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

Town of Westerly
45 Broad Street
Westerly, Rhode Island 02891

is authorized to discharge from a facility located at

Westerly Wastewater Treatment Facility
87 Margin Street
Westerly, Rhode Island 02891

to receiving waters named

Pawcatuck River

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

This permit shall become effective on _____.

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

This permit supersedes the permit issued on September 14, 2007.

This permit consists of 23 pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this _____day of _____, 2013.

DRAFT

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

PART I

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	3.3 MGD	--- MGD				Continuous	Recorder
BOD_5	826	1376	30 mg/l	45 mg/l	50 mg/l	3/Week	24-Hr. Comp.
BOD_5 - % Removal			85%			1/Month	Calculated
TSS	826	1376	30 mg/l	45 mg/l	50 mg/l	3/Week	24-Hr. Comp.
TSS - % Removal			85%			1/Month	Calculated
Settleable Solids			--- ml/l	--- ml/l	--- ml/l	1/Day	Grab

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

Sampling for TSS shall be performed Tuesday, Thursday and either Saturday or Sunday. Two (2) of the BOD_5 samples shall be taken at the same time as two (2) of the TSS samples. All BOD_5 and TSS samples shall be taken and reported for the influent and effluent with appropriate allowances for hydraulic detention (flow-through) time.

Sampling for Flow and Settleable Solids shall be performed Sunday-Saturday.

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

PART I

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(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
Enterococci			35 cfu[1] / 100 ml		276 cfu[1] / 100 ml	3/Week	Grab
Fecal Coliform			--- MPN[1] / 100 ml		--- MPN[1] / 100 ml	3/Week	Grab
Total Residual Chlorine (TRC)			65 ug/l[2]		65 ug/l[2]	3/Day	Grab
pH			(6.5 SU)		(8.5 SU)	2/Day	Grab

[1]Two (2) of the three (3) Enterococci samples are to be taken on Tuesday and Thursday at the same time as one of the TRC samples. The Fecal Coliform samples shall be taken at the same time as the Enterococci samples. The Geometric Mean shall be used to obtain the “monthly average” for Fecal Coliform and the "monthly average" for Enterococci.

[2]The use of a continuous TRC recorder after chlorination and prior to dechlorination is required to provide a record that proper disinfection was achieved at all times. Compliance with these limitations shall be determined by taking three grab samples per day, Monday - Friday (except holidays), equally spaced over one (1) day with a minimum of three hours between grabs, and on Saturdays, Sundays, and Holidays by taking at least (2) grab samples each day with a minimum of two (2) hours between grabs. The maximum daily and average monthly values are to be computed from the averaged grab sample results for each day. The following methods may be used to analyze the grab samples: (1) DPD Spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No. 4500-Cl G; (2) DPD Titrimetric, EPA No. 330.4 or Standard Methods (18th Edition) No. 4500-Cl F; (3) Amperometric Titration, EPA No. 330.1 or Standard Methods (18th Edition) No. 4500-Cl D or ASTM No. D1253-86(92).

*Values in parentheses () are to be reported as Minimum/Maximum for the reporting period rather than Average Monthly/ Maximum Daily.

Sampling for pH and Chlorine Residual shall be performed Sunday-Saturday.

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

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A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

3. 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 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	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Oil and Grease					--- mg/l	1/Month	3 Grabs[1]
TKN							
(May 1-October 31)			--- mg/l		--- mg/l	3/Week	24-Hr. Comp.
(November 1-April 30)			--- mg/l		--- mg/l	2/Month	24-Hr. Comp
Nitrate, Total (as N)							
(May 1-October 31)			--- mg/l		--- mg/l	3/Week	24-Hr. Comp.
(November 1- April 30)			--- mg/l		--- mg/l	2/Month	24-Hr. Comp.
Nitrite, Total (as N)							
(May 1-October 31)			--- mg/l		--- mg/l	3/Week	24-Hr. Comp.
(November 1- April 30)			--- mg/l		--- mg/l	2/Month	24-Hr. Comp.
Nitrogen, Total [TKN + Nitrate + Nitrite, as N]							
(May 1-October 31)	413 lb/d		15 mg/l		--- mg/l	3/Week	Calculated
(November 1- April 30)	--- lb/d[2]		--- mg/l[2]		--- mg/l[2]	2/Month	Calculated
Ammonia, Total (as N)							
(May 1-October 31)			5.5 mg/l		18.4 mg/l	3/Week	24-Hr. Comp.
(November 1- April 30)			30.9 mg/l		101.9 mg/l	2/Month	24-Hr. Comp.

[1] Three (3) grab samples shall be spaced over the course of a day with a minimum of three (3) hours between samples. Each grab sample must be analyzed individually and the maximum values reported.

[2] The Permittee shall operate the treatment facility to reduce the discharge of Total Nitrogen during the months of November through April to the maximum extent possible using all available treatment equipment in place at the facility.

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

Samples taken in compliance with the monitoring requirements specified above shall be taken Monday through Friday at the following locations: Outfall 001A.

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

4. 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 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	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Copper Total[1,2]			23 ug/l		23 ug/l	2/Week	24-Hr. Comp.
Cyanide[1,2]			4.0 ug/l[3]		4.0 ug/l[3]	2/Month	Composite[4]
Cadmium, Total[1]			--- ug/l		--- ug/l	1/Quarter	24-Hr. Comp.
Chromium, Total[1]			--- ug/l		--- ug/l	1/Quarter	24-Hr. Comp.
Lead, Total[1]			--- ug/l		--- ug/l	1/Quarter	24-Hr. Comp.
Zinc, Total[1]			--- ug/l		--- ug/l	1/Quarter	24-Hr. Comp.
Nickel, Total[1]			--- ug/l		--- ug/l	1/Quarter	24-Hr. Comp.
Aluminum, Total[1]			--- ug/l		--- ug/l	1/Quarter	24-Hr. Comp.

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

[1] Monitoring data may be obtained in conjunction with bioassay testing.

[2] Samples shall be taken on the influent and effluent with appropriate allowances for hydraulic detention (flow-through) time.

[3] The limit at which compliance/noncompliance determinations will be based is the Quantitation Limit which is defined as 10.0 ug/l for Cyanide. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

[4] Compliance with these limitations shall be determined by taking three grab samples per day, spaced over one (1) day with a minimum of three hours between grabs, and preserved immediately upon collection. All three (3) samples shall be composited, then analyzed for available Cyanide.

Samples taken in compliance with the monitoring requirements specified above shall be taken Monday through Friday at the following locations: Outfall 001A.

PART I

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

5. 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 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	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Mysidopsis bahia LC50[1]					100% or Greater[2]	1/Quarter	24-Hr. Comp.
Arabacia punctulata C-NOEC[3]					10% or Greater	1/Quarter	24-Hr. Comp.

[1]LC_{50} is defined as the concentration of wastewater that causes mortality to 50% of the test organisms.

[2]The 100% or greater limit is defined as a sample that is composed of 100% effluent.

[3]Chronic-No Observed Effects Concentration (C-NOEC) is the highest concentration of toxicant or effluent to which the organisms are exposed in a life-cycle or partial life-cycle which causes no adverse effect on growth, survival or reproduction (see Part I.B).

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfall 001A in accordance with Part I.B. of the permit.

6. 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.

d. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and 5-day biochemical oxygen demand. The percent removal shall be based on monthly average values.

e. When the effluent discharged for a period of ninety (90) consecutive days exceeds 80 percent of the design flow, the permittee shall submit to the DEM a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

f. The permittee shall analyze its effluent annually for the EPA Priority Pollutants as listed in 40 CFR 122, Appendix D, Table II and III. The results of these analyses shall be submitted to the Department of Environmental Management no later than January 15th of the following year. All sampling and analysis shall be done in accordance with EPA Regulations, including 40 CFR, Part 136; grab and composite samples shall be taken as appropriate.

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

7. a. Within ninety (90) days of the effective date of this permit, the Town shall submit a Scope of Work for a Sewer System Evaluation Survey (SSES), including a schedule to collect the following information and to prepare and submit a SSES report to the DEM. The scope of work, schedule, and SSES Report shall be subject to DEM review and approval.

1. Identification of sewer sub-areas exhibiting excessive I/I using available flow metering data and pump run times at wastewater pumping stations.

2. Continuous flow monitoring to evaluate Infiltration/Inflow (I/I) rates within each sub-area of concern. Flows must be monitored at each sub-area for a minimum of four (4) weeks or until data for three (3) storm events have been obtained, whichever is longer, during at least one dry and one wet season to obtain flow data during seasonal variations in groundwater levels for infiltration quantification purposes.

3. Comprehensive manhole inspections of all sub-areas identified as having excessive Inflow.

4. Smoke testing and/or dye testing to identify sources of inflow for all sub-areas identified as having excessive Inflow.

5. Remote television inspections to identify broken or cracked pipes in all sub-areas identified as having excessive infiltration.

b. Upon DEM approval of the SSES Scope of Work, the Town must initiate work on its SSES and submit a SSES Report to the DEM in accordance with the approved

schedule. The SSES Report must include a detailed corrective action plan that identifies areas of excessive Infiltration and/or Inflow and provides a recommended schedule for the implementation of cost-effective corrective actions. This analysis must be completed for all sub-areas. The SSES Report and its recommended corrective actions shall be subject to DEM review and approval.

c. Upon DEM approval of the SSES Report, the Town shall implement its recommendations in accordance with the approved schedule. The Town shall submit semi-annual progress reports on the implementation of the corrective actions to DEM on January 15th and July 15th of each year.

d. Upon completion of implementation of the SSES Report's recommendations, the DEM shall determine if additional measures are necessary to remove excessive I/I to ensure that the Town maintains compliance with permit limits.

e. Within ninety (90) days of the effective date of this permit, the Town shall also submit a Standard Operating Procedure (SOP) for high flow pumping scenarios at the Town's Wastewater Treatment Facility (WWTF) and its associated pump stations. The SOP shall include detailed procedures that the Town shall use to ensure that the WWTF does not exceed its capacity during high flow periods and shall include an evaluation of the WWTF's design hydraulic capacity versus its actual capacity. The SOP shall include recommendations for improvements that could be made at the WWTF or its pump stations that would allow the WWTF to be able to process higher flows without causing effluent violations, bypasses, or overflows either at the WWTF or within the collection system. The SOP shall be subject to DEM review and approval.

B. BIOMONITORING REQUIREMENTS AND INTERPRETATION OF RESULTS

1. General

Beginning on the effective date of the permit, the permittee shall perform four (4) chronic and four (4) acute toxicity tests per year on samples collected from discharge outfall 001A. The permittee shall conduct the tests during dry weather periods (no rain within forty-eight (48) hours prior to or during sampling unless approved by RIDEM) according to the following test frequency and protocols. Chronic toxicity data shall be collected from the Arbacia punctulata tests. Acute toxicity data shall be collected from the Mysidopsis bahia tests. Chronic and acute toxicity data shall be reported as outlined in Part I.B.10. Test results will be interpreted by the State. The State may require additional screening, range finding, definitive acute or chronic bioassays as deemed necessary based on the results of the initial bioassays required herein. Indications of toxicity could result in requiring a Toxicity Reduction Evaluation (TRE) to identify the specific toxic parameter(s) that need to be limited in the effluent.

2. Test Frequency

On four (4) sampling events, (one (1) each calendar quarter) the permittee shall conduct toxicity testing on the two (2) species listed below, for a total of four (4) chronic toxicity tests on the first species and four (4) acute toxicity tests on the second species each year. This requirement entails performing two- (2-) species testing as follows:

Species	Test Type	Frequency
Arbacia punctulata	Sea Urchin 1 Hour Fertilization Test (Chronic)	Quarterly

Species	Test Type	Frequency
Mysids (Mysidopsis bahia)	Definitive 48-Hour Acute Static (LC_{50})	Quarterly

3. Testing Methods

Toxicity tests shall be conducted in accordance with protocols listed in 40 CFR Part 136, incorporating any deviations from protocol listed herein, or additional methods if approved by the Director of RIDEM.

