RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

June 18, 2009

CERTIFIED MAIL

Ms. Alyson C. Eayre, President
Strawberry Field Estates, Inc. c/o Kvaerner U.S. Inc.
800 Denow Road
Suite C367
Pennington, NJ 08534

RE: Strawberry Field Estates, Inc. 333 Strawberry Field Road, Warwick, RI
RIPDES No. RI0023604

Dear Ms. Eayre:

Enclosed is your final Rhode Island Pollutant Discharge Elimination System (RIPDES) Permit issued pursuant to the referenced application. State regulations, promulgated under Chapter 46-12 of the Rhode Island General Laws of 1956, as amended, require this permit to become effective on the date specified in the permit.

Also enclosed is information relative to hearing requests and stays of RIPDES Permits.

We appreciate your cooperation throughout the development of this permit. Should you have any questions concerning this permit, feel free to contact Brian Lafaille, P.E. of the State Permits Staff at (401) 222-4700, extension 7731.

Sincerely,

Eric A. Beck, P.E.
Supervising Sanitary Engineer

EAB:bl

Enclosures

cc: David Turin, EPA Region 1 (Electronic Copy)
Traci Pena, RIDEM-OWR (Electronic Copy)
Annie McFarland, RIDEM-OWR (Electronic Copy)

RESPONSE TO COMMENTS

NO SIGNIFICANT COMMENTS WERE RECEIVED ON THE DRAFT PERMIT FOR THIS FACILITY; THEREFORE, NO RESPONSE WAS PREPARED.

HEARING REQUESTS

If you wish to contest any of the provisions of this permit, you may request a formal hearing within thirty (30) days of receipt of this letter. The request should be submitted to the Administrative Adjudication Division at the following address:

Bonnie Stewart, Clerk
Department of Environmental Management
Office of Administrative Adjudication
235 Promenade Street, 3rd Floor
Providence, Rhode Island 02908

Any request for a formal hearing must conform to the requirements of Rule 49 of the State Regulations.

STAYS OF RIPDES PERMITS

Should the Department receive and grant a request for a formal hearing, the contested conditions of the permit will not automatically be stayed. However, the permittee, in accordance with Rule 50, may request a temporary stay for the duration of adjudicatory hearing proceedings. Requests for stays of permit conditions should be submitted to the Office of Water Resources at the following address:

Angelo S. Liberti, P.E.
Chief of surface Water Protection
Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908

All uncontested conditions of the permit will be effective and enforceable in accordance with the provisions of Rule 49.

AUTHORIZATION TO DISCHARGE UNDER THE
RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Chapter 46-12 of the Rhode Island General Laws, as amended,

Strawberry Field Estates, Inc.
One East Main Street
Flemington, NJ 08822

is authorized to discharge from a facility located at

333 Strawberry Field Road
Warwick, RI

to receiving waters named

Tuscatucket Brook

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

This permit shall become effective on the date of signature.

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

This permit supercedes the permit issued on February 17, 2004.

This permit consists of eight (8) pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this 17th day of June, 2009.

Angelo S. Liberti

Angelo S. Liberti, P.E., Chief of Surface Water Protection
Office of Water Resources
Rhode Island Department of Environmental Management
Providence, Rhode Island

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) 001A. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs./day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow			30 gpm		40 gpm	Continuous	Totalizer
1,1-Dichloroethane			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
1,1-Dichloroethene			0.57 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
Cis-1,2-Dichloroethene			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
Trans-1,2-Dichloroethene			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
Tetrachloroethene			4.24 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
1,1,1-Trichloroethane			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
1,1,2-Trichloroethane			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
Trichloroethene			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
Vinyl Chloride			1.92 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
Chloroethane			5.0 ug/l		5.0 ug/l	1/ 2-Weeks	Grab
pH			(6.5 SU)		(9.0 SU)	1/ 2-Weeks	Grab

--- Signifies a parameter which must be monitored and data must be reported; no limit has been established at this time.

() Values in parentheses represent the minimum and maximum values.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Outfall 001A.

Midpoint and effluent samples shall be taken once every two (2) calendar weeks. Influent samples shall be taken once per month.

