject (ROR) water and water associated with backwashing the RO units. See Figure 4 for a schematic of Veryfine's WWTP.

As the permittee has transitioned from juice products to flavored waters and teas, the amount of oxygen demand to its biological treatment system has been reduced considerably, essentially starving the treatment system's biomass. Biological treatment relies on bacterial biomass to break down organic matter which cannot survive without a steady stream of organic matter. Therefore, during the last permit term, the permittee received approval from the MassDEP to accept socalled "high strength wastewater" (high in COD) from other beverage manufacturing facilities after a pilot study showed that adding these high strength waters to its treatment system would greatly improve the WWTP's efficiency. The permittee expects to need to continue using such high strength wastewater in its treatment system due to its product mix in order to be able to meet this permit's BOD and TSS limits. Currently, Veryfine accepts water from three local beverage manufacturers which it stores on site, and which is referred to as "off-site beverage wastewater". This water is metered into the treatment plant as needed and comprises up to 3% of the total water treated, or up to 17,000 gallons per day compared to the limited monthly flow of 550,000 gpd (0.55 MGD). During the permit application process, the EPA and MassDEP requested and the permittee provided, a priority pollutant scan for each source of wastewater that it was accepting at its facility. The results of these scans are shown below.

Pollutant	Vendor #1	Vendor #2	Vendor #3
Aluminum, mg/l	0.74	3.1	1.9
Arsenic, mg/l	0.014	0.13	0.94
Copper, mg/l	0.023	0.23	0.19
Lead, mg/l	0.003	0.014	0.13
Nickel, mg/l	0.011	0.062	0.019
Selenium, mg/l	0.015	Not detected	0.084
Zinc, mg/l	0.014	0.83	0.68

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Phosphorus, mg/l	12	17	0.13
TSS, mg/l	133	2595	178
Oil & Grease, mg/l	3	43	13
Ethanol, mg/l	118,000	14,600	82,000
Chloroform, mg/l	15.8	Not detected	Not detected
Phenols, mg/l	Not detected	0.2	0.04

Based on these sampling results and the high degree of dilution that the off-site beverage wastewater will experience through the treatment plant, EPA and MassDEP authorize the continued use of this wastewater in the permittee's wastewater treatment system. Most of these parameters are either monitored as part of the WET testing requirement or are limited in the draft permit, with the exception of ethanol, chloroform, and phenols. The addition of this wastewater shall not cause or contribute to any violations of the permit's limits or conditions. Part I.D. of the draft permit has set forth the necessary steps that the permittee must take in order to gain approval from EPA and MassDEP to use beverage wastewater from any other manufacturer in its treatment system. The permittee will need to report how much of this off-site beverage wastewater it uses in its WWTP each month. In addition, in order to assess whether any of the parameters present in these beverage wastewaters are present in Veryfine's effluent, there has been an annual priority pollutant scan requirement continued in this permit. Sampling for this scan shall be conducted during the second calendar quarter of the year (April through June) and during a period when the off-site beverage wastewater is being used in the WWTP.

Veryfine's wastewater treatment plant (WWTP) employs pretreatment with screening and grit removal. The high strength flow is treated in an upflow anaerobic sludge blanket (UASB) reactor. An activated sludge system is then used to treat the UASB effluent along with the low strength water, NCCW, and ROR water. These flows are then sent through a reactor clarifier with alum to remove phosphorus. This is followed by automatic backwash variety sand filters for removal of suspended solids. This is followed by post aeration and ultraviolet disinfection. Flow is measured by a Parshall flume after the UV unit and this is where the effluent sampling is conducted. Sludge is collected via a filter press operation and taken by truck to a facility operated by Mass Natural Fertilizer Company in Westminster, Massachusetts where it is composted for use as fertilizer.

The permittee treats municipal water with a reverse osmosis (RO) system for its flavored water products. This RO process results in the ROR water, which was authorized as a portion of the effluent for the 2006 permit. This reject water contributes about 38,000 gallons per day to the waste stream, which is treated in the biological treatment system. The RO system is shown in Figure 5. Since the ROR water was a new wastewater source to this treatment plant, the 2006 permit required a priority pollutant scan of the effluent be conducted quarterly for the first calendar year of the reissued permit term. Sampling for this 24 hour composite scan was conducted during a period of RO system use and at least 2 of the 4 quarterly samples were conducted during a period of RO system cleaning. All four PP scans showed that there were no

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detectable levels of any of the pollutants analyzed. As already noted, an annual PP scan requirement has been maintained in the draft permit.

This RO system is backflushed on a regular basis and this water enters the treatment system with the cooling water flow prior to the SBRs, at about 50,000 gallons per week. This backwash is based on run time of the system. The RO filters are replaced as necessary, with the old filters taken off site and not cleaned at the facility.

Veryfine has an internal storm water outfall (#002) which is comprised of storm water from building roofs and parking lot drains. These flows are directed to a retention basin, prior to being combined with Outfall 001 flows for eventual discharge to Reedy Meadow Brook. There are oil/water separators for each storm water catch basin leading to the retention basin and a separator in the discharge line to the basin itself.

A summary of recent Discharge Monitoring Reports (DMRs) data may be found in Tables 1, 2 and 3. These data comprise the period between January 2009 and September 2012, which is referred to as the "monitoring period" in this fact sheet.

# III. <u>Receiving Water Description</u>

Outfalls 001 and 002 discharge to Reedy Meadow Brook (RMB), which is in the Merrimack River watershed. RMB is classified by the Massachusetts Department of Environmental Protection (MassDEP) as Segment MA84B-01, originates at an impoundment upstream of Bruce Street in Littleton, and travels a distance of 1.5 miles before entering Mill Pond. This segment is classified as Class B (warm water fishery)<sup>1</sup>, by the MassDEP under the Commonwealth of Massachusetts Surface Water Quality Standards (SWQS).<sup>2</sup>

Class B waters are described in the SWQS (314 CMR 4.05(3)(b)) as "designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."

Warm water fisheries are defined in the MA SWQS as "waters in which the maximum mean monthly temperature generally exceeds 68°F during the summer months and are not capable of sustaining a year-round population of cold water stenothermal aquatic life" (314 CMR §4.02).<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> <u>http://www.mass.gov/dep/water/laws/tblfig.pdf</u>

<sup>&</sup>lt;sup>2</sup> http://www.mass.gov/dep/service/regulations/314cmr04.pdf

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According to the *Merrimack River Watershed 2004 Water Quality Assessment Report*, <u>http://www.mass.gov/dep/water/resources/84wqar09.pdf</u>, there were insufficient data available to determine whether this segment was meeting its designated uses as identified in the WQS. However, the aquatic life designated use was put on "alert" status. It was noted that water samples collected upstream of the permittee's discharge for use as a site control for the facility's whole effluent toxicity (WET) testing between January 2001 and April 2009 resulted in survival of the test species *Pimephales promelas* (fathead minnow) of less than 75% in 5 of the 34 test events. WET test protocol requires that this species have at least an 80% survival for the test to be valid. Due to this toxicity in the receiving water, the 2005 permit allowed the permittee to use an alternate dilution water for its WET testing and this permit will allow for the continuation of this practice.

Sections 305(b) and 303(d) of the CWA require that States complete a water quality inventory and develop a list of impaired waters. Section 303(d) of the CWA requires States to identify those water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls, and as such, require the development of a Total Maximum Daily Load (TMDL) for each pollutant that is prohibiting a designated use(s) from being attained. In Massachusetts, these two evaluations have been combined into an Integrated List of Waters. The integrated list format provides the status of all assessed waters in a single, multi-part list.

Reedy Meadow Brook is listed on the *Final Massachusetts Year 2010 Integrated List of Waters*<sup>3</sup> and also in the *Proposed Massachusetts Year 2012 Integrated List of Waters*<sup>4</sup> as a Category 5 waterbody: "Waters requiring a TMDL for fecal coliform."

MassDEP is required under the CWA to develop a TMDL for a waterbody once it is identified as impaired. A TMDL is essentially a pollution budget designed to restore the health of a water body. A TMDL first identifies the source(s) of the pollutant from direct and indirect discharges in order to next determine the maximum amount of pollutant (including a margin of safety) that can be discharged to a specific water body while maintaining water quality standards for designated uses. It then outlines a plan to meet the goal. No TMDLs have been drafted or finalized for Reedy Meadow Brook.

## IV. Limitations and Conditions

The effluent limitations and all other requirements described herein may be found in the draft permit. The basis for the limits and other permit requirements are described below.

<sup>&</sup>lt;sup>3</sup> <u>http://www.mass.gov/dep/water/resources/10list6.pdf</u>

<sup>&</sup>lt;sup>4</sup> <u>http://www.mass.gov/dep/water/resources/12list2.pdf</u>

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#### V. Permit Basis: Statutory and Regulatory Authority

#### **General Requirements**

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and any applicable State regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136.

When developing permit limits, EPA must consider the most recent technology-based treatment and water quality-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. EPA is required to consider technology and water quality-based requirements as well as all limitations and requirements in the existing permit when developing permit limits.

#### **Technology-Based Requirements**

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 §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants.

EPA established minimum control technology requirements for apple processing in the form of effluent guidelines promulgated under 40 CFR 407 – Canned and Preserved Fruits and Vegetables Point Source Category. The permittee's operations are most closely categorized by 40 CFR 407, Subpart A – "Apple Juice Subcategory". However, since the permittee no longer processes apples into fruit juice or other products, which is how the operations in this subcategory are defined, these Effluent Limitation Guidelines (ELGs) do not apply to this facility at this time. As noted earlier, the permittee had previously processed apples at its facility but currently does not and does not have plans to do so in the future.