4. Sample Collection

For each sampling event a twenty-four (24) hour flow proportioned composite final effluent sample shall be collected during dry weather (no rain forty-eight (48) hours prior to or during sampling unless approved by RIDEM). This sample shall be kept cool (at $4^{o}C$) and testing shall begin within twenty-four (24) hours after the last sample of the composite is collected. In the laboratory, the sample will be split into two (2) subsamples, after thorough mixing, for the following:

A: Chemical Analysis
B: Acute Toxicity Testing

All samples held overnight shall be refrigerated at $4^{o}C$. Grab samples must be used for pH and temperature.

5. Salinity Adjustment

Prior to the initiation of testing, the effluent must be adjusted to make the salinity of the effluent equal to that of the marine dilution water. The test solution must be prepared by adding non-toxic dried ocean salts to a sufficient quantity of 100% effluent to raise the salinity to the desired level. After the addition of the dried salts, stir gently for thirty (30) to sixty (60) minutes, preferably with a magnetic stirrer, to ensure that the salts are in solution. It is important to check the final salinity with a refractometer or salinometer. Salinity adjustments following this procedure and in accordance with EPA protocol will ensure that the concentrations (% effluent) of each dilution are real and allow for an accurate evaluation with the acute permit limit and acute monitoring requirements.

6. Dilution Water

Dilution water used for marine acute toxicity analyses should be of sufficient quality to meet minimum acceptability of test results (See Parts I.B.7 and I.B.8). For both species, natural seawater shall be used as the dilution water. This water shall be collected from Narragansett Bay off the dock at the URI's Graduate School of Oceanography on South Ferry Road, Narragansett. It is noted that the University claims no responsibility for personal safety on this dock. The permittee shall observe the rules posted at the dock. If this natural seawater diluent is found to be, or suspected to be toxic or unreliable, an alternate source of natural seawater or, deionized water mixed with hypersaline brine or artificial sea salts of known quality with a salinity and pH similar to that of the receiving water may be substituted AFTER RECEIVING WRITTEN APPROVAL FROM RIDEM.

7. Effluent Toxicity Test Conditions for Mysids
(Mysidopsis bahia)

a.	Test Type	48-Hour Static Acute Definitive
b.	Salinity	25 ppt $\pm$ 10% for all dilutions
c.	Temperature (C)	$25^{o} \pm 1^{o}C$
d.	Light Quality	Ambient laboratory illumination
e.	Photoperiod	8 - 16 Hour Light/24-Hour
f.	Test Chamber Size	250 ml
g.	Test Solution Volume	200 ml
h.	Age of Test Organisms	1 - 5 Days
i.	No. Mysids Per Test Chamber	10
j.	No. of Replicate Test Chamber Per Concentration	2
k.	Total No. Mysids Per Test Concentration	20
l.	Feeding Regime	Light feeding (two (2) drops concentrated brine shrimp nauplii, approx. 100 nauplii per mysid twice daily).
m.	Aeration	None, unless dissolved oxygen concentration falls below 40% of saturation at which time gentle single-bubble aeration should be started.
n.	Dilution Water	Narragansett Bay water as discussed above.
o.	Dilutions	Five (5) dilutions plus a control: 100%, 50%, 25%, 12.5%, 6.25% and 0% effluent.
p.	Effect Measured and Test	Mortality - no movement of body test duration or appendages on gentle prodding, 48-hour LC_{50} and NOAEL.
q.	Test Acceptability	90% or greater survival of test organisms in control solution.
r.	Sampling Requirements	Samples are collected and used within 24 hours after the last sample of the composite is collected.
s.	Sample Volume Required	Minimum four (4) liters

8. Test Conditions for Arbacia Punctulata Fertilization Test

a.	Test Type	Static
b.	Salinity	30 ppt $\pm$ 2 ppt
c.	Temperature (C)	$20^{o} \pm 1^{o}C$
d.	Light Quality	Ambient laboratory light during test preparation
e.	Light Intensity	10-20 uE/m^2/s, or 50-100 ft-c (Ambient Laboratory Levels)
f.	Test Vessel Size	Disposable (glass) liquid scintillation vials (20 ml capacity), not pre-cleaned
g.	Test Solution Volume	5 ml
h.	Number of Sea Urchins	Pooled sperm from four (4) males and pooled eggs from four (4) females and used per test.
i.	Number of Egg and Sperm Cells Per Chamber	About 2,000 eggs and 5,000,000 sperm cells per vial
j.	No. of Replicate Test Chambers Per Concentration	4 (Minimum of 3)
k.	Dilution Water	Narragansett Bay water as discussed above
l.	Dilution Factor	Approximately 0.5
m.	Test Duration	1 Hour and 20 Minutes
n.	Effects Measured	Fertilization and sea urchin eggs
o.	Number of Treatments Per Test	Minimum of five (5) effluent concentrations and a control. An additional dilution at the permitted effluent concentration (10% effluent) is required
p.	Acceptability of Test Results	Recommended sperm : egg ratio should result in fertilization of a minimum of 70% of the eggs in the control chambers
q.	Sample Volume Required	Minimum two (2) liters

9. Chemical Analysis

The following chemical analysis shall be performed for every two-specie sampling event.

Parameter	Effluent	Saline Diluent	Detection Limit (mg/l)
pH	X	X	---
Specific Conductance	X	X	---
Total Solids and Suspended Solids	X	X	---
Ammonia	X		0.1
Total Organic Carbon	X		0.5
Cyanide	X		0.01
Total Phenols	X		0.05
Salinity	X	X	PPT(0/00)

During the first, second, and fourth calendar quarter bioassay sampling events the following chemical analyses shall be performed:

Total Metals	Effluent	Saline Diluent	Detection Limit (µg/l)
Total Aluminum	X	X	5.0
Total Cadmium	X	X	0.1
Total Copper	X	X	1.0
Hexavalent Chromium	X	X	20.0
Total Lead	X	X	1.0
Total Nickel	X	X	1.0
Total Zinc	X	X	5.0

The above metal analyses may be used to fulfill, in part or in whole, monthly monitoring requirements in the permit for these specific metals.

During the third calendar quarter bioassay sampling event, the final effluent sample collected during the same twenty-four (24) hour period as the bioassay sample, shall be analyzed for priority pollutants (as listed in Tables II and III of Appendix D of 40 CFR 122). The bioassay priority pollutant scan shall be a full scan and may be coordinated with the other permit conditions to fulfill any priority pollutant scan requirements.

10. Toxicity Test Report Elements

A report of results will include the following:

- Description of sample collection procedures and site description.
- Names of individuals collecting and transporting samples, times, and dates of sample collection and analysis.
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests (quality assurance); light and temperature regime; dilution water description; other information on test conditions if different than procedures recommended.
- The method used to adjust the salinity of the effluent must be reported.
- All chemical and physical data generated (include detection limits).
- Raw data and bench sheets.
- Any other observations or test conditions affecting test outcome.

Toxicity test data shall include the following:

Chronic

- The endpoints of toxicity tests using the sea urchin are based on the reduction in percent of eggs fertilized. Chronic test data shall undergo hypothesis testing to determine if the distribution of results is normal using the Shapiro-Wilks Test. Then the endpoint estimates, NOEC and LOEC must be determined using Dunnett's Procedure, Bonferroni's T-Test, Steel's Many-One-Rank Test, or Wilcoxan Rank Sum Test. The choice of test depends on the number of replicates and whether the variance is homogeneous or not. See EPA/600/4-87/028 for details. (All printouts and graphical displays must be submitted along with the name of the program, the date and the author(s). When data is analyzed by hand, the worksheets should be submitted.
- C-NOEC: Chronic No Observed Effect Concentration
- LOEC: Lowest Observed Effect Concentration
- MATC: Maximum Allowable Toxicant Concentration

Acute

- Survival for each concentration and replication at time twenty-four (24) and forty-eight (48) hours.
- LC_{50} and 95% confidence limits shall be calculated using one of the following methods in order of preference: Probit, Trimmed Spearman Karber, Moving Average Angle, or the graphical method. All printouts (along with the name of the program, the date, and the author(s)) and graphical displays must be submitted. When data is analyzed by hand, worksheets should be submitted. The report shall also include the No Observed Acute Effect Level (NOAEL) which is defined as the highest concentration of the effluent (in % effluent) in which 90% or more of the test animals survive.

- The Probit, Trimmed Spearman Karber, and Moving Average Angle methods of analyses can only be used when mortality of some of the test organisms are observed in at least two (2) of the (percent effluent) concentrations tested (i.e., partial mortality). If a test results in a 100% survival and 100% mortality in adjacent treatments ("all or nothing" effect), an LC_{50} may be estimated using the graphical method.

11. Special Condition

Due to the fact that the suggested dilution water for this facility to use in conducting the bioassays is from the end of the dock at the URI's Narragansett Bay Campus, a Letter of Agreement must be signed and submitted to the Graduate School of Oceanography. Requests to use another source of dilution water will have to be approved by the Department of Environmental Management.

12. Reporting of Bioassay Testing

Bioassay Testing shall be reported as follows:

Quarter Testing to be Performed	Report Due No Later Than	Results Submitted on DMR for
January 1 - March 31	April 15	March
April 1 - June 30	July 15	June
July 1 - September 30	October 15	September
October 1 - December 31	January 15	December

Bioassay reports shall be submitted to:

RIPDES Program
Office of Water Resources
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908-5767

C. Industrial Pretreatment Program

1. Definitions

For the purpose of this permit, the following definitions apply.

a. 40 CFR 403 and sections thereof refer to the General Pretreatment regulations, 40 CFR Part 403 as revised.

b. Categorical Pretreatment Standards mean any regulation containing pollutant discharge limits promulgated by the USEPA in accordance with section 307(b) and (c) of the Clean Water Act (33 USC 1251), as amended, which apply to a specific category of industrial users and which appears in 40 CFR Chapter 1, subchapter N.

c. Pretreatment Standards include all specific prohibitions and prohibitive discharge limits established pursuant to 40 CFR 403.5, including but not limited to, local limits, and the Categorical Pretreatment Standards.

d. Regulated Pollutants shall include those pollutants contained in applicable categorical standards and any other pollutants listed in the Pretreatment Standards which have reasonable potential to be present in an industrial user’s effluent.

2. Implementation

The authority and procedures of the Industrial Pretreatment Program shall at all times be fully and effectively exercised and implemented, in compliance with the requirements of this permit and in accordance with the legal authorities, policies, procedures and financial provisions described in the permittee's approved Pretreatment Program and Sewer Use Ordinance, the Rhode Island Pretreatment Regulations and the General Pretreatment Regulations 40 CFR 403. The permittee shall maintain adequate resource levels to accomplish the objectives of the Pretreatment Program.

3. Local Limits

Pollutants introduced into POTWs by a non-domestic source (user) shall not: pass through the POTW, interfere with the operation or performance of the works, contaminate sludge as to adversely effect disposal options, or adversely effect worker safety and health.

a. The permittee has an approved Local Limits Evaluation (LLE) and Local Limits Monitoring Plan (LLMP) that shall continue to be implemented at all times.

b. At the time of renewal of this permit and in accordance with 40 CFR 122.44(j)(2), the permittee shall submit to the DEM with its permit renewal application a written technical evaluation of the need to revise local limits. The evaluation shall be based, at a minimum, on information obtained during the implementation of the permittee's approved LLE, LLMP and related procedures, and current RIPDES permit discharge limits, sludge disposal criteria, secondary treatment inhibition, and worker health and safety criteria.