2. a. Monitoring for the presence of volatile organic compounds (VOCs) at the effluent sample location, after the 3rd GAC unit, shall be performed once for each two (2) week period of discharge. Monitoring for the presence of VOCs at the midfluent sample locations, between the 1st and 2nd GAC units, shall be performed once for each two- (2) week period of discharge. These locations shall be sampled for the parameters listed in Part I.A.1 of the permit.

   b. Monitoring for the presence of VOCs at the influent sample location, prior to the 1st GAC unit, shall be performed once per month. The influent sample location shall be sampled for the parameters listed in Part I.A.1 of the permit.

   c. When the presence of VOCs are detected at the midpoint sample location (between the 2nd and final GAC units), changeout of the primary and secondary carbon vessels shall be performed within five (5) days of detecting breakthrough.

   d. A flow log that includes the rate and duration of flow including the time(s) of day when the flow commences and ceases and a summary of total flow, operations and maintenance activities, and a description of all carbon replacement activities performed during the monitoring period must be submitted with the Discharge Monitoring Reports required under Part I.C.2 of the permit.

   e. Discharge shall cease and the Office shall be notified immediately if any of the contaminants listed, are found in the effluent above the limits listed in Part I.A.1 of the permit. At a minimum, the notification shall include a summary of total flow, operation and maintenance activities, and any laboratory results from the last time the carbon filters were replaced to the present. Also, the notification shall include a description of the steps that have or will be taken to prevent future violations, as well as justification as to the appropriateness of such steps. Written documentation of the immediate notification required above shall be submitted to the Office within five (5) days. The discharge may recommence once steps have been taken to ensure the limits will not be exceeded again, and following approval by DEM. At a minimum, these steps shall include replacement of the first activated carbon filter.

3. a. The pH of the effluent shall not be less than 6.5 nor greater than 9.0 standard units at any time, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.

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

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

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

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

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

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

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21 (g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

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

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

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

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

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

5. This permit serves as the State's Water Quality Certificate for the discharges described herein.

B. DETECTION LIMITS

The permittee shall assure that all wastewater testing required by this permit, is performed in conformance with the method detection limits listed below (the EPA method is noted for reference, other EPA approved methods found in 40 CFR Part 136 may be utilized). In accordance with 40 CFR Part 136, EPA approved analysis techniques, quality assurance procedures and quality control procedures shall be followed for all reports required to be submitted under the RIPDES program. These procedures are described in "Methods for the Determination of Metals in Environmental Samples" (EPA/600/4-91/010) and "Methods for Chemical Analysis of Water and Wastes" (EPA/600/4-79/020).

The report entitled "Methods for the Determination of Metals in Environmental Samples" includes a test which must be performed in order to determine if matrix interferences are present, and a series of tests to enable reporting of sample results when interferences are identified. Each step of the series of tests becomes increasingly complex, concluding with the complete Method of Standard Additions analysis. The analysis need not continue once a result which meets the applicable quality control requirements has been obtained. Documentation of all steps conducted to identify and account for matrix interferences shall be submitted along with the monitoring reports.

If, after conducting the complete Method of Standard Additions analysis, the laboratory is unable to determine a valid result, the laboratory shall report "could not be analyzed". Documentation supporting this claim shall be submitted along with the monitoring report. If valid analytical results are repeatedly unobtainable, DEM may require that the permittee determine a method detection limit (MDL) for their effluent or sludge as outlined in 40 CFR Part 136, Appendix B.

Therefore, all sample results shall be reported as: an actual value, "could not be analyzed", less than the reagent water MDL, or less than an effluent or sludge specific MDL. The effluent or sludge specific MDL must be calculated using the methods outlined in 40 CFR Part 136, Appendix B. Samples which have been diluted to ensure that the sample concentration will be within the linear dynamic range shall not be diluted to the extent that the analyte is not detected. If this should occur the analysis shall be repeated using a lower degree of dilution.

When calculating sample averages for reporting on discharge monitoring reports (DMRs):

1. "could not be analyzed" data shall be excluded, and shall not be considered as failure to comply with the permit sampling requirements;

2. results reported as less than the MDL shall be included as values equal to the MDL, and the average shall be reported as "less than" the calculated value.

For compliance purposes, DEM will replace all data reported as less than the MDL with zeroes, provided that DEM determines that all appropriate EPA approved methods were followed. If the re-calculated average exceeds the permit limitation it will be considered a violation.