In general, the statutory deadline for non-POTW, technology-based effluent limitations 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.

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In the absence of published 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).

The effluent monitoring requirements have been established to yield data representative of the discharges under the authority of Section 308(a) of the CWA, according to regulations set forth at 40 CFR § 122.41(j), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide continuous information on the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures are to be found in 40 CFR §136 unless other procedures are explicitly required in the permit.

#### Water Quality-Based Requirements

Water quality-based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water quality standards (WQS). See Section 301(b)(1)(C) of the CWA.

Receiving water requirements are established according to numerical and narrative standards adopted under state law for each water quality classification. When using chemical-specific numeric criteria to develop permit limits, both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR § 122.44(d)(1) and are implemented under 40 CFR § 122.45(d).

A facility's design flow is used when deriving constituent limits for daily and monthly time periods as well as weekly periods where appropriate. Also, the dilution provided by the receiving water is factored into this process where appropriate. Narrative criteria from the state's water quality standards are often used to limit toxicity in discharges where (a) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (b) toxicity cannot be traced to a specific pollutant.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal WQS. The permit must address any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion. See 40 CFR §122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA

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considers (a) existing controls on point and non-point sources of pollution; (b) pollutant concentration and variability in the effluent and receiving water as determined from the permit application, monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (c) sensitivity of the species to toxicity testing; (d) known water quality impacts of processes on wastewater; and, where appropriate, (e) dilution of the effluent in the receiving water.

WQS consist of three parts: (a) beneficial designated uses for a water body or a segment of a water body; (b) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (c) antidegradation requirements to ensure that once a use is attained it will not be degraded. The MA SWQS, found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site-specific criterion is established. The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain WQS.

#### Antibacksliding

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the antibacksliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA. The monitoring frequencies for BOD, TSS, fecal streptococcus, Escherichia coli, dissolved oxygen, and oil & grease have been reduced in this draft permit based on past monitoring results. The monitoring for total copper has been eliminated in this draft permit based on past monitoring results. These changes are consistent with the "new information" provision of the antibacksliding regulations. The monitoring requirement for instream temperature has been eliminated as the past monitoring results indicate that the instream temperature standard is being met. The effluent temperature limit, which is set at the instream temperature standard, has remained and this will serve as an indicator of whether the instream temperature standard is met since the downstream flow is composed primarily of wastewater effluent from this facility. This change is also consistent with the "new information" provision of the antibacksliding regulations.

#### Antidegradation

Federal regulations found at 40 CFR §131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which

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exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Regulations are found at Title 314 CMR 4.04. There are no new or increased discharges being proposed with this permit reissuance. Therefore, EPA does not believe that the MassDEP is required to conduct an antidegradation review regarding this permit reissuance.

#### **State Certification**

Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located that all water quality standards or other applicable requirements of state law, in accordance with Section 301(b)(1)(C) of the CWA, are satisfied. EPA permits are to include any conditions required in the state's certification as being necessary to ensure compliance with state water quality standards or other applicable requirements of state law. See CWA Section 401(a) and 40 CFR §124.53(e). Regulations governing state certification are set out at 40 CFR §124.53 and §124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

## VI. Explanation of Permit's Effluent Limitations

### **Outfall 001**

#### **Flow and Dilution Factor**

Water quality-based effluent limitations are established based on a calculated dilution factor derived from the available dilution in the receiving water at the point of discharge. Massachusetts SWQS require that the available effluent dilution be calculated based upon the 7Q10 flow of the receiving water [314 CMR 4.03(3)(a)]. The 7Q10 flow is the statistical mean low flow over seven consecutive days, to be expected once in ten years. Use of the 7Q10 flow allows for the calculation of the available dilution under critical flow (worst-case) conditions, which in turn results in the derivation of conservative water quality-based effluent limitations.

The permitted monthly average and daily maximum flow limits of 0.55 million gallons per day (MGD) and 0.75 MGD, respectively, will be used to calculate the dilution factors for this permit. The previous estimate of instream 7Q10 flow for Reedy Meadow Brook of 0.065 MGD is still believed to be appropriate. Therefore, the dilution factors using the permitted flows are both 1.1 and are calculated as follows:

Flow Dilution @ Maximum Daily Flow and Monthly Average Flows

 $\frac{0.065 \text{ MGD} + 0.75 \text{ MGD}}{0.75 \text{ MGD}} = 1.1 \qquad \frac{0.065 \text{ MGD} + 0.55 \text{ MGD}}{0.55 \text{ MGD}} = 1.1$ 

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#### **BOD and TSS**

The current permit limits for both BOD and TSS are 10 mg/l for a monthly average and 20 mg/l for daily maximum. These limits were established prior to the current permit and were based on a wasteload allocation (WLA) which was established for this receiving water by the MassDEP in 1990 and which was attached to a letter from Peter Dore of the MassDEP to Paul Hogan of the MassDEP on September 21, 1990. EPA and MassDEP believe that this allocation is still appropriate based on the low flow and prior impairments of the receiving water.

The average effluent BOD value during the monitoring period (January 2009 to August 2011) was 0.65 mg/l with a high reading of 7.4 mg/l with no violations. The average effluent TSS value during the monitoring period was 2.0 mg/l with a high reading of 16.1 mg/l with no violations.

The permittee has requested reducing the monitoring frequency for BOD and TSS from twice per week to once per week. Since the monitoring results show that the permittee can consistently meet and remain well below the WQB-limits, the monitoring frequency for both of these parameters has been reduced to once per week.

#### Temperature

The MA SWQS stipulate that the temperature for Class B warm water fisheries shall not exceed 83 °F and that the rise in temperature due to a discharge shall not exceed 5 °F. In order for the sequencing batch reactors (SBRs) of the biological treatment system to operate effectively, the permittee needs to raise the temperature of the wastewater entering these units to between 85 and 90 °F. The effluent temperature during the monitoring period has ranged from 61 - 83 °F. In order to determine whether the temperature standard is being met, the effluent temperature limit of 83 °F will be continued in this permit with a weekly monitoring frequency. The 2005 permit had established a monthly instream temperature monitoring requirement. As explained in the antibacksliding discussion, this requirement has been eliminated since past results show that the instream temperature standard has routinely been met. In addition, since this effluent makes up the majority of downstream flow, maintaining the effluent temperature limit at the instream WQS for temperature will assure that this standard is being met.

#### **Total Phosphorus**

Mill Pond, to which Reedy Meadow Brook discharges, is classified by the Mass DEP as a hypereutrophic waterbody (*Merrimack River Basin 1999 Water Quality Assessment Report,* November 2001). Mill Pond was listed as impaired due to the presence of aquatic noxious plants. The Army Corps of Engineers (ACOE) is currently conducting a study of Mill Pond and

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its tributaries on behalf of the City of Littleton to investigate alternatives to restore the ecology and health of Mill Pond (*Update Report for Massachusetts*, October 31, 2012, ACOE-New England District). An estimated volume of 200,000 cubic yards of sediment is believed to have accumulated in the pond, reducing its depth and encouraging the extensive growth of noxious weeds and degraded fish habitat due to excessive nutrient concentrations. The current shallowness of the pond and excessive nutrient concentrations contribute to extensive growth of aquatic weeds and degraded fish habitat. The objectives of the restoration study are to address methods to remove and dispose of accumulated sediment from the pond to reduce the recycling of phosphorous, reduce nutrient influx, and increase water depth. The Corps is assessing the environmental benefits and costs of several restoration alternatives to determine the most costeffective and acceptable solution. In addition, the town of Littleton is documenting basin-wide best management practices (BMPs) that are in place and that may be implemented to reduce nutrient loadings to the pond. The ACOE plans to complete a draft Detailed Project Report by incorporating the results of the town's study and additional sediment analysis, and issue a public notice when sufficient funding becomes available.

The impacts of high levels of phosphorus include violations of the minimum dissolved oxygen criteria, high levels of chlorophyll *a*, and high levels of macrophyte and periphyton growth. The relationship between high levels of phosphorus and eutrophication, as measured by chlorophyll *a*, periphyton, macrophyte, and dissolved oxygen levels is well documented in scientific literature, including in guidance developed by EPA to address nutrient over-enrichment. *See Nutrient Criteria Technical Guidance Manual – Rivers and Streams*, July 2000 (EPA-822-B-00-002).

The MA SWQS at 314 CMR § 4.00 do not contain numerical criteria for total phosphorus. They include a narrative criterion for nutrients at 314 CMR 4.05(5)(c), which provides that nutrients "[s]hall not exceed the site specific limits necessary to control accelerated or cultural eutrophication." They also include a requirement that "[a]ny existing point source discharges containing nutrients in concentrations that would cause or contribute to cultural eutrophication, including the excessive growth of aquatic plants or algae ... shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practicable treatment ... to remove such nutrients." MassDEP has interpreted the "highest and best practicable treatment (HBPT)" requirement in its standards as requiring an effluent limit of 0.2 mg/l (200 ug/l) for phosphorus.

In 2001, EPA released Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published ecoregion-specific criteria represent conditions in waters minimally impacted by human activities, and are thus representative of water without cultural eutrophication. This facility is within Ecoregion VIII, classified as "Nutrient Poor, Largely Glaciated Upper Midwest and Northeast". Recommended criteria for this ecoregion is found in *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Nutrient Ecoregion VIII,* (December, 2001, EPA 822-B-01-015). The recommended aggregate total phosphorus criterion for this ecoregion is 10 ug/l.