4. General

a. The permittee shall carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with Pretreatment Standards. At a minimum, all significant industrial users shall be inspected and monitored for all regulated pollutants at the frequency established in the approved Industrial Pretreatment Program but in no case less than once per year (one (1) year being determined as the reporting year established in Part I.C.6 of this permit). In addition, these inspections, monitoring and surveillance activities must be conducted in accordance with EPA's Industrial User Inspection and Sampling Manual for POTW's, April 1994. All inspections, monitoring, and surveillance activities shall be performed, and have records maintained, with sufficient care to produce evidence admissible in enforcement proceedings or judicial actions. The permittee shall evaluate, at least every two years, whether each SIU requires a slug control plan. If a slug control plan is required, it must include, at a minimum, those elements contained in 40 CFR 403.8(f)(2)(vi).

b. The permittee shall reissue all necessary Industrial User (IU) control mechanisms within thirty (30) days of their expiration date. The permittee shall issue, within sixty (60) days after the determination that an IU is a Significant Industrial User (SIU), all SIU control mechanisms. All SIU control mechanisms must contain, at a minimum, those conditions stated in 40 CFR 403.8(f)(1)(iii)(B). All control mechanisms must be mailed via Certified Mail, Return Receipt Requested. A complete bound copy of the control mechanism with the appropriate receipt must be kept as part of the Industrial User's permanent file. In addition, the permittee must develop a fact sheet describing the basis for the SIU's permit and retain this fact sheet as part of the SIU's permanent file.

c. The permittee must identify each instance of noncompliance with any pretreatment standard and/or requirement and take a formal documented action for each instance of noncompliance. Copies of all such documentation must be maintained in the Industrial User's permanent file.

d. The permittee shall prohibit Industrial Users from the dilution of a discharge as a substitute for adequate treatment in accordance with 40 CFR 403.6(d).

e. The permittee shall comply with the procedures of 40 CFR 403.18 for instituting any modifications of the permittee's approved Pretreatment Program. Significant changes in the operation of a POTW's Approved Pretreatment Program must be submitted and approved following the procedures outlined in 40 CFR 403.18(b) and 403.9(b). However, the endorsement of local officials responsible for supervising and/or funding the pretreatment program required by 403.9(b)(2) will not be required until DEM completes a preliminary review of the submission. The DEM will evaluate and review the permittee's initial proposal for a modification and provide written notification either granting preliminary approval of the proposed modifications or stating the deficiencies contained therein. DEM's written notification will also include a determination whether the submission constitutes a substantial or non-substantial program modification as defined by 40 CFR 403.18. Should DEM determine that a deficiency exists in the proposed modification, the permittee shall submit to DEM, within thirty (30) days of the receipt of said notice, a revised submission consistent with DEM's notice of deficiency.

Pretreatment program modifications that the permittee considers Non-substantial, shall be deemed to be approved within forty-five (45) days after submission of the request for modification, unless DEM determines that the modification is in fact a substantial modification or notifies the permittee of deficiencies. Upon receipt of notification that DEM has determined the modification is substantial, the permittee shall initiate the procedures and comply with the deadlines for substantial modifications, which are outlined below.

For substantial modifications, the permittee shall, within sixty (60) days (unless a longer time frame is granted) of the receipt of DEM's preliminary approval of the proposed modification, submit a statement (as required by 403.9(b)(2)) that any local public notification/participation procedures required by local law have been completed and upon approval by RIDEM, the local officials will endorse and/or approve the modification.

Within thirty (30) days of DEM's final approval of the proposed modification(s), the permittee shall implement the modification. Upon final approval by the DEM and adoption by the permittee, this modification(s) shall become part of the approved pretreatment program and shall be incorporated into this permit in accordance with 40CFR 122.63(g).

f. All sampling and analysis required of the permittee, or by the permittee of any Industrial User, must be performed in accordance with the techniques described in 40 CFR 136.

g. For those Industrial Users with discharges that are not subject to Categorical Pretreatment Standards, the permittee shall require appropriate reporting in accordance with 40 CFR 403.12(h).

h. The permittee shall, in accordance with 40 CFR 403.12(f), require all Industrial Users to immediately notify the permittee of all discharges by the Industrial User that could cause problems to the POTW, including slug loadings, as defined by 40 CFR 403.5(b).

i. The permittee shall require all Industrial Users to notify the permittee of substantial changes in discharge as specified in 40 CFR 403.12(j) and shall also notify DEM of each such substantial change in discharge prior to acceptance.

j. The permittee shall require New Sources to install and have in operation all pollution control equipment required to meet applicable Pretreatment Standards before beginning to discharge. In addition, the permittee shall require New Sources to meet all applicable Pretreatment Standards within the shortest feasible time which shall not exceed ninety (90) days in accordance with 40 CFR 403.6(b).

k. The permittee shall require all Industrial Users who are required to sample their effluent and report the results of analysis to the POTW to comply with signatory requirements contained in 40 CFR 403.12(l) when submitting such reports.

l. The permittee shall determine, based on the criteria set forth in 40 CFR 403.8(f)(2)(viii), using the EPA method of "rolling quarters", the compliance status of each Industrial User. Any Industrial User determined to meet Significant Non-Compliance (SNC) criteria shall be included in an annual public notification as specified in 40 CFR 403.8(f)(2)(viii).

m. The permittee shall require Industrial Users to comply with the notification and certification requirements of 40 CFR 403.12(p)(1), (3) and (4) pertaining to the discharge of substances to the POTW, which if disposed of otherwise, would be a hazardous waste under 40 CFR Part 261.

n. The permittee shall continue to designate, as SIUs, those Industrial Users (IUs) which meet the definition contained 40 CFR 403.3 and the permittee's sewer use ordinance.

The permittee shall notify each newly designated SIU of its classification as an SIU within thirty (30) days of identification and shall inform the SIU of the requirements of an SIU contained in 40 CFR 403.12.

5. Categorical Industrial Users (CIUs)

a. The permittee shall require Industrial Users to comply with applicable Categorical Pretreatment Standards in addition to all applicable Pretreatment Standards and Requirements. The permittee shall require of all Categorical Industrial Users (CIUs), all reports on compliance with applicable Categorical Pretreatment Standards and Categorical Pretreatment Standard deadlines as specified in and in accordance with Sections (b), (d), (e) and (g) of 40 CFR 403.12. In addition, the permittee shall require Categorical Industrial Users to comply with the report signatory requirements contained in 40 CFR 403.12(1) when submitting such reports.

b. If the permittee applies the Combined Wastestream Formula (CWF) to develop fixed alternative discharge limits of Categorical Pretreatment Standards, the application of the CWF and the enforcement of the resulting limits must comply with 40 CFR 403.6(e). The permittee must document all calculations within the control mechanism fact sheet and the resulting limits within the CIU's control mechanism. The permittee must ensure that the most stringent limit is applied to the CIU's effluent at end-of-pipe based upon a comparison of the resulting CWF limits and the permittee's local limits.

c. If the permittee has or obtains the authority to apply and enforce equivalent mass-per-day and/or concentration limitations of production-based Categorical Pretreatment Standards, then the permittee shall calculate and enforce the limits in accordance with 40 CFR 403.6(c). The permittee must document all calculations within the control mechanism fact sheet and the resulting limits within the CIU's control mechanism.

6. Annual Report

The annual report for the permittee's program shall contain information pertaining to the reporting year which shall extend from January 1st through December 31st and shall be submitted to the DEM by February 15th. Each item below must be addressed separately and any items which are not applicable must be so indicated. If any item is deemed not applicable a brief explanation must be provided. The annual report shall include the following information pertaining to the reporting year:

a. A listing of Industrial Users which complies with requirements stated in 40 CFR 403.12(i)(1) and 40 CFR 122.44(j)(1). The list shall identify all Categorical Industrial

Users, Significant Industrial Users and any other categories of users established by the permittee;

b. In accordance with 40 CFR 122.42(b)(1) and 40 CFR 122.42(b)(2), a summary list, including dates, of any notifications received by the permittee of any substantial change in the volume or character of pollutants being introduced into the POTW by new or existing IUs. If applicable, an evaluation of the quality and quantity of influent introduced into the POTW and any anticipated impact due to the changed discharge on the quantity or quality of effluent to be discharged from the POTW shall be included;

c. A summary list of the Compliance status of each Industrial User (IU), as of the end of last quarter covered by the annual report. The list shall identify all IUs in non-compliance, the pretreatment program requirement which the IU failed to meet, and the type, and date of the enforcement action initiated by the permittee in response to the violation. If applicable, the list shall also contain the date which IUs in non-compliance returned to compliance, a description of corrective actions ordered, and the penalties levied.

d. A list of industries which were determined, in accordance with Part I.C.4(l) of this permit, to be in significant non-compliance required to be published in a local newspaper and a copy of an affidavit of publication, from the newspaper, averring that the names of these violators has been published;

e. A summary list of inspection and monitoring activity performed by the permittee, including;

- significant industrial users inspected by the POTW (include inspection dates for each industrial user);
- significant industrial user sampled by the POTW (include sampling dates and dates of analysis, for each industrial user);

f. A summary list of permit issuance/reissuance activities including the name of the industrial user, expiration date of previous permit, issuance date of new permit, and a brief description of any changes to the permit;

g. A list including the report/notification type, due date, and receipt date for each report/notification required by 40 CFR 403.12.

h. A summary of public participation efforts including meetings and workshops held with the public and/or industry and notices/newsletters/bulletins published and/or distributed;

i. A program evaluation in terms of program effectiveness, local limits application and resources which addresses but is not limited to:
- A description of actions being taken to reduce the incidence of SNC by Industrial Users;
- effectiveness of enforcement response program;
- sufficiency of funding and staffing;
- sufficiency of the SUO, Rules and Regulations,and/or statutory authority;

j. An evaluation of recent/proposed program modifications, both substantial and non-substantial, in terms of the modification type, implementation and actual/ expected effect (note proposed modifications must be submitted under separate cover along with the information required by 40 CFR 403.18);

k. A detailed description of all interference and pass-through that occurred during the past year and, if applicable;

- A thorough description of all investigations into interference and pass-through during the past year;

- A description of the monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying pollutants analyzed and frequencies;

l. A summary of the average, maximum concentration, minimum concentration, and number of data points used for pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus the maximum allowable headworks loadings contained in the approved local limits evaluation and effluent sampling results versus water quality standards. Such a comparison shall be based on the analytical results required in Parts I.A and I.C. of this permit and any additional sampling data available to the permittee; and

m. A completed Annual Pretreatment Report Summary Sheet.

7. Enforcement Response Plan (ERP)

The permittee has an approved ERP that meets the requirements of 40 CFR 403.8(f)(5). The permittee shall continue to be implemented at all times.

8. Sewer Use Ordinance (SUO)

The permittee has an approved SUO that shall continue to be implemented at all times.

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Infiltration/Inflow

The permittee shall minimize infiltration/inflow to the sewer system. A summary report of all actions taken to minimize infiltration/inflow during the previous six (6) months shall be submitted to RIDEM, Office of Water Resources, by the 15th day of January and July of each year. The first report is due _____.

3. Sewer System Overflows (SSOs)

The permittee shall report all SSOs, including SSOs that result in basement backups, to the Dem in accordance with the twenty-four hour reporting requirements from Part II.(l)(5) of the permit.

E. SLUDGE

The permittee shall conform and adhere to all conditions, practices and regulations as contained in the State of Rhode Island Rules and Regulations for Sewage Sludge Management. The permittee shall comply with its RIDEM Order of Approval for the disposal of sludge.

F. 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. 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 documented and maintained onsite.

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 maintained onsite. 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.

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 reported as zero in accordance with the DEM's DMR Instructions, provided that all appropriate EPA approved methods were followed.

Therefore, all sample results shall be reported as: an actual value, "could not be analyzed", or zero. 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.

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	3.0
Arsenic, Total	1.0
Beryllium, Total	0.2
Cadmium, Total	0.1
Chromium, Total	1.0
Chromium, Hexavalent	20.0
Copper, Total	1.0
Lead, Total	1.0
Mercury, Total	0.2
Nickel, Total	1.0
Selenium, Total	2.0
Silver, Total	0.5
Thallium, Total	1.0
Zinc, Total	5.0
Asbestos	**
Cyanide, Total	10.0
Phenols, Total	50.0
TCDD	**
MTBE (Methyl Tert Butyl Ether)	1.0

* Polynuclear Aromatic Hydrocarbons
** No Rhode Island Department of Environmental Management (RIDEM) MDL

NOTE:

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).

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

Office of Water Resources
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

FACT SHEET

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

RIPDES PERMIT NO. **RI0100064**

NAME AND ADDRESS OF APPLICANT:

Town of Westerly
45 Broad Street
Westerly, Rhode Island 02891

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Westerly Wastewater Treatment Facility
87 Margin Street
Westerly, Rhode Island 02891

RECEIVING WATER: **Pawcatuck River**

CLASSIFICATION: **SB1**

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

The above-named applicant has applied to the Rhode Island Department of Environmental Management for reissuance of a RIPDES Permit to discharge into the designated receiving water. The facility is engaged in the treatment of domestic and industrial sewage. The discharge is from the Westerly Wastewater Treatment Facility.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on DMR data from October 1, 2007 through March 31, 2013 is shown on Attachment A.