LIST OF TOXIC POLLUTANTS

The following list of toxic pollutants has been designated pursuant to Section 307(a)(1) of the Clean Water Act. The Method Detection Limits (MDLs) represent the required Rhode Island MDLs.

Volatiles - EPA Method 624		MDL ug/l (ppb)
1V	acrolein	10.0
2V	acrylonitrile	5.0
3V	benzene	1.0
5V	bromoform	1.0
6V	carbon tetrachloride	1.0
7V	chlorobenzene	1.0
8V	chlorodibromomethane	1.0
9V	chloroethane	1.0
10V	2-chloroethylvinyl ether	5.0
11V	chloroform	1.0
12V	dichlorobromomethane	1.0
14V	1,1-dichloroethane	1.0
15V	1,2-dichloroethane	1.0
16V	1,1-dichloroethylene	1.0
17V	1,2-dichloropropane	1.0
18V	1,3-dichloropropylene	1.0
19V	ethylbenzene	1.0
20V	methyl bromide	1.0
21V	methyl chloride	1.0
22V	methylene chloride	1.0
23V	1,1,2,2-tetrachloroethane	1.0
24V	tetrachloroethylene	1.0
25V	toluene	1.0
26V	1,2-trans-dichloroethylene	1.0
27V	1,1,1-trichloroethane	1.0
28V	1,1,2-trichloroethane	1.0
29V	trichloroethylene	1.0
31V	vinyl chloride	1.0

Acid Compounds - EPA Method 625		MDL ug/l (ppb)
1A	2-chlorophenol	1.0
2A	2,4-dichlorophenol	1.0
3A	2,4-dimethylphenol	1.0
4A	4,6-dinitro-o-cresol	1.0
5A	2,4-dinitrophenol	2.0
6A	2-nitrophenol	1.0
7A	4-nitrophenol	1.0
8A	p-chloro-m-cresol	2.0
9A	pentachlorophenol	1.0
10A	phenol	1.0
11A	2,4,6-trichlorophenol	1.0

Pesticides - EPA Method 608		MDL ug/l (ppb)
1P	aldrin	0.059
2P	alpha-BHC	0.058
3P	beta-BHC	0.043
4P	gamma-BHC	0.048
5P	delta-BHC	0.034
6P	chlordane	0.211
7P	4,4 ' -DDT	0.251
8P	4,4 ' -DDE	0.049
9P	4,4 ' -DDD	0.139
10P	dieldrin	0.082
11P	alpha-endosulfan	0.031
12P	beta-endosulfan	0.036
13P	endosulfan sulfate	0.109
14P	endrin	0.050
15P	endrin aldehyde	0.062
16P	heptachlor	0.029
17P	heptachlor epoxide	0.040

Pesticides - EPA Method 608		MDL ug/l (ppb)
18P	PCB-1242	0.289
19P	PCB-1254	0.298
20P	PCB-1221	0.723
21P	PCB-1232	0.387
22P	PCB-1248	0.283
23P	PCB-1260	0.222
24P	PCB-1016	0.494
25P	toxaphene	1.670

Base/Neutral - EPA Method 625		MDL ug/l (ppb)
1B	acenaphthene *	1.0
2B	acenaphthylene *	1.0
3B	anthracene *	1.0
4B	benzidine	4.0
5B	benzo(a)anthracene *	2.0
6B	benzo(a)pyrene *	2.0
7B	3,4-benzofluoranthene *	1.0
8B	benzo(ghi)perylene *	2.0
9B	benzo(k)fluoranthene *	2.0
10B	bis(2-chloroethoxy)methane	2.0
11B	bis(2-chloroethyl)ether	1.0
12B	bis(2-chloroisopropyl)ether	1.0
13B	bis(2-ethylhexyl)phthalate	1.0
14B	4-bromophenyl phenyl ether	1.0
15B	butylbenzyl phthalate	1.0
16B	2-chloronaphthalene	1.0
17B	4-chlorophenyl phenyl ether	1.0
18B	chrysene *	1.0
19B	dibenzo (a,h)anthracene *	2.0
20B	1,2-dichlorobenzene	1.0
21B	1,3-dichlorobenzene	1.0
22B	1,4-dichlorobenzene	1.0
23B	3,3 ' -dichlorobenzidine	2.0
24B	diethyl phthalate	1.0
25B	dimethyl phthalate	1.0
26B	di-n-butyl phthalate	1.0
27B	2,4-dinitrotoluene	2.0
28B	2,6-dinitrotoluene	2.0
29B	di-n-octyl phthalate	1.0
30B	1,2-diphenylhydrazine (as azobenzene)	1.0
31B	fluoranthene *	1.0
32B	fluorene *	1.0
33B	hexachlorobenzene	1.0
34B	hexachlorobutadiene	1.0
35B	hexachlorocyclopentadiene	2.0
36B	hexachloroethane	1.0
37B	indeno(1,2,3-cd)pyrene *	2.0
38B	isophorone	1.0
39B	naphthalene *	1.0
40B	nitrobenzene	1.0
41B	N-nitrosodimethylamine	1.0
42B	N-nitrosodi-n-propylamine	1.0
43B	N-nitrosodiphenylamine	1.0
44B	phenanthrene *	1.0
45B	pyrene *	1.0
46B	1,2,4-trichlorobenzene	1.0