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In the absence of a numeric criterion for phosphorus, EPA looks to nationally recommended criteria and other technical guidance documents. *See* 40 CFR 122.44(d)(1)(vi)(B). EPA has produced several guidance documents which contain recommended total phosphorus criteria for receiving waters. The *1986 Quality Criteria for Water* ("Gold Book") recommends that, in order to control eutrophication, instream phosphorus concentrations are no greater than 50 ug/l in any stream entering a lake or reservoir, 100 ug/l for any stream not discharging directly to lakes or impoundments, and 25 ug/l within a lake or reservoir. In the 2006 permit, it was determined that the effluent phosphorus levels should be based on the instream target guidance level of 50 ug/l (0.05 mg/l), which applies to any stream entering a lake or reservoir, since RMB travels a short distance before it empties into Mill Brook, a hypereutrophic reservoir.

In order to determine whether this permittee's discharge of total phosphorus is contributing to the water quality impairment, EPA will continue to apply the Gold Book criteria 50 ug/l because it was developed from an effects-based approach rather than the reference conditions-based approach used in the derivation of the ecoregional criteria. The effects-based approach is preferred in this case because it is more directly associated with an impairment of a designated use (i.e., recreation). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e., phosphorus) and a response variable (i.e., algal growth) associated with impairment of designated uses. Reference-based values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

Limits based on the State's HBPT limit and EPA's ecoregion criteria are not being established at this time. Since RMB travels a short distance before it empties into Mill Pond, a hypereutrophic reservoir, EPA believes that it is appropriate for the permit limit to be based on the instream target guidance level of 0.05 mg/l, which applies to any stream entering a lake or reservoir.

The 2006 permit established seasonal phosphorus limits. For the winter period, between November 1 and March 31, the limits were based on the instream target of 0.1 mg/l for the monthly average and established at 0.46 lbs/day, whereas the daily maximum limit was established at 1.25 lbs/day and was based on meeting the instream target of 0.2 mg/l. A higher phosphorus limit in the winter period is appropriate because the expected predominant form of phosphorus, the dissolved fraction, lacking plant growth to absorb it during the winter, will likely remain dissolved and flow out of the system. Imposing a limit on phosphorus during the cold weather months is, however, necessary to ensure that phosphorus discharged during the cold weather months does not result in the accumulation of phosphorus in the sediments, and subsequent release during the warm weather growing season.

For the summer period of April 1 through October 31, it was determined that the monthly average limit should be based on the instream target of 0.05 mg/l for phosphorus, since RMB travels for a short distance before entering Mill Pond. This limit was established at 0.23 lbs/day

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and expressed as a 60 day rolling average. The daily maximum limit was based on the 0.2 mg/l instream target and was established at 1.25 lbs/day. Since it was determined that the permittee would not be able to consistently meet this more stringent phosphorus limit by the effective date of the 2006 permit, the EPA issued a compliance order to the permittee during which time the permittee would investigate methods to achieve this lower limit that was based on the instream target of 0.05 mg/l. The interim limit was set at the level of 0.46 lbs/day and was in effect for 5 years, or for the duration of the 2006 permit. During the last permit term, the permittee optimized its existing treatment plant and determined that it could meet the final monthly average seasonal P limit of 0.23 lbs/day without incurring major expense or treatment plant modifications.

During the monitoring period, the winter period effluent phosphorus averaged 0.036 lbs/day with a high value of 0.12 lbs/day. For the summer period, effluent phosphorus averaged 0.06 lbs/day with a high value of 0.3 lbs/day. There were no permit violations during this period.

The calculations for the phosphorus limits are shown below.

### Mass-based effluent phosphorus limits:

Monthly average (April 1 to October 31) :

(0.55 MGD) (0.05 mg/l) [(8.35) conversion factor] = 0.23 lbs/day

Monthly average (November 1 to March 31):

(0.55 MGD) (0.1 mg/l) [(8.35) conversion factor] = 0.46 lbs/day

Daily maximum – year round: (0.75 MGD) (0.2 mg/l) (8.35) = 1.25 lbs/day

#### Nitrogen

Recorded ammonia nitrogen levels ranged from 0.01 to 4.35 mg/l during the monitoring period with an average of 0.16 mg/l. A potential source of ammonia in the effluent was from the cleaning procedures for the RO system. Although the permittee had previously conducted cleaned its RO units on site, it has indicated that the units are no longer cleaned on site, but rather its components are replaced (March 5, 2012 e-mail from Martha Wik of Veryfine to George Papadopoulos of EPA). Although most of the readings were low, the minimal dilution available to the effluent leaves Reedy Meadow Brook (RMB) susceptible to nutrient enrichment from even low levels of additional nutrients. As noted earlier, Mill Pond, to which RMB discharges, is impaired for nutrients. Therefore, the monthly monitor only requirement for nitrogen will remain in the reissued permit.

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## pН

During the monitoring period, the effluent pH has ranged from 6.4 to 8.45 standard units (S.U.) with 3 violations of the permitted range in the MA SWQS. Therefore, the pH range of 6.5 - 8.3 S.U. will remain in this draft permit with a daily monitoring requirement as it is a state certification requirement and consistent with the MA SWQS.

### **Dissolved Oxygen**

Since the receiving water has previously been listed as impaired for low dissolved oxygen, a minimum level of effluent DO of 7.0 mg/l was established in the 2006 permit, which was more stringent than the minimum requirement of 6.0 mg/l in the MA SWQS. During the monitoring period, the DO level has ranged from 7.1 to 12.1 m/l, with no violations of the minimum level of 7.0 mg/l. The permittee employs a post-aeration step in the treatment process to meet the permit limit and EPA believes that this minimum level continues to be appropriate for this discharge. Therefore, the minimum level for DO of 7.0 mg/l has been maintained in the draft permit and the monitoring frequency has been reduced from twice per week to once per week due to the ongoing compliance with the limit.

### **Oil & Grease**

The daily maximum oil and grease limit of 15 mg/l was not exceeded during the monitoring period and only detected three times, with a high value of 6.7 mg/l. The oil and grease maximum daily limit of 15 mg/l is derived from the narrative water quality criteria in the MA SWQS [see 314 CMR 4.05(3)(b)(7)]. For discharges to Class B waters in Massachusetts, the narrative criteria require, among other things, that no oil and grease is present that would produce a visible film on the surface of the receiving water. MassDEP interprets this narrative criterion as prohibiting a discharge to these waters that would cause an oil sheen. EPA has maintained the oil and grease limit of 15 mg/l for this draft permit based on the MassDEP's long standing use of the 15 mg/l standard to represent the concentration at which a visible oil sheen is likely to occur. This limit will ensure the narrative water quality standard for oil and grease is protected. The monitoring frequency has been changed from monthly to quarterly based on recent monitoring results.

### Aluminum

Aluminum compounds are used in the wastewater treatment process, primarily for the removal of phosphorus, and aluminum is routinely detected in the effluent sampling that has been conducted as part of the whole effluent toxicity (WET) testing requirement of this permit. During the years 2009 to 2012, the effluent aluminum level from the WET test results ranged from 0.079 to 0.571 mg/l, with an average of 0.21 mg/l.

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The chronic water quality criterion for aluminum is 87 ug/l and the acute criterion is 750 ug/l as listed in *National Recommended Water Quality Criteria: 2002* (EPA-822-R-02-047). The applicable water quality based limits are derived as follows based on the dilution factors that were calculated earlier:

Chronic limit: 0.087 \* 1.1 = 0.1 mg/l Acute limit: 0.750 \* 1.1 = 0.83 mg/l

In most cases, the WET test data exceeded this chronic value, whereas no data points exceeded the acute value. The aluminum data indicate that there is a reasonable potential to violate the chronic, but not the acute, instream WQS for aluminum. Therefore, a new monthly average aluminum limit of 0.1 mg/l has been established with a monthly monitoring frequency. The effluent sampling conducted for the WET tests may be used to satisfy that month's aluminum monitoring requirement.

# Copper

The 2006 permit required monthly monitoring for total copper. During the monitoring period, the results have shown total copper to be consistently not detected in the effluent. Therefore, this monthly monitoring requirement has been eliminated from this draft permit. Since the WET testing requirement will continue in this permit, we will continue to have quarterly total copper data associated with the testing's chemical data of the effluent and the next permit will reassess the need to have additional copper monitoring or limits at that time.

# **Total Residual Chlorine**

The facility has reported the continued presence of total residual chlorine in its discharge as it uses a product containing chlorine in cleaning operations at the facility. Chlorine can be extremely toxic to aquatic life. Effluent limits are based on water quality criteria for total residual chlorine (TRC) which are specified in EPA water quality criteria established pursuant to Section 304(a) of the Clean Water Act. The most recent EPA recommended criteria are found in *National Recommended Water Quality Criteria*: 2002 (EPA-822-R-02-047). The fresh water aquatic life criteria for TRC are 11 ug/l for protection from chronic toxicity and 19 ug/l for protection from acute toxicity. The 7Q10 dilution multiplied by the chronic and acute criteria provides the appropriate TRC limits as shown below:

Chronic limit: 11 ug/l \* 1.1 = 12 ug/l Acute limit: 19 ug/l \* 1.1 = 21 ug/l

During the current permit term, the permittee was required only to monitor for TRC in the effluent. For the DMR reporting period, TRC has averaged 44 ug/l, with high values of 130 and 150 ug/l. The recent monitoring data for TRC would indicate that there is a reasonable potential to violate the chronic and acute instream WQS. Therefore, the weekly TRC monitoring requirement has been maintained in the draft permit and new TRC limits have been established as calculated above.