III. Permit and Administrative Enforcement Action

A review of the historic discharge data demonstrated that the Westerly WWTF is able to comply with the limitations given. Therefore, there is no need for a Consent Agreement.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The Town of Westerly owns and operates the Wastewater Treatment Facility located at 87 Margin Street in Westerly, Rhode Island. The discharge to the Pawcatuck River consists of treated domestic and industrial wastewater effluent. Treatment consists of the following: Coarse Screening, Primary Settling, Biological Treatment, Secondary Settling, Chlorination, and Dechlorination.

Receiving Water

The discharge from the wastewater treatment facility is directed to the Pawcatuck River which is identified at the point of discharge by water body ID RI008038E-01A. This segment of the Pawcatuck River is described in the RI Water Quality Regulations as Tidal Pawcatuck River from Route 1 highway bridge to Pawcatuck Rock in Westerly and is classified as an SB1 water body. SB1 classified water bodies are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation, and industrial cooling. These waters shall have good aesthetic value. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges. However all Class SB criteria must be met. According to the State of Rhode Island 2012 303(d) List of Impaired Waters Report dated August 2012 this segment of the Pawcatuck River is currently listed as being impaired. This segment is not supporting Fish and Wildlife Habitat due to a Dissolved Oxygen impairment. In addition, it is not supporting Primary and Secondary Contact Recreation due to a Fecal Coliform impairment. A recent bacteria TMDL concluded that the excessive bacteria levels are caused by stormwater runoff, illegal connection of the sewage into storm drains, failing septic systems, wildlife, waterfowl, domestic pets, and agricultural practices. It was clearly identified that the Fecal Coliform impairments did not stem from the wastewater treatment facility.

Pretreatment

The permit contains a reporting requirement for a local program to regulate industrial discharges to the sewer system (referred to as a pretreatment program). This program is required under authority of Section 402 (b)(8) of the CWA and 40 CFR 122.44 (j) and 403.8, as the Town receives significant discharges of industrial wastewater.

Effluent Limit Derivation

Development of Rhode Island Pollutant Discharge Elimination System (RIPDES) permit limitations is a multi-step process consisting of the following steps: calculating allowable water quality-based discharge levels based on instream criteria, background data and available dilution; identifying any technology-based limits that apply to the facility; assigning appropriate Best Professional Judgment (BPJ) limits; setting the most stringent of these limits (water quality-based, technology-based, and BPJ-based) as the final allowable discharge levels; comparing existing permit limits to the new allowable discharge levels; and evaluating the ability of the facility to meet the final permit effluent limits.

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.

Conventional Pollutant Permit Limitations

The "Average Monthly" and "Average Weekly" biochemical oxygen demand (BOD_5) and total suspended solids (TSS) limits and their “Percent Removal” requirements are based upon the secondary treatment requirements in Section 301(b)(1)(B) of the Clean Water Act (CWA), as defined in 40 CFR 133.102 (a) & (c). “Maximum Daily” BOD_5 and TSS limits are based on Rhode Island requirements for Publicly Owned Treatment Works (POTWs) under Rule 17.04(b) of the RIPDES Regulations and as provided in 40 CFR 123.25.

RIDEM and EPA agree that the Total Suspended Solids are an appropriate measure of the solids content being discharged to the receiving waters and that settleable solids are a “process-control parameter” that can aid in assessment of the operation of the plant but need not be an effluent limit. For this reason, the permit requires Settleable Solids to be tracked as monitor only, and no permit limitations have been applied.

BPJ-Based Permit Limitations

A seasonal Total Nitrogen limit of 15.0 mg/L has been maintained from the 2007 permit. The permit also includes a requirement that the facility operate all available treatment equipment in place during the months of November through April to reduce the discharge of Total Nitrogen to the maximum extent possible. These limits are necessary to reduce the Nitrogen that is discharged to the Pawcatuck River, which is listed as impaired due to hypoxia caused by excessive nutrients based on data from 1993. In the period since 1993 the Westerly WWTF has been upgraded to include nutrient reduction (i.e., denitrification). Additional dissolved oxygen data was collected in 2008 which confirmed that the hypoxia impairment of the SB1 segment of the tidal Pawcatuck River is continuing. Based upon a review of loading data to the Pawcatuck River, since the time that the Westerly WWTF was upgraded, the DEM has estimated that the Westerly WWTF’s nitrogen load is approximately 6% of the total load to the River. The combined WWTF load (i.e., the Westerly and Pawcatuck WWTFs) is estimated to be approximately 8% of the total nitrogen load to the river. Nutrient reductions necessary to address the impairment will be determined at a future date when a TMDL is completed for the Pawcatuck River. Based on the above loading estimates it is anticipated that reductions from other sources in the watershed will be required. Additional data regarding the nutrient loading to the river from the Westerly WWTF will be achieved through monitoring of TKN, Nitrate and Nitrite with increased monitoring frequency specified from May to October.

Oil and Grease monitoring requirements that were assigned have been maintained in this permit in order to serve as a process control parameter. Monitoring data will serve as an indicator of excessive levels of Oil and Grease which may result in blockages in the collection system and that are typically attributed to restaurants and other sources of Oil and Grease loading which discharge to the sewer collection system. The Town of Westerly and the RIDEM will be able to use this data to track and potentially initiate corrective action if necessary to prevent backups and blockages within the sewer collection system.

Water Quality Based Permit Limitations

The allowable effluent limitations were established on the basis of acute and chronic aquatic life criteria and human health criteria using the following: available instream dilution; an allocation factor; and background concentrations when available and/or appropriate. The aquatic life and human health criteria are specified in the Rhode Island Water Quality Regulations, as amended. Aquatic life criteria have been established to ensure the protection and propagation of aquatic life while human health criteria represent the pollutant levels that would not result in a significant risk to public health from ingestion of aquatic organisms. The more stringent of the two criteria was then used in establishing allowable effluent limitations. Details concerning the calculation of

potential permit limitations, selection of factors that influence their calculation, and the selection of final permit limitations are included below or in the attached documents. The City's first permit to contain water quality based limits was issued on March 11, 1997. The permit was reissued on June 28, 2002 and again on September 14, 2007.

Bacteria Limits

Table 2.8.D(3) of the RI Water Quality Regulations includes Enterococci criteria for primary contact/swimming of a geometric mean of 35 colonies/100 mL and a single sample maximum of 104 colonies/100mL. However, the "single sample maximum" value is only used by the Rhode Island Department of Health to evaluate swimming advisories at public beaches and is not applied to the receiving water in the area of the Westerly WWTF's outfall. EPA's November 12, 2008 memorandum regarding "Initial Zones of Dilution for Bacteria in Rivers and Streams Designated for Primary Contact Recreation" specifies that it is not appropriate to use dilution for bacteria criteria in receiving waters that are designated for primary contact recreation. Therefore, because the receiving water is designated for primary contact recreation, the Rhode Island Department of Environmental Management (DEM) has assigned a monthly average Enterococci limit of 35 colonies/100 mL. This limit is consistent with the water quality criteria from Table 2.8.D(3) of the RI Water Quality Regulations. The daily maximum enterococci limit has been set at the 90% upper confidence level value for "lightly used full body contact recreation" of 276 colonies/100 mL. The DEM has also assigned Fecal Coliform monitoring to ensure that the discharge from the WWTF will not have an impact on any areas designated for shellfish harvesting outside of the immediate vicinity of the outfall.

Mixing Zones and Dilution Factors

On June 28, 2002, the Office of Water Resources (OWR) reissued a RIPDES permit for the Westerly Wastewater Treatment Facility. The permit contained water quality based permit limits based on an acute dilution factor of 5 and a chronic dilution factor of 10, which were determined from the results of a dye study conducted in 1991. It has again been determined that mixing zones and corresponding dilution factors from the 1991 study are acceptable for the effluent from the Westerly Wastewater Treatment Facility. As indicated in the previous permit's Development Document, dated April 2002, the Town of Westerly contracted Aquatec, Inc. to perform the effluent dye study in 1991 to determine the degree of dilution of the effluent with the river water. Based on the findings of the dye studies, the acute mixing zone is defined as a rectangular area with a length of 175 feet, a width of 120 feet and an associated dilution factor of 5 and the chronic mixing zone is defined as a rectangular area with a length of 400 feet, a width of 250 feet and a dilution factor of 10. The outfall is not located in the center of the acute mixing zone; it is located 200 feet east of the northwest corner of the defined chronic zone. Additional information regarding the Westerly WWTF mixing zones can be found in the August 1996 Development Document, which is on file at RIDEM. Provided in Figure #1 is a map detailing the location of the outfall. Based on the above dilution factors, the allowable discharge limits were calculated as follows:

a) Background concentration unknown or available data is impacted by sources that have not yet achieved water quality based limits.

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

b) Using available background concentration data.

$$Limit_1 = (DF) * (Criteria) * 90\% - (Background) * (DF - 1)$$

Where: DF = acute or chronic dilution factor, as appropriate

The formulas and data noted above were applied with the following exceptions

A) Pollutants that based on the acute and chronic dilution factors have a higher allowable chronic limit than allowable acute limit. For this situation, both the "Monthly Average" and "Daily Maximum" limits were set at the allowable acute limit.

B) Total residual chlorine. The limits for total residual chlorine (TRC) were established in accordance with the RIDEM Effluent Disinfection Policy. The "Monthly Average" and "Daily Maximum" were based on a 100% allocation, a zero background concentration, and the appropriate dilution factor(s). The 100% allocation factor for TRC was used due to the non-conservative nature of chlorine and the improbability of the receiving water having a detectable background TRC concentration.

C) Pollutants with water quality based monthly average limits in the previous RIPDES permit. The relaxation of monthly average limits from the previous permit was restricted in accordance with the antibacksliding provisions of the Clean Water Act and the Policy on the Implementation of the Antidegradation Provisions of the Rhode Island Water Quality Regulations (RIDEM, July 2006).

Calculation of allowable limits based on the Aquatic Life and Human Health Criteria from the RIDEM Water Quality Regulations can be found in Attachment B.

Ammonia Limits

The previous RIPDES permit contained water quality-based “Monthly Average” and “Maximum Daily” ammonia limits for May - October. For the re-issuance of the permit, RIDEM re-calculated the “Monthly Average" and "Daily Maximum" limits for Total Ammonia (as N) based on acute and chronic aquatic life criteria. As discussed above, the RIDEM uses available in-stream dilution and an allocation factor of 80% when the background ammonia concentration is unknown. Based on the previous dye study the DEM used an acute dilution of 5 and a chronic dilution of 10 and used an 80% allocation factor as the background in the Pawcatuck River is unknown. The water quality criteria for Ammonia are a function of salinity, pH and temperature. Consistent with the values utilized to develop limits in the 2007 Permit, a salinity equal to 10 parts per thousand is appropriate for the Westerly WWTF as this location is influenced by freshwater inputs from the Pawcatuck River. The RIDEM obtained pH data from 1990-1999 obtained from the USGS gauging station on the Pawcatuck River at Westerly. This was the closest location to the WWTF discharge with available pH data. To be conservative, based on the fact that the USGS station is more influenced by freshwater than the area of the discharge and would be expected to exhibit much lower pH values, the maximum observed pH value of 7.8 was used in the calculation. This value is similar to values the RIDEM has used when developing Ammonia limits for other freshwater influenced estuarine receiving waters. Consistent with the values utilized to develop limits in the 2007 Permit, seasonable average temperatures were defined as May-October (25^{o}C) and November-April (5^{o}C) for the development of the seasonal ammonia limits. The facility has demonstrated the ability to comply with the previous permits’ summer Ammonia limits of 5.5 mg/L and 18.4 mg/L. Therefore, since the Antibacksliding Provisions of the Clean Water Act prohibit issuing a permit containing less stringent effluent limits than the comparable limits from the previous permit, the RIDEM has established summer (May-October) acute and chronic limits of 18.4mg/L and 5.5mg/L respectively.

Provided below is a brief introduction to Antibacksliding and Antidegradation; as well as a discussion on how the two policies were used to calculate water quality based limits.

Antibacksliding

Antibacksliding restricts the level of relaxation of water quality based limits from the previous permit. Section 303(d)(4) of the Clean Water Act addresses antibacksliding as the following:

Section 303(d)(4)

A) Standards not attained - For receiving waters that have not attained the applicable water quality standards, limits based on a TMDL or WLA can only be revised if the water quality standards will be met. This may be done by (i) determining that the cumulative effect of all such revised limits would assure the attainment of such water quality standards; or (ii) removing the designated use which is not being attained in accordance with regulations under Section 303.