OTHER TOXIC POLLUTANTS

	MDL ug/l (ppb)
Antimony, Total	5.0 - EPA Method 200.9
Arsenic, Total	5.0 - EPA Method 206.9
Beryllium, Total	0.2 - Standard Methods 18th Ed. 3113B
Cadmium, Total	1.0 - EPA Method 200.9
Chromium, Total	5.0 - Standard Methods 18th Ed. 3113B
Chromium, Hexavalent***	20.0 - Standard Methods 16th Ed., 312.B
Copper, Total	20.0 - EPA Method 200.7
Lead, Total	3.0 - EPA Method 200.9
Mercury, Total	0.5 - EPA Method 245.1
Nickel, Total	10.0 - EPA Method 200.7
Selenium, Total	5.0 - EPA Method 200.9
Silver, Total	1.0 - Standard Methods 18th Ed. 3113B
Thallium, Total	5.0 - EPA Method 200.9
Zinc, Total	20.0 - EPA Method 200.7
Asbestos	**
Cyanide, Total	10.0 - EPA Method 335.4
Phenols, Total***	50.0 - EPA Method 420.2
TCDD	**
MTBE (Methyl Tert Butyl Ether)	1.0 - EPA Method 524.2

* Polynuclear Aromatic Hydrocarbons
** No Rhode Island Department of Environmental Management (RIDEM) MDL
*** Not a priority pollutant as designated in the 1997 Water Quality Regulations (Table 5)

NOTE:

All MDLs have been established in accordance with the definition of "Detection Limits" in the RIDEM Water Quality Regulations for Water Pollution Control. Unless otherwise noted the MDLs have been determined in reagent water by the Rhode Island Department of Health, Division of Laboratories. The MDL for a given analyte may vary with the type of sample. MDLs which are determined in reagent water may be lower than those determined in wastewater due to fewer matrix interferences. Wastewater is variable in composition and may therefore contain substances (interferents) that could affect MDLs for some analytes of interest. Variability in instrument performance can also lead to inconsistencies in determinations of MDLs.

To help verify the absence of matrix or chemical interference the analyst is required to complete specific quality control procedures. For the metals analyses listed above the analyst must withdraw from the sample two equal aliquots; to one aliquot add a known amount of analyte, and then dilute both to the same volume and analyze. The unspiked aliquot multiplied by the dilution factor should be compared to the original. Agreement of the results within 10% indicates the absence of interference. Comparison of the actual signal from the spiked aliquot to the expected response from the analyte in an aqueous standard should help confirm the finding from the dilution analysis. (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

For Methods 624 and 625 the laboratory must on an ongoing basis, spike at least 5% of the samples from each sample site being monitored. For laboratories analyzing 1 to 20 samples per month, at least one spiked sample per month is required. The spike should be at the discharge permit limit or 1 to 5 times higher than the background concentration determined in Section 8.3.2, whichever concentration would be larger. (40 CFR Part 136 Appendix B Method 624 and 625 subparts 8.3.1 and 8.3.11).

C. MONITORING AND REPORTING

1. Monitoring

All monitoring required by this permit shall be done in accordance with sampling and analytical testing procedures specified in Federal Regulations (40 CFR Part 136).