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#### Bacteria

Monitoring for *Escherichia coli* and fecal *Streptococcus* were required in the 2006 permit. The rationale for this monitoring was due to the fact that raw fruits, primarily apples, had previously been processed at the facility. Due to the nature of fruit harvesting areas, there was the potential for animal fecal matter to contaminate portions of the crop and therefore be introduced into the treatment plant and not adequately be treated prior to discharge. The production of fruit juices is now currently about 45% by volume of total production and all of the fruit juice products are made with fruit concentrates rather than raw fruits. Fruit processing no longer occurs at the facility. The 2006 permit required twice monthly monitoring during the period of April through October for these two bacteria parameters, consistent with the period required by the MA SWQS. During the monitoring period, the majority of samples detected neither parameter, and those that were detected were low. The facility's ultraviolet disinfection system is designed to treat for these bacteria parameters. The monitoring requirement for both parameters will be reduced from a frequency of twice per month to once per month during the months of April through October.

#### Whole Effluent Toxicity

Whole effluent toxicity (WET) testing is conducted to assess whether certain effluents are discharged in a combination which produces a toxic amount of pollutants in a receiving water. Toxicity testing is used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Sections 402(a)(2) and 308(a) of the CWA provide EPA and the States the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Section 308 specifically describes biological monitoring methods as techniques which may be used to carried out the objectives of the Act. Under certain narrative State water quality standards and Sections 301, 303, and 402 of the Clean Water Act, EPA and the States may establish toxicity-based limits to implement the narrative "no toxics in toxic amounts".

The regulations at 40 CFR Part 122.44(d)(ii) state, "When determining whether a discharge causes, has the reasonable potential to cause, or contribute to an instream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution ... (including) the sensitivity of the species to toxicity testing ..." The EPA and MassDEP believe that the complexity of the wastewater from this discharge is such that toxicity testing and limitations are required to evaluate and address any water quality impacts.

During the monitoring period, the LC50 limit of 100% has been achieved in all occasions for the fathead minnow, *Pimephales promelas*. A previous permit had determined that this species was more sensitive to the effluent, which resulted in the species *Ceriodaphnia* to be removed from the WET testing requirement. For the chronic no observed effect concentration (C-NOEC), which has a limit of 91% or greater, the values have been mostly 100% with the exception of 2

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results with values of 12.5 and 25%. The quarterly WET testing requirement will remain with the LC50 limit of 100% along with the C-NOEC limit of 91% or greater due to the past results and due to the variability of the discharge, which periodically contains RO system backwash waters and off-site beverage wastewater that is metered into the treatment system. In addition, the permittee is authorized to use an alternate dilution water (ADW) for its WET testing due to the unreliability of the receiving water for testing purposes.

### **Outfall 002 - Stormwater**

Outfall 002 discharges storm water from building roofs and parking lot drains, which includes storm water associated with materials storage, materials processing and handling, blending and loading/unloading of product, and lawn maintenance. These flows are directed to a retention basin, prior to being combined with Outfall 001 flows for eventual discharge to Reedy Meadow Brook. There are oil/water separators for each of the stormwater catch basins leading to the retention basin and a separator in the discharge line to the basin itself. At the outlet of the retention basin, there is an earthen berm and a filter fabric to provide some filtration prior to discharge. The flow rate out of the basin can be controlled manually by the permittee. Thus, the basin can retain storm water during rainstorms and then gradually meter it out after the storm has passed if necessary. The storm water discharge flow is measured by meter after passing through this filtration fabric in a vault labeled "S/N 002 monitoring point" and prior to being combined with the Outfall 001 discharge. Monitoring for this outfall has been conducted for temperature, pH, TSS, oil & grease, total phosphorus and flow. During the monitoring period, the following ranges of effluent values have been recorded at Outfall 002:

Oil &	grease: Not detected (ND) - 4 mg/l	Flow: 0.02 - 0.68 MGD
pH:	6.12 - 8.46 standard units	Phosphorus, Total: ND - 0.27 mg/l
TSS:	ND - 51 mg/l	

The TSS monitoring has shown varying results, from not detected to 51 mg/l, with an average value of 14 mg/l. This monitoring serves as an indicator of how well catch basins are being maintained, as well as the filtration prior to discharge. Since Outfall 002 joins up with Outfall 001 prior to eventual discharge, we believe it is important to assure that TSS levels in the Outfall 002 discharge are controlled, as they have been shown to be variable. Therefore, the daily maximum TSS limit of 100 mg/l has been maintained with a monthly monitoring requirement. It is acknowledged in the multi-sector general permit for storm water, last issued in 2009, that 100 mg/l for TSS is a benchmark which should not be exceeded for a storm water discharge if a facility has a properly implemented storm water pollution prevention plan (SWPPP). As explained below, the existing permit has a SWPPP requirement.

The pH range of 6.12 - 8.46 is typical of pH levels associated with precipitation. This quarterly monitoring requirement will remain, with the permittee required to report the range of at least three (3) grab samples taken every quarter. Monitoring the pH of the storm water may not provide an indication of the effectiveness of the SWPPP because of the influences of factors

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other than the facility's industrial activities on the pH of the discharge, such as lower pH precipitation.

Oil & grease has generally not been detected during the monitoring period, with the exception of one reading of 4.0 mg/l. EPA believes that this requirement must be maintained to assure that the catch basins and oil/water separators are being properly operated and maintained. The State WQS limit O&G discharges to less than 15 mg/l (see Outfall 001 discussion above). Since there are some outfall samples with detectable levels of this parameter, EPA has maintained this limit and quarterly sampling requirement.

Phosphorus results for the last two years have shown levels ranging from ND to 0.27 mg/l. Since Outfall 001 has phosphorus limits and the receiving water was previously impaired for nutrients as discussed earlier, the monitor only requirement for Outfall 002 will be maintained at a monthly monitoring frequency. The SWPPP discussed below shall specifically identify the potential sources of phosphorus in this discharge, such as facility grounds fertilization practices, and implement BMPs to reduce phosphorus levels that are discharged to Outfall 002 and eventually to Reedy Meadow Brook.

## **Stormwater Pollution Prevention Plan**

The Veryfine facility stores and handles numerous chemicals on its property which could result in the discharge of pollutants to Reedy Meadow Brook either directly or indirectly through storm water runoff. Operations include one or more of the following activities from which there is or could be site runoff: materials storage, materials processing and handling, blending and loading/unloading of product, and lawn maintenance. To control these and other activities and operations which could contribute pollutants to waters of the United States, potentially violating the MA SWQS, the Draft Permit continues the existing permit's requirement to implement and maintain a SWPPP containing best management practices (BMPs) appropriate for this facility (See Sections 304(e) and 402(a)(1) of the CWA and 40 CFR §125.103(b)).

The goal of the SWPPP is to reduce, or prevent, the discharge of pollutants through the storm water drainage system. The SWPPP requirements in the Draft Permit are intended to provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. The SWPPP shall be prepared in accordance with good engineering practices and identify potential sources of pollutants, which may reasonably be expected to affect the quality of stormwater discharges associated with industrial activity from the facility. The SWPPP is a supporting element to any numerical effluent limitations in the Permit and is an enforceable element of this permit. Implementation of the SWPPP involves the following four main steps:

(1) Forming a team of qualified facility personnel who will be responsible for developing and updating the SWPPP and assisting the plant manager in its implementation;

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- (2) Assessing the potential storm water pollution sources;
- (3) Selecting and implementing appropriate management practices and controls for these potential pollution sources; and
- (4) Periodically re-evaluating the effectiveness of the SWPPP in preventing storm water contamination and in complying with the various terms and conditions of the Permit.

To minimize preparation time of the SWPPP, the permittee may, for example, reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans [under Section 311 of the CWA and 40 CFR Part 112], Corporate Management Practices, etc.; and may incorporate any part of such plans into the SWPPP by reference. Provided these references address specific pollution prevention requirements and the goals of the SWPPP, they can be attached to the SWPPP for review and inspection by EPA and MassDEP personnel. Although relevant portions of other environmental plans, as appropriate, can be built into the SWPPP, ultimately however, it is important to note that the SWPPP should be a comprehensive, stand-alone document.

Pursuant to Section 304(e) of the CWA and 40 CFR §125.103(b), best management practices (BMP) may be expressly incorporated into a permit on a case-by-case basis where necessary to carry out Section 402(a)(1) of the CWA.

To control these activities or operations, which could contribute pollutants to waters of the United States via storm water discharges at this facility, the 2006 permit required this facility to develop a Stormwater Pollution Prevention Plan (SWPPP) containing BMPs appropriate for this facility.

Generally, BMPs should include processes, procedures, schedules of activities, prohibitions on practices, and other management practices that prevent or reduce the discharge of pollutants in storm water runoff. A copy of the most recent SWPPP shall be kept at the facility and be available for inspection by EPA and MassDEP. The draft permit requires the permittee to continue to implement the current SWPPP and revise it as necessary no later than ninety (90) days after the permit's effective date. The SWPPP is a supporting element to any numerical effluent limitations which minimizes the discharge of pollutants through the proper operation of the facility. Consequently, the SWPPP is as equally enforceable as the numerical limits and other requirements of this permit. See **Part I.C.** of the permit for specific SWPPP requirements.

