

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, the

**Rhode Island Department of Transportation**  
Two Capitol Hill  
Providence, RI 02903

is authorized to discharge from a facility located at

**I-195 Contract 10**

(Route 195 from South Main Street to the Washington Bridge,  
South Water Street from Wickenden Street to Tockwotten Street,  
South Main Street from Wickenden Street to Tockwotten Street,  
Cohan Boulevard from Pike Street to East Street, and  
Pike Street from South Water Street to South Main Street  
Providence, RI)

and

**I-195 Contract 11**

(Route 95 from Eddy Street to Westminster Street,  
West Franklin Street, East Franklin Street,  
Clifford Street, Friendship Street, and Pine Street  
Providence, RI)

to receiving waters named

Providence River

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

This permit shall become effective on January 1, 2008.

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

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

Signed this 30<sup>th</sup> day of November, 2007.

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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 001A (Final Construction Dewatering Discharge from the Treatment System – after the 1,000 lb Ion Exchange Vessel). Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>					<u>Monitoring Requirement</u>	
	Quantity - lbs./day		Concentration - specify units			<u>Measurement Frequency</u>	<u>Sample Type</u>
	<u>Average Monthly</u>	<u>Maximum Daily</u>	<u>Average Monthly</u> *( <u>Minimum</u> )	<u>Average Weekly</u> *( <u>Average</u> )	<u>Maximum Daily</u> *( <u>Maximum</u> )		
Flow	---	50 gpm <sup>1</sup>				Continuous	Totalizer
1,1,1 - Trichloroethane			5.0 ug/l		5.0 ug/l	1/Week	Grab
1,1 - Dichloroethane			5.0 ug/l		5.0 ug/l	1/Week	Grab
1,1 - Dichloroethene			5.0 ug/l		5.0 ug/l	1/Week	Grab
1,2,4 - Trichlorobenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
1,2,4 - Trimethylbenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
1,3,5 - Trimethylbenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
2 - Butanone			125.0 ug/l		125.0 ug/l	1/Week	Grab
4 - Isopropyltoluene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Acetone			125.0 ug/l		125.0 ug/l	1/Week	Grab
Benzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Carbon Disulfide			5.0 ug/l		5.0 ug/l	1/Week	Grab
Chlorobenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Chloroform			5.0 ug/l		5.0 ug/l	1/Week	Grab
Chloromethane			10.0 ug/l		10.0 ug/l	1/Week	Grab
Cis – 1,2 - Dichloroethene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Ethylbenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab

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

<sup>1</sup>The flow through any treatment system shall not exceed 50 gpm. The highest daily flowrate treated by any individual treatment system is to be reported as the "Maximum Daily" flow. The average of all of the treatment systems flow rates for the month shall be reported as the "Average Monthly" flow. The permittee shall submit a flow log with each Discharge Monitoring Report, required under Part I.C.2, identifying the number of treatment systems used during the reporting period, their locations, discharge points, and daily flow rates.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: influent (Groundwater Prior to Entering the Treatment System), midfluent (between the Treatment System's 2<sup>nd</sup> 3,000-pound carbon vessel and the 1<sup>st</sup> 2,000-pound carbon vessel), and Outfall 001 (Final Construction Dewatering Discharge from Treatment System – after the 1,000 lb Ion Exchange Vessel).

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

2. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 001A (Final Construction Dewatering Discharge from the Treatment System – after the 1,000 lb Ion Exchange Vessel). Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	<u>Discharge Limitations</u>					<u>Monitoring Requirement</u>	
	Quantity - lbs./day		Concentration - specify units			Measurement Frequency	Sample Type
	<u>Average Monthly</u>	<u>Maximum Daily</u>	<u>Average Monthly</u> *( <u>Minimum</u> )	<u>Average Weekly</u> *( <u>Average</u> )	<u>Maximum Daily</u> *( <u>Maximum</u> )		
Isopropylbenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Methyl tert-Butyl Ether (MTBE)			5.0 ug/l		5.0 ug/l	1/Week	Grab
Napthalene			5.0 ug/l		5.0 ug/l	1/Week	Grab
n - propylbenzene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Styrene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Tertiary-amyl methyl ether			5.0 ug/l		5.0 ug/l	1/Week	Grab
Tetrachloroethene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Tetrahydrofuran			25.0 ug/l		25.0 ug/l	1/Week	Grab
Toluene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Trans – 1,2 - Dichloroethene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Trichloroethene			5.0 ug/l		5.0 ug/l	1/Week	Grab
Vinyl Chloride			5.0 ug/l		5.0 ug/l	1/Week	Grab
Total Xylenes			15.0 ug/l		15.0 ug/l	1/Week	Grab
Total Petroleum Hydrocarbons (TPH)			--- mg/l		1.0 mg/l	1/Week	Grab
Total Arsenic			1.12 ug/l <sup>1</sup>		55.2 ug/l	1/Week	Grab
Total Chromium			40.0 ug/l		880.0 ug/l	1/Week	Grab
Total Copper			2.48 ug/l <sup>1</sup>		3.84 ug/l	1/Week	Grab
Total Lead			6.48 ug/l		168.0 ug/l	1/Week	Grab
Total Nickel			6.56 ug/l		59.2 ug/l	1/Week	Grab
Total Zinc			64.8 ug/l		72.0 ug/l	1/Week	Grab