2. Reporting

Monitoring results obtained during the previous month(s) shall be summarized and reported on Discharge Monitoring Report (DMR) Forms, postmarked no later than the 15th day of the month following the completed reporting period. A copy of the analytical laboratory report, specifying analytical methods used, shall be included with each report submission. The first report is due on August 15, 2009. Signed copies of these, and all other reports required herein, shall be submitted to:

RIPDES Program
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RHODE ISLAND 02908

STATEMENT OF BASIS

RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM (RIPDES) PERMIT TO DISCHARGE TO WATERS OF THE STATE

RIPDES PERMIT NO. **RI0023604**

NAME AND ADDRESS OF APPLICANT:

Strawberry Field Estates, Inc.
One East Main Street
Flemington, NJ 08822

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Strawberry Field Estates, Inc.
333 Strawberry Field Road
Warwick, RI

RECEIVING WATER: **Tuscatucket Brook**

CLASSIFICATION: **A**

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

The above named applicant has reapplied to the Rhode Island Department of Environmental Management for issuance of a RIPDES Permit to discharge into the designated receiving water. The applicant's discharge consists of effluent from a groundwater extraction and treatment system (primary components include four (4) submersible extraction pumps (3 located in wells, 1 located in the extraction trench), a particulate filter, and three (3) 2,000-pound granular activated carbon (GAC) vessels aligned in series). The discharge is to an existing catch basin located on Strawberry Field Road, which discharges to Tuscatucket Brook.

II. Limitations and Conditions

The effluent limitations, monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

III. Permit Basis and Explanation of Effluent Limitation Derivation

The main building at the Site located at 333 Strawberry Field Road in Warwick, Rhode Island was constructed in 1960 for Leesona Corporation with additions constructed throughout the 1960's and also in 1982. Prior to 1960, the property was used as a strawberry farm. The property was

used by the Leesona Corporation from 1960 to 1983 for the manufacturing of textile machinery. Operations within the building included machinery manufacturing, metals finishing, steam cleaning, industrial painting, rust proofing, heat treatment of metals, storage, and office space. In 1983, The Lares Group purchased the property and the main building was subdivided into separate tenant spaces. Leesona Corporation continued to operate in a portion of the building until 1985. Due to the presence of VOCs (specifically TCE and 1,1 DCE) in groundwater along the property boundary, the Rhode Island Department of Environmental Management was notified in writing by Strawberry Field Estates, Inc. about the potential off-site migration of groundwater impacted above the Rhode Island Department of Environmental Management (RIDEM) Site Remediation Regulations GB Groundwater Objectives. Strawberry Field Estates, Inc., proposed to install a Groundwater Extraction and Treatment System (GWETS) as an immediate response to maintain hydraulic control near the Site boundary along Strawberry Field Road and minimize the potential for additional offsite migration of contaminated groundwater. Operation of the GWETS began and was authorized to discharge remediated groundwater under RIDEM RIPDES Order of Approval No. RIO-323 on May 23, 2002. On February 17, 2004 a RIPDES Permit was issued authorizing the discharge from the GWETS at an average monthly flowrate of 10 gpm with a maximum daily flow limit of 20 gpm.

On May 4, 2004, the RIPDES program issued a minor modification to increase the system sampling frequency from 2/month to 1/week in response to the potential for increased flow rates and influent concentrations being passed through the granular activated carbon treatment system as a result of the addition of a groundwater extraction trench. At the time the minor modification was issued, DEM made Strawberry Field Estates, Inc. aware that anticipated changes in flow due to the addition of the extraction trench may also warrant the need for a major permit modification to increase the permitted system flow rate. In response to this recommendation, on July 29, 2004, Strawberry Field Estates, Inc. submitted a request to formally modify the existing RIPDES permit. The request involved an increase in the monthly average flowrate from 10 gpm to 20 gpm, with an increase in the maximum daily flowrate from 20 gpm to 30 gpm. In order to maintain the recommended sixty (60) days of breakthrough time through the carbon treatment system, Strawberry Field Estates, Inc. also proposed to increase the carbon capacity on site from two (2) 1000 pound carbon vessels to three (3) 2000lb carbon vessels aligned in series. As a result of the system changes, the groundwater extraction and treatment system primary components were upgraded to include four (4) submersible extraction pumps (3 located in wells, 1 located in the extraction trench), a particulate filter, and three (3) 2,000 pound granular activated carbon (GAC) vessels aligned in series. On February 2, 2005, the RIPDES program issued a major modification to the discharge permit that increased the permitted flow rates to 20 gpm (monthly average) and 30 gpm (daily maximum). In addition, because the breakthrough time was estimated to be approximately 58 days, the monitoring frequency was reduced from 1/week to once every two (2) calendar weeks. No other permit conditions, including pollutant effluent limitations were changed in the permit modification.