## VII. 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 Service (NMFS) if EPA's actions or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat, such 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

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disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitatwide 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. Reedy Meadow Brook and Mill Pond, to which it discharges, are not covered by the EFH designation for riverine systems and thus EPA has determined that EFH consultation with NMFS is not required.

# VIII. Endangered Species Act (ESA)

Section 7(a) of the Endangered Species Act (ESA) of 1973, as amended grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) typically administers Section 7 consultations for bird, terrestrial, and freshwater aquatic species. NMFS typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the listing of federal endangered or threatened species of fish, wildlife, and plants to see if any such listed species might potentially be impacted by the reissuance of this NPDES permit and has not found any such listed species. Therefore, EPA does not need to formally consult with NMFS or USFWS in regard to the provisions of the ESA. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS.

# IX. Monitoring and Reporting

The permit's monitoring requirements have been established to yield data representative of the facility's pollutant discharges under the authority of Sections 308(a) and 402(a)(2) of the CWA and consistent with 40 C.F.R. §§ 122.41 (j), 122.43(a), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide ongoing, representative information on the levels of regulated constituents in the wastewater discharge streams. The approved analytical procedures are found in 40 C.F.R. Part 136 unless other procedures are explicitly required in the permit.

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.

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The Draft Permit includes new provisions related to DMR submittals to EPA and the State. The Draft Permit requires that, no later than one year after the effective date of the permit, the Permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR, unless the Permittee 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"). In the interim (until 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.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 C.F.R. § 122.41 and § 403.12. NetDMR is accessed from the following url: <u>http://www.epa.gov/netdmr.</u> Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To participate in upcoming trainings, visit <u>http://www.epa.gov/netdmr</u> for contact information for Massachusetts.

The Draft Permit requires the Permittee to report monitoring results obtained during each calendar month using NetDMR, 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 must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

The Draft Permit also includes an "opt-out" request process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing to EPA, at least sixty (60) days prior to the date the facility would have otherwise been required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs and reports to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the Draft Permit requires that

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submittal of DMRs and other reports required by the permit continue in hard copy format. Hard copies of DMRs must be postmarked no later than the 15th day of the month following the completed reporting period.

# X. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MassDEP) certifies that the effluent limitations included in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The MA DEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects the draft permit will be certified.

# XI. Public Comment Period, Public Hearing, and Procedures the 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 George Papadopoulos, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, Mailcode OEP 06-1, 5 Post Office Square, Suite 100, 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 State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting 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.

# XII. EPA and MassDEP Contacts

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

George Papadopoulos, Industrial Permits Section 5 Post Office Square - Suite 100 - Mailcode OEP 06-1 Boston, MA 02109-3912 Telephone: (617) 918-1579 FAX: (617) 918-0579

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Cathy Vakalopoulos, Massachusetts Department of Environmental Protection Surface Water Discharge Permit Program 1 Winter Street, Boston, Massachusetts 02108 catherine.vakalopoulos@state.ma.us Telephone: (617) 348-4026; FAX: (617) 292-5696

> November 30, 2012 Date

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


Name: AYER Date: 8/10/2004 Scale: 1 inch equals 2000 feet Location: 042° 32' 19.9" N 071° 30' 55.6" W Caption: FIGURE 1 - Site Location 20 Harvard Road Littleton, Massachusetts

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Table 1	-	<b>Discharge Monitoring Report Results – Outfall 001</b>
		Year: 2009

MONTH	Flow, MGD	BOD, mg/l MA/DM	TSS, mg/l MA/DM	Temp, Effluent,	Temp, Instream,	pH, s.u. Range	DO, mg/l minimum	Fecal Strep.,	E.Coli, #/100 ml
	MA/DM <sup>-</sup>			<sup>°</sup> F, DM	<sup>°</sup> F, DM			#/100 ml MA/DM	MA/DM
January	.24/.27	.75/1.87	1.1/5.5	61	57	6.6 – 8	10.6		
February	.27/.31	.72/0.94	1.4/2	62	60	7.4 - 7.8	10.2		
March	.26/.3	.91/1.32	1.3/5	65	65	7.3 – 7.8	9.4		
April	.25/.28	.71/1.15	.39/.93	69	69	7.3 – 7.6	8.6	1/2	ND
May	.27/.33	.62/0.75	.88/3.2	74	71	7 – 7.6	8.8	ND	ND
June	.27/.43	.78/1.22	.85/2	78	72	7.1 – 7.5	8.1	ND	ND
July	.26/.38	.58/7.4	1.3/7.2	82	77	7 – 7.4	7.1	ND	ND
August	.25/.32	.65/1.15	.67/1.1	81	72	6.9 -7.7	7.5	1/2	1/2
September	.2/.29	.36/0.64	.71/1.3	75	72	6.9 – 7.2	8.3	ND	ND
October	.17/.25	.58/1.09	.53/.87	71	61	6.7 -7.1	8.6	ND	ND
November	.17/.27	.51/1.53	.7/1.9	69	65	6.7 -7.6	8.7		
December	.22/.32	1.32/4.34	1.6/7.5	67	58	6.6 -7.1	8.8		

1. MA = monthly average, DM = daily maximum

MONTH	Flow, MCD	BOD, mg/l	TSS, mg/l MA/DM	Temp, Effluent	Temp, Instream	pH, s.u., Range	DO, mg/l	Fecal Strep	E. Coli, #/100 ml
	MA/DM			<sup>o</sup> F, DM	<sup>o</sup> F, DM	Kange	IIIIIIIIIIIIIIIIIIII	#/100 ml	MA/DM
				,	,			MA/DM	
_	.24/.32	.34/0.63	1.2/2.3	68	56	6.4 - 7.0	8.4		
January									
February	.24/.31	.51/0.76	3.2/12.3	65	59	6.4 – 7.4	8.4		
	.26/.33	1.46/5.38	3.9/16	68	70	6.8 -8	8.4		
March									
	.26/.33	.66/0.86	.77/1.4	73	70	6.8 -7.4	9.1	ND	ND
April									
	.27/.4	.77/1.03	1.6/2.6	80	78	6.8 - 7.5	8.3	ND	ND
May									
	.27/.38	.69/1.48	4/9.2	78	73	6.5 -7.1	7.8	0.5/1	ND
June									
	.31/.44	.5/0.82	2.6/8	83	82	6.6 -7.4	7.2	ND	1.5/2
July									
	.38/.49	.64/1.06	3.2/6.9	83	76	6.9 - 8.1	8.3	ND	ND
August			• • /• 1						
	.34/.43	.26/0.51	2.9/9.1	82	72	6.5 – 7.3	8.3	ND	ND
September	22/11	22/0.44	0.5/1.1		70			7.5/10	ND
Ostahan	.32/.44	.23/0.44	2.6/4.1	/5	70	6.6 - /.1	9	7.5/13	ND
October	20/29	26/0.6	1.0/4.0	69	(5	66 75	8.0		
Novombor	.29/.38	.20/0.0	1.8/4.9	08	03	0.0 - 1.3	0.9		
november	21/29	56/1 16	27/55	65	50	65 70	0 6		
December	.31/.38	.30/1.40	2.1/3.3	00	39	0.3 - 7.9	0.0		
December									

MONTH	Flow, MGD MA/DM	BOD, mg/l MA/DM	TSS, mg/l MA/DM	Temp, Effluent, <sup>0</sup> F, DM	Temp, Instream, <sup>0</sup> F, DM	pH, s.u., Range	DO, mg/l minimum	Fecal Strep. #/100ml	E. Coli, #/100 ml MA/DM
								MA/DM	
January	.32/.42	.93/1.69	2.0/3.5	64	60	6.5 – 7.1	9.6		
February	.34/.42	1.06/4.47	6.5/3.9	63	59	6.5 – 7.1	8.7		
March	.35/.43	.7/1.58	2.4/5.5	64	61	6.5 – 7.4	10		
April	.35/.43	.33/0.78	2.1/8.2	68	66	6.5 – 7.2	9.4	ND	ND
May	.36/.55	.67/1.19	1.7/2.3	74	71	6.9 – 7.7	9.5	4/6	6.5/11
June	.39/.46	.8/1.71	3.6/8.5	80	79	7.1 – 7.6	8.8	0.5/1	0.5/1
July	.39/.47	.52/0.8	1.8/2.9	80	74	6.8 - 7.6	9.4	ND	ND
August	.39/.5	.68/1.05	1.6/3.1	80	74	6.8 - 8.2	9.6	5/10	ND
September	.40/.51	.38/.61	2.7/4.3	77	78	7.1-8.3	8.9	ND	ND
October	.38/.49	.61/.90	2.2/4.5	73	73	7.4-8.2	8.7	1/2	1/2
November	.36/.44	.51/.76	1.5/3.9	71	71	7.1-7.8	8.6		
December	.35/.47	1.01/2.52	2.0/4.6	66	66	6.5-7.4	8.2		