B) Standards attained - For receiving waters achieving or exceeding applicable water quality standards, limits can be relaxed if the revision is consistent with the State's Antidegradation Policy.

Therefore, in order to determine whether backsliding is permissible, the first question that must be answered is whether or not the receiving water is attaining the water quality standard. The office has determined the most appropriate evaluation of existing water quality is by calculating the pollutant levels, which would result after consideration of all currently valid RIPDES permit limits or historic discharge data (whichever is greater), background data (when available), and any new information (i.e.: dilution factors).

Antidegradation

The RIDEM document entitled "Policy on the Implementation of the Antidegradation Provisions of the Rhode Island Water Quality Regulations August 6, 1997" (the Policy) establishes four tiers of water quality protection:

Tier 1. In all surface waters, existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

Tier 2. In waters where the existing water quality exceeds the levels necessary to support the propagation of fish and wildlife and recreation in and on the water, that quality shall be maintained and protected except for insignificant changes (i.e.: short-term minor changes) in water quality as determined by the Director and in accordance with the Antidegradation Policy. In addition, the Director may allow significant degradation, which is determined to be necessary to achieve important economic or social benefits to the State (important benefits demonstration) in accordance with the Antidegradation Policy.

Tier 2½. Where high quality waters constitute Special Resource Protection Waters SRPWs[1], there shall be no measurable degradation of the existing water quality necessary to protect the characteristics which cause the waterbody to be designated a SRPW. The new or increased discharge or activity will not be allowed unless the

[1] SRPWs are surface waters identified by the Director as having significant recreational or ecological uses.

applicant can provide adequate evidence that specific pollution controls and/or other mitigation measures will completely eliminate any measurable impacts to the water quality necessary to protect the characteristics that cause the waterbody to be designated an SRPW. Notwithstanding that all public drinking water supplies are SRPWs, public drinking water suppliers may undertake temporary and short-term activities within the boundary perimeter of a public drinking water supply impoundment for essential maintenance or to address emergency conditions in order to prevent adverse effect on public health or safety. These activities must comply with the requirements set fourth in Tier 1 and Tier 2.

Tier 3. Where high quality waters constitute an Outstanding Natural Resource Water ONRW[2], that water quality shall be maintained and protected. The State may allow some limited activities that result in temporary and short-term changes in the water quality of an ONRW. Such activities must not permanently degrade water quality or result in water quality lower than necessary to protect the existing uses in the ONRW.

Since none of the water quality-based permit limits, both concentration and mass loadings, are less stringent than in the previous permit, antibacksliding regulations are being met. An antidegradation review is not necessary for this permit as the new permit discharge limitations are at least as stringent as those in the previous permit, thus maintaining the existing water quality in the river.

The formulas previously presented ensure that permit limitations are based upon water quality criteria and methodologies established to ensure that all designated uses will be met.

Selection of Final Permit Limits

In accordance with 40 CFR 122.4(d)(1)(iii), it is only necessary to establish permit limits for those pollutants in the discharge which have the reasonable potential to cause or contribute to the exceedance of instream criteria. In order to evaluate the need for permit limits, the most stringent calculated acute and chronic limits are compared to the Discharge Monitoring Report (DMR) and the State User Fee Program data.

A summary of DMR data and State User Fee Program data for the past five (5) years are provided in Attachments A and C, respectively.

Based on the analysis presented above, water-quality based permit limits are required for TRC, Total Copper, Cyanide, and Total Ammonia (as N).

In instances where the permit limit is below the applicable quantitation level, the permit includes a condition that compliance with the limits will be evaluated using the quantitation levels. The quantitation level is 10 ug/L for Cyanide. Therefore, for this parameter, compliance with the monthly average limit will be judged against the quantitation level. This value may be modified as more sensitive methods are approved by DEM and EPA.

Although these pollutants did not have “reasonable potential”, quarterly monitoring for Total Chromium, Total Cadmium, Total Lead, Total Zinc, Total Nickel and Total Aluminum have been included in the permit as part of the standard list of pollutants monitored as part of the quarterly toxicity testing.

[2] ONRWs are a special subset of high quality water bodies, identified by the State as having significant recreational or ecological water uses.

Attachment D is a summary comparison of the allowable limits vs. the DMR and State User Fee Program data.

Infiltration/Inflow (I/I)

Part I.6.e of Westerly's September 14, 2007 RIPDES permit required that Westerly submit a "projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels" to the DEM. On December 27, 2007 BETA Engineering submitted this information to the DEM, on behalf of Westerly, in a Capacity Analysis Report. The Capacity Analysis was subsequently updated on May 1, 2012 and May 21, 2012. Both the 2007 and the updated Capacity Analysis indicate that, despite periodic exceedences of the maximum monthly average flow limit, Westerly's existing WWTF has adequate capacity to maintain satisfactory treatment for the projected 20-year pollutant loads from Westerly's current service area and the following neighborhoods: Mount Moriah/Springbrook, Apache Drive/Ledward Avenue, and Misquamicut. These neighborhoods were all included as part of Westerly's future 20-year wastewater flow in the Facilities Plan that was approved by the DEM in 2000. BETA Engineering's May 1, 2012 analysis indicated that upon further review the Avondale neighborhood (which is not part of its Sewer District) has been adequately served by on-site systems (e.g. septic systems) and that there are no plans to sewer this area, which was included in the 20-year wastewater flows in Westerly's approved Facilities Plan. Therefore, Westerly has indicated that when it updates its Facilities Plan, this neighborhood will be removed from the areas to be sewered.

Although the Capacity Analysis indicated that the WWTF has adequate capacity to treat the projected 20-year pollutant loads, it also indicated that there is significant Infiltration and Inflow (I/I) into its collection system and recommended that Westerly "continue to pursue the removal of peak infiltration and inflow." Westerly's most recent I/I study was completed in 1994 and divided Westerly's collection system into 20 sub-areas, 12 of which were deemed to have excessive infiltration. Therefore, the I/I study recommended a 2 phase Sewer System Evaluation Study (SSES) to identify and remediate sources in the 12 priority areas which was completed in 2007. Even after the completion of the recommendations from the SSESs, Westerly occasionally exhibits elevated I/I. Although flows have been elevated, there have not been any exceedences of the monthly average permit limit since April of 2010 when the exceedences were caused by the great flood and not what is normally considered infiltration and inflow. Since it has been nearly 20 years since Westerly's last I/I Study and since the SSESs from the 1994 I/I Study have been completed and the WWTF is occasionally exhibiting elevated I/I, Westerly's permit requires that a new SSES be conducted.

Part I.D.2 of the permit states that the permittee shall minimize infiltration/inflow to the sewer system. A summary report of all actions taken to minimize infiltration/inflow during the previous six (6) months shall be submitted to RIDEM by the 15th day of January and July of each year.

Bioassay Testing

RIDEM's toxicity policy is based on past toxicity data and the level of available dilution. Based upon an acute dilution factor of ten (10), the draft permit requires that acute tests be conducted once per quarter on Mysidopsis bahia (shrimp) and chronic toxicity tests once per quarter on Arbacia punctulata (sea urchin). The draft permit also contains an acute $LC_{50} \geq 100\%$ effluent limit and a chronic no observed effect concentration (C-NOEC) limit of 10%. These limits will ensure regulation of the toxicity in the effluent. If recurrent toxicity is demonstrated, toxicity identification and reduction will be required.

Final Permit Limitations

Presented in Table #1 is a summary of the permit limitations and the corresponding sampling frequency.

Table #1

Parameter	Monthly Ave.	Weekly Ave.	Daily Max.
Flow	3.30 MGD		--- MGD
BOD_5	30 mg/L	45 mg/L	50 mg/L
BOD_5 Load	826 lbs./day		1376 lbs./day
BOD5 % Removal	85%		
TSS	30 mg/L	45 mg/L	50 mg/L
TSS Load	826 lbs./day		1376 lbs./day
TSS % Removal	85 %		
Settleable Solids	--- mL/L	--- mL/L	--- mL/L
Total Residual Chlorine	65.0 ug/L		65.0 ug/L
Enterococci	35 cfu/100 mL		276 cfu/100 mL
Fecal Coliform	--- MPN/100 mL		--- MPN/100 mL
pH	6.5 SU (min.)		8.5 SU (max.)
Oil & Grease			--- mg/L
Ammonia (Total as N) May 1 – October 31	5.5 mg/L		18.4 mg/L
Ammonia (Total as N) November 1 – April 30	30.9 mg/L		101.9 mg/L
Total Nitrogen May 1 – October 31	15.0 mg/L		--- mg/L
Total Nitrogen May 1 – October 31	413 lbs./day		
Total Nitrogen November 1 – April 30	--- mg/L		--- mg/L
Total Nitrogen November 1 – April 30	--- lbs./day		
TKN (as N)	--- mg/L		--- mg/L
Total Nitrate (as N)	--- mg/L		--- mg/L
Total Nitrite (as N)	--- mg/L		--- mg/L

Total Copper	23.0 ug/L		23.0 ug/L
Total Cyanide	4.0 ug/L		4.0 ug/L
LC_{50} – Mysidopsis bahia			100% or Greater
NOEC – Arbacia punctulata			10% or Greater
Total Cadmium	--- ug/l		--- ug/L
Total Chromium	--- ug/l		--- ug/L
Total Lead	--- ug/l		--- ug/L
Total Zinc	--- ug/l		--- ug/L
Total Nickel	--- ug/l		--- ug/L
Total Aluminum	--- ug/l		--- ug/L

Note: --- signifies a parameter that must be monitored and data reported; no limit has been established at this time.

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. In accordance with Chapter 46-17.4 of Rhode Island General Laws, a public hearing will be held prior to the close of the public comment period. 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, 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, provided oral testimony, 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:

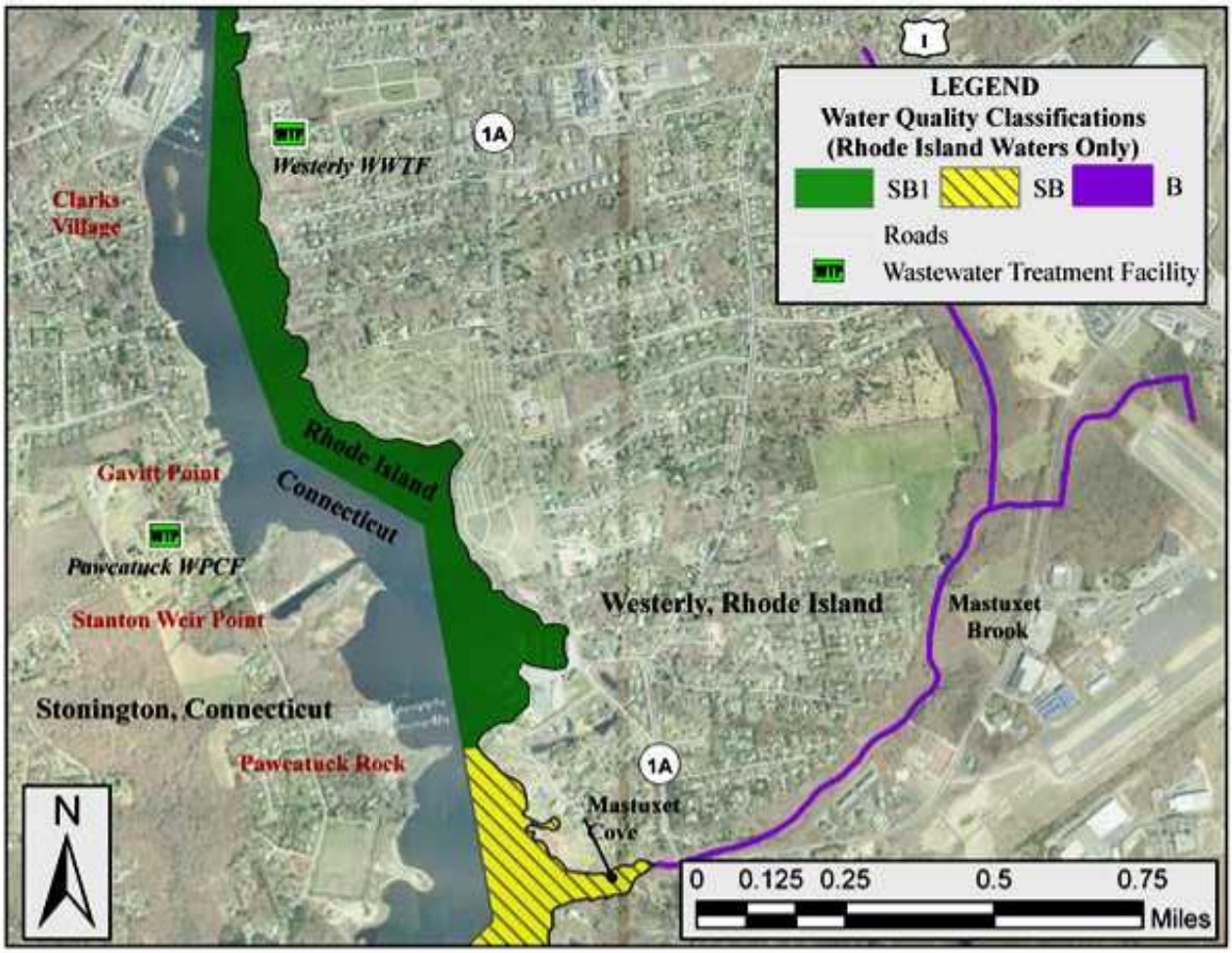
Brian D. Lafaille, PE
Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-4700, extension 7731
Brian.Lafaille@dem.ri.gov