On January 8th and January 29, 2009, Sage Environmental, Inc., on behalf of Strawberry Field Estates, Inc., requested, as part of the permit renewal application, a further increase in the treatment system flow rate from 20 gpm monthly average and 30 gpm daily maximum to 30 gpm monthly average and 40 gpm daily maximum. The increased flow was necessary in order to maximize the extraction rates from the groundwater extraction wells and trench located at the site to ensure that there is no offsite migration of contaminated groundwater. RIDEM's Office of Waste Management agreed that the increased flow was necessary. Therefore, Sage Environmental, Inc. compiled maximum concentrations of contaminants of concern treated by the groundwater extraction and treatment system for a two-year period (December 2006 through December 2008). This data was generated from the treatment system influent concentrations reported on past Discharge Monitoring Reports for this period. Using the maximum concentrations detected for each pollutant in the influent over the two year period, Sage Environmental, Inc. performed a revised carbon consumption estimate for the three (3) 2,000 lb carbon vessels at the proposed maximum flow rate of 40 gpm. Based on the results of the carbon consumption calculations, carbon breakthrough is estimated to be 68 days at the proposed maximum flow rate of 40 gpm. This design estimate of 68 days exceeds the 60-day minimum breakthrough requirement for RIPDES permitted carbon treatment systems. Based on this information, the RIPDES Program has determined that an increase in the permitted discharge

flow rates through the treatment system is acceptable. Monitoring of the treatment system at the midpoint and effluent monitoring locations will continue to be required at a frequency of twice per month and monthly for the influent.

General Requirements

Development of RIPDES permit limitations is a multi-step process consisting of the following steps: identifying applicable technology-based limits; calculating allowable water-quality based discharge levels based on in-stream criteria, background data and available dilution; establishing Best Professional Judgement (BPJ) limits in accordance with Section 402 of the CWA; and assigning the most stringent as the final discharge limitations.

Water quality criteria are comprised of numeric and narrative criteria. Numeric criteria are scientifically derived ambient concentrations developed by EPA or States for various pollutants of concern to protect human health and aquatic life. Narrative criteria are statements that describe the desired water quality goal. A technology-based limit is a numeric limit, which is determined by examining the capability of a treatment process to reduce or eliminate pollutants.

Water Quality Based Permit Limitations

Appendix B of the Water Quality Regulations describes the flows used to determine compliance with the aquatic life criteria, specifying that the design flow to be utilized for aquatic life criteria shall not be exceeded at or above the lowest average seven (7) consecutive day low flow with an average recurrence frequency of once in ten (10) years (7Q10). Since the discharge from the groundwater treatment system enters Tuscatucket Brook and there no dilution data available for the point of discharge, a dilution factor of one (1) was used in the determination of applicable water quality-based discharge limitations.

Allowable water quality based effluent limitations were established based on the Class A freshwater acute and chronic aquatic life criteria and human health criteria specified in Appendix B of the Rhode Island Water Quality Regulations, using 80% allocation when no background data is available and 90% allocation when background data is available. There is no background data available, therefore, the allowable water quality-based discharge levels were calculated as follows:

$$Limit_1 = (DF)^* (Criteria)^*(80\%)$$

In accordance with 40 CFR 122.44(d)(1)(iii), water quality based effluent limitations are only required for those pollutants in the discharge that have the reasonable potential to cause or contribute to the exceedence of in-stream criteria. In order to evaluate the need for permit limits, the allowable monthly average (chronic) and allowable maximum daily (acute) discharge concentrations are compared to the monthly average and maximum daily Discharge Monitoring Report (DMR) data for the site.

The "Maximum" and "Minimum" pH limitations are based upon Table 1 of Rule 8.D. (2), Class-Specific Criteria – Fresh Waters of the Rhode Island Water Quality Regulations, adopted in accordance with Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the Rhode Island General Laws of 1956, as amended.