MONTH	Flow,MGD MA/DM	BOD, mg/l MA/DM	TSS, mg/l MA/DM	Temp, Effluent, ⁰F, DM	Temp, Instream, ⁰F, DM	pH, s.u., Range	DO, mg/l minimum	Fecal Strep, #/100ml MA/DM	E. Coli, #/100 ml MA/DM
January	.32/.42	0.53/1	2.7/5.9	66	58	6.6 - 8.2	12.1		
February	.33/.42	.64/1.09	2.4/4.2	66	58	7.1 - 8.1	9.8		
March	.35/.67	1.32/1.95	2.6/12.7	74	71	7.2 - 8.0	11.2		
April	.36/.51	.81/1.63	1.2/2.1	75	71	7.0 - 7.9	10.4	0.5/1	ND
May	0.38/0.49	.85/1.32	1.8/4.3	78	76	7.1 - 8.4	9.46	ND	ND
June	0.36/0.42	1.04/1.46	1.9/2.9	78	70	7.1 - 8.0	9.5	0.5/1	ND
July	0.36/0.56	1.15/1.63	1.6/2.9	82	77	7.0 - 8.1	9.1	3/6	ND
August	0.38/0.63	0.74/1	2.7/6.1	82.5	78	7.1 - 7.8	8.65	0.5/ND	ND
September	0.35/0.70	.82/2.33	2.5/7.8	81	74	7.3 - 7.8	8.99	2/4	<1/<2

MONTH	Oil & Grease,	TRC, ug/l	Phosphorus,	NH3, mg/l	Copper	WET-	WET-
	mg/l, DM	DM	Total, mg/l	MA/DM	ug/l, DM	LC50,%	NOEC,%
			MA/DM				
	ND	20	.03/.06	0.08/0.11	2.4	100	100
January							
	ND	17	.01/.02	0.93/2.03	5.9		
February							
	ND-	26	.03/.06	1.23/3.25	5.1		
March							
	ND	36	.04/.08	0.24/0.44	ND	100	100
April							
	ND	22	.05/.09	0.05/0.08	ND		
May							
	ND	29	.04/.07	0.1/0.31	6.6		
June							
	3.3	27	.06/.16	0.07/0.16	6.4	100	100
July							
	ND	22	.12/.26	0.11/0.31	2.7		
August							
	6.7	18	.08/.25	0.06/0.07	10		
September							
	ND	19	.06/.08	0.05/0.07	9	100	25
October							
	ND	24	.02/.06	0.06/0.07	ND		
November							
	ND	13	.02/.05	0.21/0.56	12.7		
December							

MONTH	Oil & Grease,	TRC,	Phosphorus	NH3, mg/l	Copper,	WET –	WET –
	mg/l, DM	ug/l, DM	Total, mg/l	MA/DM	ug/l, DM	LC50,%	NOEC,%
			MA/DM		_		
	ND	17	.05/.07	1.7/4.35	ND	100	12.5
January							
	ND	26	.01/.02	0.12/0.29	ND		
February							
	ND	21	.04/.06	0.06/0.13	ND		
March							
	ND	19	.04/.06	0.06/0.09	ND	100	100
April							
	ND	70	.05/.07	0.14/0.32	ND		
May							
	ND	50	.04/.07	0.06/0.13	ND		
June							
	ND	80	.04/.08	0.05/0.07	ND	100	100
July							
	ND	100	.05/.11	0.05/0.09	ND		
August							
	ND	130	.05/.09	0.11/0.32	ND		
September							
	ND	40	.04/.07	0.14/0.44	ND	100	100
October							
	ND	30	.05/.09	0.05/0.11	ND		
November							
	ND	70	.05/.12	0.31/0.38	ND		
December							

MONTH	Oil & Grease,	TRC,	Phosphorus	NH3, mg/l	Copper,	WET –	WET –
	mg/l, DM	ug/l, DM	Total, mg/l	MA/DM	ug/l, DM	LC50,%	NOEC%
			MA/DM				
	ND	50	.05/.08	0.52/1.15	ND	100	100
January							
	ND	30	.03/.1	0.06/0.1	ND		
February							
	ND	50	.03/.06	0.05/0.08	ND		
March							
	ND	50	.15/.3	0.06/0.12	ND	100	100
April							
	ND	60	.06/.11	0.1/0.38	ND		
May							
	ND	50	.09/.11	0.02/0.02	ND		
June							
	ND	50	.06/.1	0.02/0.03	ND	100	100
July							
	ND	40	.1/.14	0.13/0.37	ND		
August							
	ND	70	.05/.07	.02/.02	ND		
September							
	ND	150	.05/.08	.06/.19	ND	100	100
October							
	3.6	40	.03/.06	.05/.12	ND		
November							
	ND	70	.03/.06	.02/.04	ND		
December							

MONTH	Oil & Grease,	TRC, ug/l	Phosphorus	NH3, mg/l	Copper,	WET –	WET –
	mg/l, DM	DM	Total, mg/l	MA/DM	ug/l, DM	LC50,%	NOEC,%
			MA/DM				
January	ND	40	.05/.08	0.026/0.046	ND	100	100
February	4.4	20	.03/.05	0.039/0.064	ND		
March	ND	20	.08/.11	0.016/0.02	ND		
April	ND	40	.11/.17	0.014/0.022	ND	100	100
May	ND	70	.05/.14	0.01/0.013	ND		
June	ND	40	.07/.11	0.317/1.22	ND		
July	ND	30	.08/ 0.2	0.168/0.783	ND	100	100
August	ND	40	.06 /0.1	0.018/0.029	ND		
September	ND	40	0.1 / .14	0.013/0.018	ND		

### TABLE 2

			Permit
Parameter	Average <sup>2</sup>	Maximum <sup>3</sup>	Violations <sup>4</sup>
Flow, Range, MGD	0.17 - 0.55		0
BOD, mg/l	0.70	5.4, 7.4	0
TSS, mg/l	2.0	12.3, 16.1	0
Temp, Effluent, Range, <sup>o</sup> F	61 - 83		0
Temp, Instream, Range, <sup>o</sup> F	56 - 82		
pH, Range, S.U.	6.4 - 8.45		3
Dissolved Oxygen, Range, mg/l	7.1 - 12.1		0
Fecal <i>Streptococci</i> , #/100 ml	1.0	10, 13	
<i>E.Coli</i> , #/100 ml	0.5	6.5, 11	
Oil & Grease, mg/l	0.6	3.6, 6.7	
TRC, ug/l	44	130, 150	
Phosphorus, Nov. – Mar., lbs/day	0.036	0.10, 0.12	0
Phosphorus, Apr. – Oct., lbs/day	0.06	0.26, 0.3	0
NH <sup>3</sup> , as N, mg/l	0.16	3.25, 4.35	
Copper, Total, ug/l	ND	10, 12.7	
WET – LC50, %	100	100	0
WET – NOEC, %	87	12.5, 25 5	2

## DMR Data Summary<sup>1</sup> – Outfall 001

- 1. Data is from Discharge Monitoring Reports for the period of January 2009 to September 2012.
- 2. This value is the average of the monthly averages during the reporting period.
- 3. These are the two highest values during the reporting period.
- 4. Value provided only if parameter was limited in the permit.
- 5. These are the two lowest values during the reporting period.

### TABLE 3

Parameter	Average <sup>2</sup>	Maximum <sup>3</sup>	Permit Violations <sup>4</sup>
Flow, Range, MGD	0.02 - 0.68		
TSS, mg/l	13.3	37, 51	0
pH, S.U., Range	6.12 - 8.46		
Oil & Grease, mg/l	ND	4	0
Phosphorus , Total, mg/l	0.12 mg/l	0.25, 0.27	

## DMR Data Summary<sup>1</sup> – Outfall 002

- 1. Data is from Discharge Monitoring Reports for the period of January 2009 to September 2012.
- 2. This value is the average of the monthly averages during the reporting period.
- 3. These are the highest values during the reporting period.
- 4. Value provided only if parameter was limited in the permit.

### **Response to Public Comments**

In accordance with the provisions of 40 CFR §124.17, this document presents EPA's responses to comments received on the draft NPDES Permit, #MA0004936, for Veryfine Products, Inc. a subsidiary of Sunny Delight Beverages. The responses to comments explain and support the EPA determinations that form the basis of the final permit. From December 7, 2012 to January 5, 2013 and from January 8, 2013 to February 28, 2013, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit, #MA0004936, developed pursuant to a permit application from Veryfine Products, Inc. , for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge reverse osmosis system (RO) reject water, RO backwash water, contact cooling water, non-contact cooling water and beverage product wastewater from outfall serial number 001 and stormwater from outfall serial number 002, both to Reedy Meadow Brook in Littleton, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The final permit is substantially identical to the draft permit that was available for public comment. Although EPA's decision-making process has benefitted from the comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make certain clarifications and minor changes in response to comments. The analyses underlying these changes are explained in the responses to individual comments that follow and are reflected in the final permit. A summary of the changes made in the final permit are listed below. Where applicable, relevant sections of the response document where these changes have been discussed have been included in parentheses at the end of each change.

Copies of the Final Permit may be obtained by writing or calling EPA's NPDES Industrial Permits Branch (OEP 06-1), Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, MA 02109-3912; Telephone: (617) 918-1579.

Changes made from the draft to the final permit:

- 1. On Page 3 of the final permit, under the heading for parameters to be reported from the Whole Effluent Toxicity (WET) testing, the monthly average permit condition for total aluminum was changed from "monitor only" to an effluent limit of 0.1 mg/l. (**Comment 1**).
- 2. Since this draft permit was made available on public notice, the Whole Effluent Toxicity (WET) testing protocol has been revised. The new protocol, dated March 2013 and effective in April of 2013, has been attached to the final permit as Attachment A.