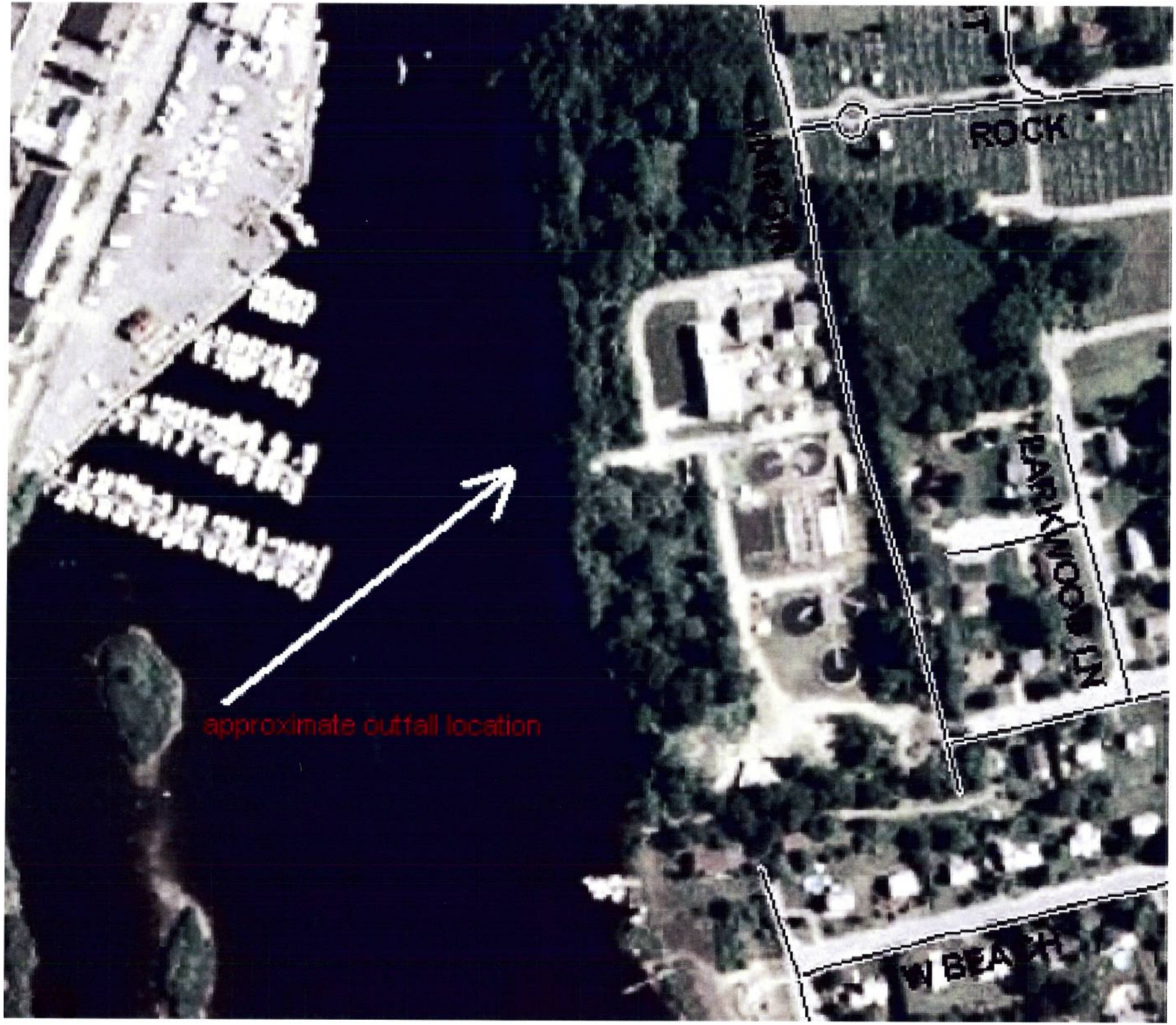
7/12/13
Date

Joseph B. Haberek, PE
Principal Sanitary Engineer
RIPDES Program
Office of Water Resources
Department of Environmental Management

FIGURE #1

Westerly Wastewater Treatment Facility
Outfall Location Map


LEGEND
Water Quality Classifications
(Rhode Island Waters Only)
SB1
SB
B
Roads
Wastewater Treatment Facility
I
1A
1A
Westerly WWTF
Clarks Village
Rhode Island
Connecticut
Gavitt Point
Pawcatuck WPCF
Stanton Weir Point
Stonington, Connecticut
Pawcatuck Rock
Westerly, Rhode Island
Mastuxet Brook
Mastuxet Cove
N
0 0.125 0.25 0.5 0.75
Miles


approximate outfall location
ROCK
PARKWOOD LN

ATTACHMENT A

DESCRIPTION OF DISCHARGE: Secondary treated domestic and industrial wastewater.
DISCHARGE: 001A - Secondary Treatment Discharge

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

PARAMETER	**MONTHLY AVERAGE[1]**	**DAILY MAXIMUM[2]**
FLOW (MGD)	2.40	3.20
BOD_5 (mg/l)	5.17	12.75
BOD_5 (lb/day)	101.85	260
TSS (mg/l)	9.03	17.07
TSS (lb/day)	184.83	393.54
Settleable Solids (mL/L)	0.05	0.05
Fecal Coliform (MPN/100ml)	2.85	369250.18
pH (s.u.)	6.59 (Minimum)	6.96 (Maximum)
Chlorine Residual (ug/l)	13.12	39.54
Copper (ug/l)	15.89	23.48
Cyanide (ug/l)	10.12	10.49
Ammonia (Total as N) (mg/l)	1.23	2.31
Nitrite (Total as N) (mg/l)	0.83	1.82
Nitrate (Total as N) (mg/l)	3.37	4.40
TKN (mg/l)	3.06	4.51
Total Nitrogen (mg/l)	7.22	9.24
Total Nitrogen (lb/day)	138.21	
Oil and Grease (mg/l)		4.22

[1]Data represents the mean of the monthly average data from October 1, 2007 – March 31, 2013
[2]Data represents the mean of the daily maximum data from October 1, 2007 – March 31, 2013

Biotoxicity Data LC_{50} Values (in percent effluent)

	2010 1nd qtr.	**2rd qtr.**	**3th qtr.**	**4st qtr.**	**2011 1nd qtr.**	**2rd qtr.**	**3th qtr.**	**4st qtr.**
Mysidopsis bahia	>100	>100	>100	>100	>100	>100	>100	>100
	2010 1nd qtr.	**2rd qtr.**	**3th qtr.**	**4st qtr.**	**2011 1nd qtr.**	**2rd qtr.**	**3th qtr.**	**4st qtr.**
Arabacia punctulata	50	100	>100	>100	100	100	100	100

ATTACHMENT B
Calculation of Allowable Acute and Chronic Discharge Limitations Based on Saltwater Aquatic Life Criteria and Human Health Criteria

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY SPECIFIC DATA INPUT SHEET

NOTE: LIMITS BASED ON RI WATER QUALITY CRITERIA DATED JULY 2006

FACILITY NAME: **Westerly WWTF 2013**

RIPDES PERMIT #: **RI0100064**

	DISSOLVED BACKGROUND DATA (ug/L)	ACUTE METAL TRANSLATOR	CHRONIC METAL TRANSLATOR
ALUMINUM	NA	NA	NA
ARSENIC	NA	1	1
CADMIUM	NA	0.994	0.994
CHROMIUM III	NA	NA	NA
CHROMIUM VI	NA	0.993	0.993
COPPER	NA	0.83	0.83
LEAD	NA	0.951	0.951
MERCURY	NA	0.85	NA
NICKEL	NA	0.99	0.99
SELENIUM	NA	0.998	0.998
SILVER	NA	0.85	0.85
ZINC	NA	0.946	0.946

USE NA WHEN NO DATA IS AVAILABLE

NOTE 1: BACKGROUND DATA BASED ON AVERAGE CONCENTRATIONS IN ATTACHMENT B.

NOTE 2: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

DILUTION FACTORS		
	ACUTE =	5 x
	CHRONIC =	10 x
	HUMAN HEALTH =	10 x

NOTE: TEST WWTF'S DILUTION FACTORS OBTAINED FROM A DYE STUDY.

TOTAL AMMONIA CRITERIA (ug/L)		
WINTER	ACUTE =	31000
	CHRONIC =	4700
SUMMER	ACUTE =	7100
	CHRONIC =	1100

NOTE 1: LIMITS ARE FROM TABLE 3 IN THE RI WATER QUALITY REGS.
USING:
SALINITY = 30 g/Kg
WINTER (NOV-APRIL) pH=8.4 s.u.;
SUMMER (MAY-OCT) pH=8.2 s.u.
WINTER (NOV-APRIL) TEMP=10.0 C;
SUMMER (MAY-OCT) TEMP=20.0 C.

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Westerly WWTF 2013 RIPDES PERMIT #: RI0100064

NOTE: METALS CRITERIA ARE DISSOLVED, METALS LIMITS ARE TOTAL; AMMONIA CRITERIA AND LIMITS HAVE BEEN CONVERTED TO ug/l N.

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	SALTWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	SALTWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:							
TOXIC METALS AND CYANIDE							
ANTIMONY	7440360			No Criteria		640	5120
ARSENIC (limits are total recoverable)	7440382	NA	69	276	36	1.4	11.2
ASBESTOS	1332214			No Criteria			No Criteria
BERYLLIUM	7440417			No Criteria			No Criteria
CADMIUM (limits are total recoverable)	7440439	NA	40	160.9657948	8.8		70.8249497
CHROMIUM III (limits are total recoverable)	16065831	NA		No Criteria			No Criteria
CHROMIUM VI (limits are total recoverable)	18540299	NA	1100	4431.01712	50		402.8197382
COPPER (limits are total recoverable)	7440508	NA	4.8	23.13253012	3.1		29.87951807
CYANIDE	57125		1	4.00	1	140	8
LEAD (limits are total recoverable)	7439921	NA	210	883.2807571	8.1		68.13880126
MERCURY (limits are total recoverable)	7439976	NA	1.8	8.470588235	0.94	0.15	1.2
NICKEL (limits are total recoverable)	7440020	NA	74	298.989899	8.2	4600	66.26262626
SELENIUM (limits are total recoverable)	7782492	NA	290	1162.324649	71	4200	569.1382766
SILVER (limits are total recoverable)	7440224	NA	1.9	8.941176471			No Criteria
THALLIUM	7440280			No Criteria		0.47	3.76
ZINC (limits are total recoverable)	7440666	NA	90	380.5496829	81	26000	684.9894292
VOLATILE ORGANIC COMPOUNDS							
ACROLEIN	107028			No Criteria		290	2320
ACRYLONITRILE	107131			No Criteria		2.5	20
BENZENE	71432			No Criteria		510	4080
BROMOFORM	75252			No Criteria		1400	11200
CARBON TETRACHLORIDE	56235			No Criteria		16	128
CHLOROBENZENE	108907			No Criteria		1600	12800
CHLORODIBROMOMETHANE	124481			No Criteria		130	1040
CHLOROFORM	67663			No Criteria		4700	37600
DICHLOROBROMOMETHANE	75274			No Criteria		170	1360
1,2DICHLOROETHANE	107062			No Criteria		370	2960
1,1DICHLOROETHYLENE	75354			No Criteria		7100	56800
1,2DICHLOROPROPANE	78875			No Criteria		150	1200
1,3DICHLOROPROPYLENE	542756			No Criteria		21	168
ETHYLBENZENE	100414			No Criteria		2100	16800
BROMOMETHANE (methyl bromide)	74839			No Criteria		1500	12000
CHLOROMETHANE (methyl chloride)	74873			No Criteria			No Criteria
METHYLENE CHLORIDE	75092			No Criteria		5900	47200

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Westerly WWTF 2013 RIPDES PERMIT #: RI0100064

NOTE: METALS CRITERIA ARE DISSOLVED, METALS LIMITS ARE TOTAL; AMMONIA CRITERIA AND LIMITS HAVE BEEN CONVERTED TO ug/l N.