Technology Based Permit Limitations

DEM is required to consider technology and water quality requirements when developing permit effluent limits. Technology based treatment requirements represent the minimum level of control that must be imposed under Section 402 and 301(b) of the Act (see 40 CFR 125 Subpart A) to meet Best Practicable Control Technology Currently Available (BPT), Best Conventional Control Technology (BCT) for conventional pollutants, and Best Available Technology Economically Achievable (BAT) for toxic pollutants. In the absence of technology based guidelines, DEM is authorized to use Best Professional Judgement (BPJ) to establish effluent limitations, in accordance with Section 402(a)(1) of the CWA. Since the Environmental Protection Agency has not promulgated technology-based standards for this discharge, DEM developed BPJ limits.

BPJ Based Permit Limitations

The selected granular activated carbon technology is proven to be able to remove VOCs and CVOCs to a concentration below the Method Detection Limit (MDL). However, experience with systems of mixed contaminants has shown that intermittent slugs of more easily retained contaminants may enter the system and displace less easily adsorbed contaminants like CVOCs. Also, laboratory and field contamination or instrument noise could cause false positives at the method detection limit (MDL). As a result, BPJ limits of five (5) times the MDLs for the CVOC pollutants of concern have been assigned. The limits are achievable by using the proposed groundwater treatment system.

Final Permit Limitations

BPJ limits are the most stringent limitations, when compared to water quality or technology based limits. As a result, BPJ limits have been assigned to all pollutants of concern. The only exceptions to the use of BPJ based effluent limitations are in the cases of the following pollutants of concern: Vinyl Chloride, Tetrachloroethene, and 1,1 Dichloroethylene. In the case of these three pollutants water quality based limitations were more stringent than the technology-based limit of 5 ug/l assigned to the other pollutants of concern. The water quality based limit for vinyl chloride, calculated using the previously mentioned equation, is 1.92 ug/l for the monthly average. No criteria exists for the daily maximum or acute criteria. As a result a combination of water quality and technology based limitations have been assigned in the permit for Vinyl Chloride. The resulting limits for Vinyl Chloride are 1.92 ug/l monthly average and 5.0 ug/l daily maximum. The water quality based limits applicable to tetrachloroethene are 4.24 ug/l for the monthly average and 192 ug/l for the daily maximum or acute criteria. As a result a combination of water quality and technology based limitations have been assigned in the permit for tetrachloroethene. The resulting limits for tetrachloroethene are 4.24 ug/l monthly average and 5.0 ug/l daily maximum. Monthly Average limitations assigned for 1,1 Dichloroethylene are also more stringent than BPJ based limitations and have been carried forward from the previous permit in order to comply with antibacksliding requirements. The applicable limitations assigned for 1,1 Dichloroethylene are 0.57 ug/l monthly average and 5.0 ug/l daily maximum. The pH limits were set equal to the water quality based pH limits previously mentioned.

The requirements set forth in this permit are from the State's Water Quality Regulations and the State's Regulations for the Rhode Island Pollutant Discharge Elimination System, both filed pursuant to RIGL Chapter 46-12, as amended. DEM's primary authority over the permit comes from EPA's delegation of the program in September 1984 under the Federal Clean Water Act.

The effluent monitoring requirements have been specified in accordance with RIPDES regulations as well as 40 CFR 122.41 (j), 122.44 (I), and 122.48 to yield data representative of the discharge.

The remaining general and specific conditions of the permit are based on the RIPDES regulations as well as 40 CFR Parts 122 through 125 and consist primarily of management requirements common to all permits.

IV. Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by close of the public comment period, to the Rhode Island Department of Environmental Management, Office of Water Resources, 235 Promenade Street, Providence, Rhode Island, 02908-5767. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to the Rhode Island Department of Environmental Management. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Director finds that the response to this notice indicates significant public interest. In reaching a

final decision on the draft permit the Director will respond to all significant comments and make these responses available to the public at DEM's Providence Office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Director will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within thirty (30) days following the notice of the final permit decision any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of Rule 49 of the Regulations for the Rhode Island Pollutant Discharge Elimination System.

V. DEM Contact

Additional information concerning the permit may be obtained between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday, excluding holidays, from:

Brian D. Lafaille, P.E.
RIPDES Program
Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-4700, ext. 7731

5/5/09
Date

Eric A. Beck, P.E.
Supervising Sanitary Engineer
RIPDES Permitting Section
Office of Water Resources
Department of Environmental Management