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

<sup>1</sup> The limit at which compliance/noncompliance determinations will be based for these pollutants is the Quantitation Limit, which is defined as 2.0 ug/l for Total Arsenic and 3.0 ug/l for Total Copper. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

Samples taken in compliance with the monitoring requirements specified above shall be taken Monday through Friday at the following locations: inluent (Groundwater Prior to Entering the Treatment System), midfluent (between the Treatment System's 2<sup>nd</sup> 3,000-pound carbon vessel and 1<sup>st</sup> 2,000-pond carbon vessel), and Outfall 001 (Final Construction Dewatering Discharge from Treatment System – after the 1,000 lb Ion Exchange Vessel).

3.
  - a. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 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. Discharge shall cease and the Office shall be notified immediately if any of the contaminants listed are found in the effluent (outfall 001) above the limits listed in Parts I.A.1 or I.A.2. At a minimum, the notification shall include a summary of total flow, operation and maintenance activities, and any laboratory results. 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 that the limits will not be exceeded again, and following approval by DEM. At a minimum, these steps shall include the replacement of the activated carbon filters for organic pollutants or the ion exchange filter for metals pollutants. If any of the organic pollutants listed are found in the midfluent (between the 2<sup>nd</sup> 3,000-pound carbon vessel and the 1<sup>st</sup> 2,000-pound carbon vessel) above the limits listed in Parts I.A.1 or I.A.2. The first activated carbon filter shall be replaced within twenty-four (24) hours of receiving the analytical results indicating the exceedance.
5. This permit does not authorize the discharge of ion exchange regeneration wastewater.
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 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.

7. 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.

<b>Volatiles - EPA Method 624</b>		<b>MDL ug/l (ppb)</b>	<b>Pesticides - EPA Method 608</b>		<b>MDL ug/l (ppb)</b>
1V	acrolein	10.0	18P	PCB-1242	0.289
2V	acrylonitrile	5.0	19P	PCB-1254	0.298
3V	benzene	1.0	20P	PCB-1221	0.723
5V	bromoform	1.0	21P	PCB-1232	0.387
6V	carbon tetrachloride	1.0	22P	PCB-1248	0.283
7V	chlorobenzene	1.0	23P	PCB-1260	0.222
8V	chlorodibromomethane	1.0	24P	PCB-1016	0.494
9V	chloroethane	1.0	25P	toxaphene	1.670
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			
<b>Acid Compounds - EPA Method 625</b>		<b>MDL ug/l (ppb)</b>	<b>Base/Neutral - EPA Method 625</b>		<b>MDL ug/l (ppb)</b>
1A	2-chlorophenol	1.0	1B	acenaphthene *	1.0
2A	2,4-dichlorophenol	1.0	2B	acenaphthylene *	1.0
3A	2,4-dimethylphenol	1.0	3B	anthracene *	1.0
4A	4,6-dinitro-o-cresol	1.0	4B	benzidine	4.0
5A	2,4-dinitrophenol	2.0	5B	benzo(a)anthracene *	2.0
6A	2-nitrophenol	1.0	6B	benzo(a)pyrene *	2.0
7A	4-nitrophenol	1.0	7B	3,4-benzofluoranthene *	1.0
8A	p-chloro-m-cresol	2.0	8B	benzo(ghi)perylene *	2.0
9A	pentachlorophenol	1.0	9B	benzo(k)fluoranthene *	2.0
10A	phenol	1.0	10B	bis(2-chloroethoxy)methane	2.0
11A	2,4,6-trichlorophenol	1.0	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
<b>Pesticides - EPA Method 608</b>		<b>MDL ug/l (ppb)</b>			
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	chlordan	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			