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	SALTWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	SALTWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,1,2,2TETRACHLOROETHANE	79345			No Criteria		40	320
TETRACHLOROETHYLENE	127184			No Criteria		33	264
TOLUENE	108883			No Criteria		15000	120000
1,2TRANSDICHLOROETHYLENE	156605			No Criteria		10000	80000
1,1,1TRICHLOROETHANE	71556			No Criteria			No Criteria
1,1,2TRICHLOROETHANE	79005			No Criteria		160	1280
TRICHLOROETHYLENE	79016			No Criteria		300	2400
VINYL CHLORIDE	75014			No Criteria		2.4	19.2
ACID ORGANIC COMPOUNDS							
2CHLOROPHENOL	95578			No Criteria		150	1200
2,4DICHLOROPHENOL	120832			No Criteria		290	2320
2,4DIMETHYLPHENOL	105679			No Criteria		850	6800
4,6DINITRO2METHYL PHENOL	534521			No Criteria		280	2240
2,4DINITROPHENOL	51285			No Criteria		5300	42400
4NITROPHENOL	88755			No Criteria			No Criteria
PENTACHLOROPHENOL	87865		13	52	7.9	30	63.2
PHENOL	108952			No Criteria		1700000	13600000
2,4,6TRICHLOROPHENOL	88062			No Criteria		24	192
BASE NEUTRAL COMPUNDS							
ACENAPHTHENE	83329			No Criteria		990	7920
ANTHRACENE	120127			No Criteria		40000	320000
BENZIDINE	92875			No Criteria		0.002	0.016
POLYCYCLIC AROMATIC HYDROCARBONS				No Criteria		0.18	1.44
BIS(2CHLOROETHYL)ETHER	111444			No Criteria		5.3	42.4
BIS(2CHLOROISOPROPYL)ETHER	108601			No Criteria		65000	520000
BIS(2ETHYLHEXYL)PHTHALATE	117817			No Criteria		22	176
BUTYL BENZYL PHTHALATE	85687			No Criteria		1900	15200
2CHLORONAPHTHALENE	91587			No Criteria		1600	12800
1,2DICHLOROBENZENE	95501			No Criteria		1300	10400
1,3DICHLOROBENZENE	541731			No Criteria		960	7680
1,4DICHLOROBENZENE	106467			No Criteria		190	1520
3,3DICHLOROBENZIDENE	91941			No Criteria		0.28	2.24
DIETHYL PHTHALATE	84662			No Criteria		44000	352000
DIMETHYL PHTHALATE	131113			No Criteria		1100000	8800000
DInBUTYL PHTHALATE	84742			No Criteria		4500	36000
2,4DINITROTOLUENE	121142			No Criteria		34	272

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Westerly WWTF 2013 RIPDES PERMIT #: RI0100064

NOTE: METALS CRITERIA ARE DISSOLVED, METALS LIMITS ARE TOTAL; AMMONIA CRITERIA AND LIMITS HAVE BEEN CONVERTED TO ug/l N.

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	SALTWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	SALTWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,2DIPHENYLHYDRAZINE	122667			No Criteria		2	16
FLUORANTHENE	206440			No Criteria		140	1120
FLUORENE	86737			No Criteria		5300	42400
HEXACHLOROBENZENE	118741			No Criteria		0.0029	0.0232
HEXACHLOROBUTADIENE	87683			No Criteria		180	1440
HEXACHLOROCYCLOPENTADIENE	77474			No Criteria		1100	8800
HEXACHLOROETHANE	67721			No Criteria		33	264
ISOPHORONE	78591			No Criteria		9600	76800
NAPHTHALENE	91203			No Criteria			No Criteria
NITROBENZENE	98953			No Criteria		690	5520
NNITROSODIMETHYLAMINE	62759			No Criteria		30	240
NNITROSODINPROPYLAMINE	621647			No Criteria		5.1	40.8
NNITROSODIPHENYLAMINE	86306			No Criteria		60	480
PYRENE	129000			No Criteria		4000	32000
1,2,4trichlorobenzene	120821			No Criteria		70	560
PESTICIDES/PCBs							
ALDRIN	309002		1.3	5.2		0.0005	0.004
Alpha BHC	319846			No Criteria		0.049	0.392
Beta BHC	319857			No Criteria		0.17	1.36
Gamma BHC (Lindane)	58899		0.16	0.64		1.8	14.4
CHLORDANE	57749		0.09	0.36	0.004	0.0081	0.032
4,4DDT	50293		0.13	0.52	0.001	0.0022	0.008
4,4DDE	72559			No Criteria		0.0022	0.0176
4,4DDD	72548			No Criteria		0.0031	0.0248
DIELDRIN	60571		0.71	2.84	0.0019	0.00054	0.00432
ENDOSULFAN (alpha)	959988		0.034	0.136	0.0087	89	0.0696
ENDOSULFAN (beta)	33213659		0.034	0.136	0.0087	89	0.0696
ENDOSULFAN (sulfate)	1031078			No Criteria		89	712
ENDRIN	72208		0.037	0.148	0.0023	0.06	0.0184
ENDRIN ALDEHYDE	7421934			No Criteria		0.3	2.4
HEPTACHLOR	76448		0.053	0.212	0.0036	0.00079	0.00632
HEPTACHLOR EPOXIDE	1024573		0.053	0.212	0.0036	0.00039	0.00312
POLYCHLORINATED BIPHENYLS3	1336363			No Criteria	0.03	0.00064	0.00512
2,3,7,8TCDD (Dioxin)	1746016			No Criteria		0.000000051	0.000000408
TOXAPHENE	8001352		0.21	0.84	0.0002	0.0028	0.0016
TRIBUTYLTIN			0.42	1.68	0.0074		0.0592

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Westerly WWTF 2013 RIPDES PERMIT #: RI0100064

NOTE: METALS CRITERIA ARE DISSOLVED, METALS LIMITS ARE TOTAL; AMMONIA CRITERIA AND LIMITS HAVE BEEN CONVERTED TO ug/l N.

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	SALTWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	SALTWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:							
OTHER SUBSTANCES							
ALUMINUM (limits are total recoverable)	7429905	NA		No Criteria			No Criteria
AMMONIA as N (winter/summer)	7664417		25482 | 5836.2	101928 23344.8	3863 | 904.2		30907.2 | 7233.6
4BROMOPHENYL PHENYL ETHER				No Criteria			No Criteria
CHLORIDE	16887006			No Criteria			No Criteria
CHLORINE	7782505		13	65	7.5		75
4CHLORO2METHYLPHENOL				No Criteria			No Criteria
1CHLORONAPHTHALENE				No Criteria			No Criteria
4CHLOROPHENOL	106489			No Criteria			No Criteria
2,4DICHLORO6METHYLPHENOL				No Criteria			No Criteria
1,1DICHLOROPROPANE				No Criteria			No Criteria
1,3DICHLOROPROPANE	142289			No Criteria			No Criteria
2,3DINITROTOLUENE				No Criteria			No Criteria
2,4DINITRO6METHYL PHENOL				No Criteria			No Criteria
IRON	7439896			No Criteria			No Criteria
pentachlorobenzene	608935			No Criteria			No Criteria
PENTACHLOROETHANE				No Criteria			No Criteria
1,2,3,5tetrachlorobenzene				No Criteria			No Criteria
1,1,1,2TETRACHLOROETHANE	630206			No Criteria			No Criteria
2,3,4,6TETRACHLOROPHENOL	58902			No Criteria			No Criteria
2,3,5,6TETRACHLOROPHENOL				No Criteria			No Criteria
2,4,5TRICHLOROPHENOL	95954			No Criteria			No Criteria
2,4,6TRINITROPHENOL	88062			No Criteria			No Criteria
XYLENE	1330207			No Criteria			No Criteria

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Westerly WWTF 2013 RIPDES PERMIT #: RI0100064

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:			
TOXIC METALS AND CYANIDE			
ANTIMONY	7440360	No Criteria	5120.00
ARSENIC, TOTAL	7440382	276.00	11.20
ASBESTOS	1332214	No Criteria	No Criteria
BERYLLIUM	7440417	No Criteria	No Criteria
CADMIUM, TOTAL	7440439	160.97	70.82
CHROMIUM III, TOTAL	16065831	No Criteria	No Criteria
CHROMIUM VI, TOTAL	18540299	4431.02	402.82
COPPER, TOTAL	7440508	23.13	23.13
CYANIDE	57125	4.00	4.00
LEAD, TOTAL	7439921	883.28	68.14
MERCURY, TOTAL	7439976	8.47	1.20
NICKEL, TOTAL	7440020	298.99	66.26
SELENIUM, TOTAL	7782492	1162.32	569.14
SILVER, TOTAL	7440224	8.94	8.94
THALLIUM	7440280	No Criteria	3.76
ZINC, TOTAL	7440666	380.55	380.55
VOLATILE ORGANIC COMPOUNDS			
ACROLEIN	107028	No Criteria	2320.00
ACRYLONITRILE	107131	No Criteria	20.00
BENZENE	71432	No Criteria	4080.00
BROMOFORM	75252	No Criteria	11200.00
CARBON TETRACHLORIDE	56235	No Criteria	128.00
CHLOROBENZENE	108907	No Criteria	12800.00
CHLORODIBROMOMETHANE	124481	No Criteria	1040.00
CHLOROFORM	67663	No Criteria	37600.00
DICHLOROBROMOMETHANE	75274	No Criteria	1360.00
1,2DICHLOROETHANE	107062	No Criteria	2960.00
1,1DICHLOROETHYLENE	75354	No Criteria	56800.00
1,2DICHLOROPROPANE	78875	No Criteria	1200.00
1,3DICHLOROPROPYLENE	542756	No Criteria	168.00
ETHYLBENZENE	100414	No Criteria	16800.00
BROMOMETHANE (methyl bromide)	74839	No Criteria	12000.00
CHLOROMETHANE (methyl chloride)	74873	No Criteria	No Criteria
METHYLENE CHLORIDE	75092	No Criteria	47200.00
1,1,2,2TETRACHLOROETHANE	79345	No Criteria	320.00
TETRACHLOROETHYLENE	127184	No Criteria	264.00
TOLUENE	108883	No Criteria	120000.00
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	80000.00
1,1,1TRICHLOROETHANE	71556	No Criteria	No Criteria
1,1,2TRICHLOROETHANE	79005	No Criteria	1280.00
TRICHLOROETHYLENE	79016	No Criteria	2400.00
VINYL CHLORIDE	75014	No Criteria	19.20
ACID ORGANIC COMPOUNDS			
2CHLOROPHENOL	95578	No Criteria	1200.00
2,4DICHLOROPHENOL	120832	No Criteria	2320.00
2,4DIMETHYLPHENOL	105679	No Criteria	6800.00
4,6DINITRO2METHYL PHENOL	534521	No Criteria	2240.00
2,4DINITROPHENOL	51285	No Criteria	42400.00
4NITROPHENOL	88755	No Criteria	No Criteria
PENTACHLOROPHENOL	87865	52.00	52.00
PHENOL	108952	No Criteria	13600000.00
2,4,6TRICHLOROPHENOL	88062	No Criteria	192.00
BASE NEUTRAL COMPUNDS			
ACENAPHTHENE	83329	No Criteria	7920.00
ANTHRACENE	120127	No Criteria	320000.00
BENZIDINE	92875	No Criteria	0.02
PAHs		No Criteria	1.44
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	42.40
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	520000.00
BIS(2ETHYLHEXYL)PHTHALATE	117817	No Criteria	176.00
BUTYL BENZYL PHTHALATE	85687	No Criteria	15200.00
2CHLORONAPHTHALENE	91587	No Criteria	12800.00
1,2DICHLOROBENZENE	95501	No Criteria	10400.00
1,3DICHLOROBENZENE	541731	No Criteria	7680.00
1,4DICHLOROBENZENE	106467	No Criteria	1520.00
3,3DICHLOROBENZIDENE	91941	No Criteria	2.24
DIETHYL PHTHALATE	84662	No Criteria	352000.00
DIMETHYL PHTHALATE	131113	No Criteria	8800000.00
DI-n-BUTYL PHTHALATE	84742	No Criteria	36000.00
2,4DINITROTOLUENE	121142	No Criteria	272.00
1,2DIPHENYLHYDRAZINE	122667	No Criteria	16.00
FLUORANTHENE	206440	No Criteria	1120.00