### Comments submitted by Dan Gray, Littleton Site and Co-Manufacturing Director, Veryfine Products / Sunny Delight Beverages Company:

### Comment 1:

The Draft NPDES Permit includes a limit on the effluent concentration for two new constituents of concern to us as follows:

- 1. Total Residual Chlorine at 12 micro-grams per liter ( $\mu g/l$ ) average monthly and 21  $\mu g/l$  maximum per day as described on page 3 of 15 of the permit and page 17 of the Fact Sheet.
- 2. Total recoverable aluminum at 0.1 milligrams-grams per liter (mg/l) average monthly as described on page 2 of 15 of the permit and page 17 of the Fact Sheet. We note that the total recoverable aluminum is indicated as report only on page 3 of the permit.

Regarding the new total chlorine residual limit, as you know the WWTP uses an Ultra Violet light (UV) process for disinfection, but as part of our bottling operations some chlorine residual persists. We believe that we can solve this situation and meet the Total Residual Chlorine limit proposed, but we will need some time to implement the needed study, design and equipment changes/additions. Therefore, we request an interim limit of 150  $\mu$ g/l for thirty six (36) months, as we try to establish alternative treatment methods, or to find alternative chemicals that meet Food and Drug Administration and our Safe Quality Food Certification requirements as well as an needed design and equipment changes/additions required to satisfy the new chlorine residual limit in this permit.

#### **Response to Comment 1:**

The Agencies believe that it is reasonable to allow for an appropriate period of time for permittees to come into compliance with new water quality-based (WQB) limits. Although compliance with technology based limits cannot include a compliance schedule as noted on Page 8 of the fact sheet, EPA has the discretion to allow for a compliance schedule to meet a new limit that is based on water quality criteria. Therefore, in consideration of the permittee's request and rationale for needing additional time to meet this proposed TRC limit, the EPA proposes to issue the permittee a Compliance Order (CO) soon after the effective date of the permit. Based on past monitoring data as described in the fact sheet, the EPA does not believe that the permittee will be able to consistently meet the new TRC and total aluminum effluent limits upon the effective date of the permittee shall investigate and implement measures to reduce effluent TRC and total aluminum levels and meet the final permit limits by the allotted time. The CO will establish interim limits for these parameters and require progress reports during this compliance period.

The aluminum parameter that is listed on Page 3 of the permit refers to the analytical portion of the whole effluent toxicity (WET) testing requirement which requires analysis and reporting of the effluent levels of aluminum and several other metals conducted along with the WET testing. Since this quarterly analysis report is required to be reported in this permit's Discharge Monitoring Report (DMR) and this quarterly sample may be used to satisfy the permit's aluminum monitoring requirement for the particular month that the WET testing is conducted, the "report only" requirement has been replaced with the average monthly final limit of 0.1 mg/l for total aluminum.

#### **Comment 2:**

Regarding the new total recoverable aluminum limit, the addition of this limit has taken us by surprise since neither a limit nor a monitoring requirement was included in our previous permit. Our facility has a very restrictive total phosphorus limit and we need to use alum to meet this limit, which adds aluminum to the treated effluent. We can experiment with polyaluminum chloride (PAC) for phosphorus removal, but this chemical also contains aluminum. We can experiment with ferric chloride, but this chemical will add iron, increase the color of the treated effluent, potentially impact our filtering operations, and impact our UV operations. We would ask that EPA provide guidance on what treated effluent quality parameters are most important: low level phosphorus, low level aluminum, low level iron, low level turbidity, or low cfu/100 bacteria values. We will need to set priorities for plant operations and process controls.

As noted in the Fact Sheet included in the Draft NPDES Permit, the whole effluent toxicity (WET) testing completed between 2009 and 2012 reported effluent aluminum concentrations that ranged from 0.079 to 0.571 mg/L, with an average of 0.21 mg/L. It is interesting to note that our plant effluent has never failed the WET testing or the acute toxicity testing within the four years of quarterly testing. The Draft NPDES Permit will require effluent concentrations of Aluminum to be at or below 0.1 mg/L. Therefore, this parameter will be violated once in effect at its current limit and some relief must be provided.

#### **Response to Comment 2:**

Since the average value of aluminum effluent data and several data points were above the calculated monthly average limit based on chronic water quality criteria, the Agencies determined that there was a reasonable potential (RP) for this discharge to violate the chronic water quality (WQ) criterion for aluminum. On the other hand, the Agencies did not find that there was a RP for the discharge to violate the acute WQ criterion for total aluminum. Therefore, a monthly average total aluminum limit was established in the draft permit. Despite the fact that the permittee did not not fail its WET testing requirements during the time aluminum data was cited, each parameter that is present in the effluent must be individually assessed as to its RP to violate instream WQC.

The Agencies understand that the permittee uses a chemical containing aluminum to treat its effluent for phosphorus, in order to meet the total phosphorus limits that were established in the 2007 permit. Since meeting this proposed aluminum limit will require careful consideration of how treatability options will affect the effluent phosphorus levels, the EPA will establish a compliance schedule in the CO mentioned in the response to Comment 1 above. During this time, the permittee shall investigate treatability options as well as other measures to reduce effluent aluminum levels and meet the final permit limit of 0.1 mg/l while also continuing to meet its other permit limits. The permittee is required to meet the existing limits for phosphorus and other parameters as well as the narrative standards for turbidity during this time period.

#### Comment 3:

In an effort to determine the reasons behind the proposed effluent limit for aluminum, we have researched the science behind the proposed limit. As a result of our research, we would like further clarification of the proposed aluminum limit for our Veryfine facility in Littleton, MA as it pertains to the existing discharge location in Reedy Meadow Brook, and ultimate discharge to Mill Pond. The following is a summary of our findings:

#### Research into Aluminum and Reedy Meadow Brook

Aluminum is on the EPA non-priority pollutant list (EPA National Recommended Water Quality Criteria 2002). The established national acute and chronic exposure limits are 0.750 mg/L and 0.087 mg/L respectively. This source was cited in the Draft NPDES Permit Fact Sheet. The 2002 document cites an aluminum study source completed by the EPA in 1988. In the 1988 study, the chronic exposure limits were reported for various organisms. These limits ranged from 0.087 mg/L (for striped bass) to 3.288 mg/L (for fathead minnow). Each organism studied resulted in a different chronic exposure limit. Based on this information, it seems that the national chronic exposure limit was set to the lowest limit from this study. However, since each receiving water body contains different organisms, different chronic exposure limit may be appropriate. We really do not believe that Reedy Meadow Brook contains any striped bass.

Aluminum testing in water can be reported in several ways, which include total aluminum, total recoverable fraction, and dissolved fraction. The US EPA has recognized that the dissolved fraction is a better representation of the biologically active portion of the metal then is the total or total recoverable fraction. Consequently the total recoverable-based criterion must be multiplied by a conversion factor to obtain a dissolved criterion.

According to the Merrimack River Basin – River and Estuary Segment Assessments, the "Reedy Meadow Brook" is on the 2008 Integrated List of Water in Category 5 – waters requiring a TMDL for nutrients, pH, organic enrichment/Low DO, pathogens, and suspended solids. Aluminum is not mentioned as a parameter of concern. Reedy Meadow Brook is a tributary to Mill Pond, which is a hypereutrophic water body and

believed to be heavily polluted. The monitoring recommendations are for additional bacteria monitoring to confirm the 303(d) listing for pathogens, DO monitoring to evaluate diurnal variation by deploying multiprobes overnight, and additional biological and water quality monitoring to evaluate designated uses. Again, aluminum is not mentioned as a parameter of concern. In addition, it should be noted that a large contributor of stormwater runoff into Reedy Meadow Brook comes from Middlesex Materials Corporation. Information on the status of their NPDES permit could not be located.

As part of our existing NPDES Permit, Veryfine staff routinely conducts WET testing. The results of the WET testing have consistently passed all evaluation criteria. Aluminum is consistently present in the WWTP effluent because an aluminum based coagulant is used to maintain compliance with the existing phosphorus effluent limits. The majority of coagulants suitable for use for this purpose contain aluminum. The WWTP is in the process of testing a different coagulant that typically requires a lower dosage to remain effective, and may potentially reduce the effluent aluminum concentrations.

In addition to the discharge from the WWTP, a stormwater NPDES permit is maintained at our Veryfine facility. The permit is for the on-site lagoon that collects stormwater and discharges it into the Reedy Meadow Brook. Recent sampling for aluminum from the lagoon effluent on January 3, 2013 indicates a 1.2 mg/L concentration. This is over five times the average concentration in the WWTP effluent. We expect that other stormwater discharges to Reedy Meadow Brook also contribute significant amounts of aluminum as compared to the proposed limit for our WWTP.

In addition, we would like to reiterate that Reedy Meadow Brook discharges to Mill Pond which is heavily polluted and in need of dredging per Corp of Engineers studies.

#### **Response to Comment 3:**

Regarding the impairments to Reedy Meadow Brook, the commenter correctly states that this stream is not impaired for aluminum. In this case, since it was found that effluent aluminum values had the RP to cause or contribute to WQS violations, the appropriate water quality-based limit for aluminum was established. On the other hand, if Reedy Meadow Brook was classified as impaired specifically for aluminum, the permittee would not be allowed to further contribute to such an impairment. Since there is evidence of aluminum in the stormwater discharge, EPA expects the permittee to consider whether there are any sources of aluminum present at the site which may be carried into the retention basin by stormwater and eventually discharge to the receiving water. Accordingly, the permittee would need to assess these sources and take measures which would prevent or minimize such discharges. These actions would be consistent with the requirements of the permit's Stormwater Pollution Prevention Plan (SWPPP). The aluminum criterion and limit in the draft permit were determined from analysis of the effluent total aluminum data from the WET reports submitted in accordance with the 2006 permit. EPA is required to include water quality-based limits for pollutants where the discharge has the reasonable potential to cause or contribute to an excursion above any State water quality standard [40 CFR 122.44 (d)]. Compliance with WET limits does not foreclose the establishing of chemical-specific limits necessary to attain a State water quality criterion.