### OTHER TOXIC POLLUTANTS

<u>Pollutant</u>	<u>MDL ug/l (ppb)</u>
Antimony, Total	3.0 - EPA Method 204.2 <sup>1</sup>
Arsenic, Total	1.0 - EPA Method 206.2 <sup>1</sup>
Beryllium, Total	0.2 - EPA Method 210.2 <sup>1</sup>
Cadmium, Total	0.1 - EPA Method 213.2 <sup>1</sup>
Chromium, Total	1.0 - EPA Method 218.2 <sup>1</sup>
Chromium, Hexavalent****	20.0 - Standard Methods 16 <sup>th</sup> Ed., 312.B
Copper, Total	1.0 - EPA Method 220.2 <sup>1</sup>
Lead, Total	1.0 - EPA Method 239.2 <sup>1</sup>
Mercury, Total	0.2 - EPA Method 245.1 <sup>1</sup>
Nickel, Total	1.0 - EPA Method 249.2 <sup>1</sup>
Selenium, Total	2.0 - EPA Method 270.2 <sup>1</sup>
Silver, Total	0.5 - EPA Method 200.9 <sup>1</sup>
Thallium, Total	1.0 - EPA Method 279.2 <sup>1</sup>
Zinc, Total	5.0 - EPA Method 289.1 <sup>1</sup>
Asbestos	**
Cyanide, Total	10.0 - EPA Method 335.3
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 (DEM) 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 DEM 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.

<sup>1</sup>Method detection limits for these metals analyses were determined by the USEPA. They are not contrived values and should be obtainable with any satisfactory atomic absorption spectrophotometer. To insure valid data the analyst must analyze for matrix interference effects and if detected treat accordingly using either successive dilution matrix modification or method of Standard Additions (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

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 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 February 15, 2008.

Signed copies of these, and all other reports required herein, shall be submitted to:

Electronic Computer Operator  
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 02908-5767

STATEMENT OF BASIS

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

RIPDES PERMIT NO. **RI0023795**

NAME AND ADDRESS OF APPLICANT:

**Rhode Island Department of Transportation**  
Two Capitol Hill  
Providence, RI 02903

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

**I-195 Contract 10**

(Route 195 from South Main Street to the Washington Bridge,  
South Water Street from Wickenden Street to Tockwotten Street,  
South Main Street from Wickenden Street to Tockwotten Street,  
Cohan Boulevard from Pike Street to East Street, and  
Pike Street from South Water Street to South Main Street  
Providence, RI)

and

**I-195 Contract 11**

(Route 95 from Eddy Street to Westminster Street,  
West Franklin Street, East Franklin Street,  
Clifford Street, Friendship Street, and Pine Street  
Providence, RI)

RECEIVING WATER: **Providence River**

CLASSIFICATION: **SB1{a}**

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

The above named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for the issuance of a RIPDES Permit to discharge into the designated receiving water. As part of the Rhode Island Department of Transportation's (RIDOT's) relocation of the Interstate 195/95 merge, dewatering may be necessary at multiple locations where subsurface excavation will be completed for the construction of piers, footings, retaining walls, highway underdrains, and drainage structures. The discharge consists of treated groundwater from dewatering associated with construction. This permit does not authorize the discharge of contaminated groundwater after construction has been completed.

**II. Limitations and Conditions**

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

### III. **Permit Basis and Explanation of Effluent Limitation Derivation**

RIDOT is in the process of the relocation of the Interstate 195/95 merge. Dewatering will be necessary at multiple locations where subsurface excavation will be completed for the construction of bridge piers, footings, retaining walls, highway underdrains, and drainage structures. The discharge will be treated using a treatment system that uses a 21,000 gallon frac tank, followed by a bag filter, two (2) 3,000-pound granular activated carbon vessels in series, four (4) 2,000-pound granular activated carbon vessels in series, and a 1,000-pound ion exchange column prior to discharge into the Providence River. A diagram of the treatment system is presented in Attachment 1. Identical treatment systems may be used at various dewatering locations at the same time. However, each discharge must comply with all permit limitations. This permit does not authorize the discharge of ion exchange regeneration wastewater and does not authorize the discharge of contaminated groundwater after construction has been completed.

Development of Rhode Island Pollutant Discharge Elimination System (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; assigning appropriate Best Professional Judgment (BPJ) limits; and setting the most stringent of these three (3) limits as the final limits. The following paragraphs outline the basis for each of the 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 Clean Water 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 effluent limitation guidelines, DEM is authorized to use Best Professional Judgment (BPJ) to establish effluent limits, in accordance with Section 402(a)(1) of the Clean Water Act. Since the Environmental Protection Agency has not promulgated technology-based standards for this type of discharge, DEM has developed BPJ limits for the proposed discharge.

#### *Total Petroleum Hydrocarbons (TPH)*

The TPH limits specified in the permit were set equivalent to the limits in the DEM's General Permit for Discharges Associated with the Treatment of Groundwater Contaminated by #2 Fuel Oil for discharges to Class SB waters.

#### *VOCs and SVOCs*

Granular activated carbon (GAC) has been chosen as the selected treatment technology. Properly designed and maintained GAC units have been proven to be able to remove VOCs and SVOCs to concentration below detection. 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 SVOCs. Also, laboratory and field contamination or instrument noise could cause false positives at the MDL. As a result, the DEM has determined that an effluent limitation equal to five (5) times that of the minimum detection limits for the organic pollutants of concern (e.g., any organic pollutants detected in groundwater at the site) would be achievable by the application of readily available treatment technologies. Furthermore, it has been determined that, since these BPJ limits are below the applicable water quality criteria, for both saltwater aquatic life and human health, from Appendix B of the Rhode Island Water Quality Regulations, they will be protective of the water quality of the receiving water. Therefore, BPJ limits of five (5) times the minimum detection limit have been assigned for these pollutants. It should be noted that these pollutants were identified as the only SVOCs and VOCs of concern since they were the only pollutants to be detected in the groundwater monitoring that was conducted in the area of the proposed construction dewatering.

### *Metals*

The only other pollutants that were detected in the groundwater above the minimum detection limits were Antimony, Arsenic, Beryllium, Chromium, Copper, Lead, Nickel, and Zinc. When developing permit limits, EPA regulations require RIPDES permits to contain effluent limits that are stringent enough to maintain or achieve Federal or State water quality standards. As a result, the permit must limit any pollutant that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. An excursion occurs if the projected or actual in stream concentrations exceed the applicable criterion. Since the pollutant concentrations detected in the groundwater for Arsenic, Chromium, Copper, Lead, Nickel, and Zinc were greater than or close to the applicable water quality criteria, it was determined that these pollutants have the reasonable potential to cause or contribute to an excursion above water quality criteria.

In order to ensure that the discharges of Arsenic, Chromium, Copper, Lead, Nickel, and Zinc will not cause an exceedance of the water quality criteria, the DEM has assigned a daily maximum permit limit equal to 80% of the acute water quality criteria for these pollutants and a monthly average permit limit equal to 80% of the more stringent of either the chronic water quality criteria of the human health criteria for these pollutants. Assigning 80% of the criteria is consistent with DEM's procedures for calculating water quality based limits when there is no background pollutant concentration data. In instances where the permit limit for a given metal is less than the applicable quantitation limit for that metal, the limit at which compliance/noncompliance determinations will be based for these pollutants is the quantitation limit. This is the case for the monthly average total arsenic and total copper permit limits. Therefore, for these metals, the limit at which compliance/noncompliance determinations will be based is the quantitation limit and is defined as 2.0 ug/l for Total Arsenic and 3.0 ug/l for Total Copper.

DEM has determined that all permit limitations are consistent with the Rhode Island Antidegradation policy.

The permit also includes a requirement that the permittee shall cease discharge and the DEM shall be notified immediately if any of the contaminants listed are found in the effluent at concentrations above the applicable permit limits. Written documentation of the immediate notification required shall be submitted to the DEM within five (5) days and the discharge may recommence only after steps have been taken to ensure that the limits will not be exceeded again, and following approval by DEM. At a minimum, these steps shall include the replacement of the activated carbon filters for organic pollutants or the ion exchange resin for metals. The permit also requires that, if any of the organic contaminants are found in the midfluent (between the 2<sup>nd</sup> 3,000-pound carbon vessel and the 1<sup>st</sup> 2,000-pound carbon vessel) above the applicable limits, the first activated carbon filter shall be replaced within twenty-four (24) hours of receiving the analytical results indicating the exceedance.

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 the 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 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:

Joseph B. Haberek, P.E.  
Department of Environmental Management  
RIPDES Program  
235 Promenade Street  
Providence, Rhode Island 02908  
Telephone: 401-222-4700 ext: 7715  
e-mail: joseph.haberek@dem.ri.gov

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Date

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