When determining whether there is reasonable potential for a discharge to cause or contribute to an excursion from water quality standards, EPA uses three approaches: biological assessment, chemical specific criteria, and WET testing. Since each type of approach has different sensitivities and purposes, a particular approach may fail to detect impairments when used alone. As a result, these methods are used together in an integrated water quality assessment, each providing an independent evaluation of non-attainment of a designated use. Therefore, if any one type of criterion indicates impairment of the surface water, regulatory action can be taken to improve water quality.

With the advent of different ways of assessing the health of aquatic systems comes the possibility of conflicting results. To address such conflicts, EPA developed the policy of independent application. Independent application states that where different types of monitoring data are available for assessment of whether a water body is attaining aquatic life uses or for identifying the potential of pollution sources to cause or contribute to non-attainment of aquatic life uses, any one assessment is sufficient to identify an existing or potential impact or impairment, and **no one assessment can be used to override a finding of existing or potential impact or impairment and no one assessment to the used on another assessment.**<sup>1</sup>

The WQC for aluminum are currently expressed in the total recoverable form and this is the appropriate form in which to express NPDES permit limits when there exists a RP to exceed such a limit. In the ambient WQC document for aluminum, it was determined that not enough data were available concerning the toxicity of dissolved aluminum to allow for the derivation of a criterion based on the dissolved form of the metal. (*See* EPA 440/5-86-008; August 1988). There are other metals criteria which are expressed in the dissolved form along with accompanying conversion factors to express these as total metal limits for the purposes of NPDES permits. This is not the case for the aluminum criteria at this time.

#### Comment 4:

Sunny Delight reiterates its position for our Veryfine facility in Littleton, MA that the extremely stringent effluent aluminum limit proposed has not been adequately explained or supported by proper science methods to show why it is needed to protect water quality and, in any event, cannot be achieved at our facility at this time. Nevertheless, Sunny Delight is willing to take additional actions at our Veryfine facility to ensure that the

<sup>&</sup>lt;sup>1</sup> EPA's Technical Support Document for Water Quality-Based Toxics Control, March 1991, EPA/505/2-90-001, Responsiveness Summary, page 2.

effluent meets applicable standards and contains as little aluminum as reasonably achievable.

In order to get a new permit processed and to give all concerned parties time to respond to the questions above and develop the necessary background information, we respectfully request that for this 2013 permit, the Total Recoverable Aluminum be Report Only for both average monthly and maximum day effluent limits as indicated on page 2 of the draft permit.

### **Response to Comment 4:**

As noted in the response to Comment 2 above, it was determined that there was a RP determination for aluminum to cause or contribute to WQS violations.

Regarding providing time for the permittee to meet the final aluminum permit limit, see the responses to Comments 1 and 2 above that discuss the CO that will provide for the time necessary to comply with the final aluminum limit and will likely require meeting a less stringent, interim aluminum limit during the compliance period.

### Comment 5:

### Requested Items for Clarification

Based on the research findings listed above, we are requesting further clarification on the following questions and recommend that an informal meeting be scheduled to discuss these important issues regarding the proposed effluent aluminum concentration.

Why is the total recoverable aluminum average monthly value shown as 0.1 mg/l on page 2 of the permit and then shown as report only on page 3 of the permit?

#### **Response to Comment 5:**

See the response to Comment 1.

### Comment 6:

What is the organism(s) of concern in the Reedy Meadow Brook for which an effluent aluminum limit is required? Have specific chronic exposure limits for the organism(s) of concern been considered to establish the proposed aluminum effluent limit? The proposed effluent monitoring parameter for aluminum is "Total Recoverable Aluminum". The US EPA recognizes that the dissolved fraction is a better representation of the biologically active portion. Why is the effluent monitoring parameter not based on the dissolved fraction?

#### **Response to Comment 6:**

In Massachusetts, EPA sets limits for metals based on the Commonwealth of Massachusetts approved WQC. During the development of the WQC, including the criteria developed for aluminum, EPA considered the chronic exposure limits on a range of species and established the criterion conservatively to protect the most sensitive of these species, which is the approach that is typically used in setting WQC. Although the water quality criteria for certain metals, such as copper and lead, are expressed in the dissolved fraction, the water quality criteria for aluminum are based on the total metal. Therefore, in the case of aluminum, the limit is based on and expressed as the total metal. Also see the response to Comment 3.

During the compliance period for meeting the final permit limit for aluminum in the forthcoming CO, the permittee may seek to develop alternative, site specific criteria and limits for aluminum for Reedy Meadow Brook. The Massachusetts Water Quality Standards require that effluent limitations for metals be based upon the criteria published in the National Recommended Water Quality Criteria: 2002 (USEPA 2002 [EPA-822-R-02-047]), unless site-specific criteria are established or MassDEP determines that natural background concentrations are higher than the criteria [(314 CMR 4.05(5)(e)].

MassDEP has not established site-specific criteria for aluminum for this receiving water, nor have they determined that the natural concentrations of aluminum in the receiving water are greater than the criteria published by EPA. Therefore, because the criteria in the National Recommended Water Quality Criteria: 2002 (USEPA 2002 [EPA-822-R-02-047]) have been adopted by the State into their approved water quality standards [see 314 CMR 4.05 (5)(e)], they were used to develop the effluent limit for aluminum in the draft permit to ensure attainment of water quality standards in the receiving water.

The commenter references the bioavailability of the dissolved form of aluminum in its effluent to support its argument that application of the national chronic criterion is too stringent in setting the aluminum effluent limitation in this permit. Metal bioavailability and toxicity have long been recognized to be a function of water chemistry. The Biotic Ligand Model was developed to incorporate metal speciation and the protective effects of competing cations into predictions of metal bioavailability and toxicity. EPA currently recommends the use of this model for determining aluminum WQC. However, these criteria have not yet been adopted by MassDEP and approved by EPA Region 1 in the current water quality standards, so we are precluded from using this model to develop permit limits at this time.

However, given the inherent difficulty of complying with this aluminum limit, EPA will establish a compliance schedule in a CO that will be issued once the permit goes into effect. This CO will provide the permittee with time to evaluate the aluminum levels in its intake water and other in-plant sources and to conduct treatability and pilot testing with alternative treatment methods that may use lower amounts of aluminum containing compounds in order to meet the new limit. In addition, the CO will require the permittee

to submit progress reports describing the actions it has taken towards meeting the final permit limit for aluminum.

The permittee may also work with the MassDEP to investigate the possibility of developing site specific criteria and limits for aluminum. Compliance schedules are authorized by Massachusetts Water Quality Standards for "limitations that are based on new, newly interpreted or revised water quality standards..." [*see* 314 CMR 4.03(1)(b)]. In those cases where the state develops site-specific criteria, Massachusetts regulations require that such an effort be documented and subject to full inter-governmental coordination and public participation [*see* 314 CMR 4.05(5)(e)(4)]. In addition, federal law requires EPA's review and approval of Massachusetts' development and adoption of site-specific criteria. *See* 40 CFR §131.11(b)(1)(ii) and 40 CFR §131.21.

### Comment 7:

The existing stormwater runoff into Reedy Meadow Brook appears to be the largest contributor of aluminum. What is the expected benefit to the receiving water by reducing the amount of aluminum discharged by the smallest contributor?

### **Response to Comment 7:**

As mentioned in the response to Comment 3, the SWPPP requires the permittee to reduce, or prevent, the discharge of pollutants in stormwater to the receiving waters identified in this permit. Therefore, since the permittee has identified measurable aluminum levels being discharged to the retention basin and eventually to Outfall 001, they are required to investigate such sources of aluminum and take measures to reduce these levels being discharged to the receiving water.

### **Comment 8:**

Reedy Meadow Brook is believed to receive significant amounts of aluminum from stormwater drainage and discharges to Mill Pond, which is heavily polluted and in need of dredging per the Corps of Engineers. What would be the benefit of such an extremely low aluminum limit for our WWTP before the condition of Mill Pond is improved?

### **Response to Comment 8:**

It is not clear what action the Army Corps of Engineers will take relative to dredging Mill Pond and there has not been an assessment of what the sources of aluminum that are being discharged to Reedy Meadow Brook.

This NPDES permit considered the effluent parameters and their individual reasonable potential to violate WQS. As explained in the fact sheet for aluminum, EPA determined

that there was a reasonable potential for the effluent discharge of aluminum to violate the chronic, but not the acute, water quality criterion. The source of aluminum in Outfall 001 is known and can be controlled and limited in this permit. Therefore, an appropriate monthly average limit for aluminum, which corresponds to the chronic criterion, was established in this permit. Also see response to Comments 2 and 3.

The sources of aluminum from stormwater runoff from the site are currently unknown. As noted in the response to Comment 7 above, the permit's SWPPP requires the permittee to assess these levels and take measures to reduce levels of aluminum in stormwater runoff.

September 18, 2013