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Westerly WWTF 2013 RIPDES PERMIT #: RI0100064

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
FLUORENE	86737	No Criteria	42400.00
HEXACHLOROBENZENE	118741	No Criteria	0.02
HEXACHLOROBUTADIENE	87683	No Criteria	1440.00
HEXACHLOROCYCLOPENTADIENE	77474	No Criteria	8800.00
HEXACHLOROETHANE	67721	No Criteria	264.00
ISOPHORONE	78591	No Criteria	76800.00
NAPHTHALENE	91203	No Criteria	No Criteria
NITROBENZENE	98953	No Criteria	5520.00
N-NITROSODIMETHYLAMINE	62759	No Criteria	240.00
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	40.80
N-NITROSODIPHENYLAMINE	86306	No Criteria	480.00
PYRENE	129000	No Criteria	32000.00
1,2,4trichlorobenzene	120821	No Criteria	560.00
PESTICIDES/PCBs			
ALDRIN	309002	5.20	0.00
Alpha BHC	319846	No Criteria	0.39
Beta BHC	319857	No Criteria	1.36
Gamma BHC (Lindane)	58899	0.64	0.64
CHLORDANE	57749	0.36	0.03
4,4DDT	50293	0.52	0.01
4,4DDE	72559	No Criteria	0.02
4,4DDD	72548	No Criteria	0.02
DIELDRIN	60571	2.84	0.00
ENDOSULFAN (alpha)	959988	0.14	0.07
ENDOSULFAN (beta)	33213659	0.14	0.07
ENDOSULFAN (sulfate)	1031078	No Criteria	712.00
ENDRIN	72208	0.15	0.02
ENDRIN ALDEHYDE	7421934	No Criteria	2.40
HEPTACHLOR	76448	0.21	0.01
HEPTACHLOR EPOXIDE	1024573	0.21	0.00
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.01
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00
TOXAPHENE	8001352	0.84	0.00
TRIBUTYLTIN		1.68	0.06

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:			
OTHER SUBSTANCES			
ALUMINUM, TOTAL	7429905	No Criteria	No Criteria
AMMONIA (as N), WINTER (NOV-APR	7664417	101928.00	30907.20
AMMONIA (as N), SUMMER (MAY-OC	7664417	23344.80	7233.60
4BROMOPHENYL PHENYL ETHER		No Criteria	No Criteria
CHLORIDE	16887006	No Criteria	No Criteria
CHLORINE	7782505	65.00	65.00
4CHLORO2METHYLPHENOL		No Criteria	No Criteria
1CHLORONAPHTHALENE		No Criteria	No Criteria
4CHLOROPHENOL	106489	No Criteria	No Criteria
2,4DICHLORO6METHYLPHENOL		No Criteria	No Criteria
1,1DICHLOROPROPANE		No Criteria	No Criteria
1,3DICHLOROPROPANE	142289	No Criteria	No Criteria
2,3DINITROTOLUENE		No Criteria	No Criteria
2,4DINITRO6METHYL PHENOL		No Criteria	No Criteria
IRON	7439896	No Criteria	No Criteria
pentachlorobenzene	608935	No Criteria	No Criteria
PENTACHLOROETHANE		No Criteria	No Criteria
1,2,3,5tetrachlorobenzene		No Criteria	No Criteria
1,1,1,2TETRACHLOROETHANE	630206	No Criteria	No Criteria
2,3,4,6TETRACHLOROPHENOL	58902	No Criteria	No Criteria
2,3,5,6TETRACHLOROPHENOL		No Criteria	No Criteria
2,4,5TRICHLOROPHENOL	95954	No Criteria	No Criteria
2,4,6TRINITROPHENOL	88062	No Criteria	No Criteria
XYLENE	1330207	No Criteria	No Criteria

ATTACHMENT C
Summary of State User Fee Data
October 2008 to July 2011

Westerly WWTF User Fee Sampling Data Summary					
ParameterName	**Cycle**	**Date**	**Concentration (ug/l)**	**Max**	**Average**
2,4,6-Trichlorophenol	22	02-Sep-09	19	19	19
Benzene	23	07-Jul-10	1	1	1
BOD	21	16-Oct-08	4000		
BOD	22	02-Sep-09	8000		
BOD	23	07-Jul-10	5000		
BOD	24	07-Jul-11	31000	31000	12000
Bromodichloromethane	21	16-Oct-08	6.4		
Bromodichloromethane	22	02-Sep-09	7.3		
Bromodichloromethane	23	07-Jul-10	8.5		
Bromodichloromethane	24	07-Jul-11	11	11	8.3
Chloroform	21	16-Oct-08	13		
Chloroform	22	02-Sep-09	21		
Chloroform	23	07-Jul-10	22		
Chloroform	24	07-Jul-11	14	22	17.5
Chromium, Total	21	16-Oct-08	29		
Chromium, Total	22	02-Sep-09	24		
Chromium, Total	23	07-Jul-10	11		
Chromium, Total	24	07-Jul-11	2	29	16.5
Copper, Total	21	16-Oct-08	12		
Copper, Total	22	02-Sep-09	19		
Copper, Total	23	07-Jul-10	14		
Copper, Total	24	07-Jul-11	11	19	14
Dibromochloromethane	21	16-Oct-08	1.8		
Dibromochloromethane	22	02-Sep-09	1.3		
Dibromochloromethane	23	07-Jul-10	1.6		
Dibromochloromethane	24	07-Jul-11	3.4	3.4	2.025
Diethyl Phthalate	22	02-Sep-09	15.3	15.3	15.3
Lead, Total	22	02-Sep-09	2	2	2
TSS	21	16-Oct-08	13000		
TSS	22	02-Sep-09	9000		
TSS	23	07-Jul-10	17000		
TSS	24	07-Jul-11	29000	29000	17000
Zinc, Total	21	16-Oct-08	31		
Zinc, Total	22	02-Sep-09	75		
Zinc, Total	23	07-Jul-10	28		
Zinc, Total	24	07-Jul-11	26	75	40

ATTACHMENT D
Comparison of Allowable Limits with Discharge Monitoring Report Data and State User Fee Data

Westerly WWTF 2013 Permit
RIPDES Permit No. RI0100064
Outfall # 001

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	Concentration Limits (ug/L) Based on Saltwater Criteria		Ave UFP Data (ug/L) 10/08 - 07/11		Ave. DMR Data (ug/L) 10/07 - 12/11		Potential Permit Limits (ug/L)	
	Daily Max	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave
ANTIMONY	No Criteria	5120	---	---	---	---	---	---
ARSENIC, TOTAL	276	11.2	---	---	---	---	---	---
ASBESTOS	No Criteria	No Criteria	---	---	---	---	---	---
BERYLLIUM	No Criteria	No Criteria	---	---	---	---	---	---
CADMIUM, TOTAL	160.9657948	70.8249497	---	---	---	---	---	---
CHROMIUM III, TOTAL	No Criteria	No Criteria	29	16.5	---	---	---	---
CHROMIUM VI, TOTAL	4431.01712	402.8197382	29	16.5	---	---	---	---
COPPER, TOTAL	23.13253012	23.13253012	19	14	23.48	15.89	23	23
CYANIDE	4	4	---	---	10.12	10.49	4	4
LEAD, TOTAL	883.2807571	68.13880126	2	2	---	---	---	---
MERCURY, TOTAL	8.470588235	1.2	---	---	---	---	---	---
NICKEL, TOTAL	298.989899	66.26262626	---	---	---	---	---	---
SELENIUM, TOTAL	1162.324649	569.1382766	---	---	---	---	---	---
SILVER, TOTAL	8.941176471	8.941176471	---	---	---	---	---	---
THALLIUM	No Criteria	3.76	---	---	---	---	---	---
ZINC, TOTAL	380.5496829	380.5496829	75	40	---	---	---	---
ACROLEIN	No Criteria	2320	---	---	---	---	---	---
ACRYLONITRILE	No Criteria	20	---	---	---	---	---	---
BENZENE	No Criteria	4080	1	1	---	---	---	---
BROMOFORM	No Criteria	11200	---	---	---	---	---	---
CARBON TETRACHLORIDE	No Criteria	128	---	---	---	---	---	---
CHLOROBENZENE	No Criteria	12800	---	---	---	---	---	---
CHLORODIBROMOMETHANE	No Criteria	1040	---	---	---	---	---	---
CHLOROFORM	No Criteria	37600	22	17.5	---	---	---	---
DICHLOROBROMOMETHANE	No Criteria	1360	---	---	---	---	---	---
1,2DICHLOROETHANE	No Criteria	2960	---	---	---	---	---	---
1,1DICHLOROETHYLENE	No Criteria	56800	---	---	---	---	---	---
1,2DICHLOROPROPANE	No Criteria	1200	---	---	---	---	---	---
1,3DICHLOROPROPYLENE	No Criteria	168	---	---	---	---	---	---
ETHYLBENZENE	No Criteria	16800	---	---	---	---	---	---
BROMOMETHANE (methyl bromide)	No Criteria	12000	---	---	---	---	---	---
CHLOROMETHANE (methyl chloride)	No Criteria	No Criteria	---	---	---	---	---	---
METHYLENE CHLORIDE	No Criteria	47200	---	---	---	---	---	---
1,1,2,2TETRACHLOROETHANE	No Criteria	320	---	---	---	---	---	---
FLUORENE	No Criteria	42400	---	---	---	---	---	---

Westerly WWTF 2013 Permit
RIPDES Permit No. RI0100064
Outfall # 001

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	Concentration Limits (ug/L) Based on Saltwater Criteria		Ave UFP Data (ug/L) 10/08 - 07/11		Ave. DMR Data (ug/L) 10/07 - 12/11		Potential Permit Limits (ug/L)	
	Daily Max	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave
HEXACHLOROBENZENE	No Criteria	0.0232	---	---	---	---	---	---
HEXACHLOROBUTADIENE	No Criteria	1440	---	---	---	---	---	---
HEXACHLOROCYCLOPENTADIENE	No Criteria	8800	---	---	---	---	---	---
HEXACHLOROETHANE	No Criteria	264	---	---	---	---	---	---
ISOPHORONE	No Criteria	76800	---	---	---	---	---	---
NAPHTHALENE	No Criteria	No Criteria	---	---	---	---	---	---
NITROBENZENE	No Criteria	5520	---	---	---	---	---	---
N-NITROSODIMETHYLAMINE	No Criteria	240	---	---	---	---	---	---
N-NITROSODI-N-PROPYLAMINE	No Criteria	40.8	---	---	---	---	---	---
N-NITROSODIPHENYLAMINE	No Criteria	480	---	---	---	---	---	---
PYRENE	No Criteria	32000	---	---	---	---	---	---
1,2,4trichlorobenzene	No Criteria	560	---	---	---	---	---	---
ALDRIN	5.2	0.004	---	---	---	---	---	---
Alpha BHC	No Criteria	0.392	---	---	---	---	---	---
Beta BHC	No Criteria	1.36	---	---	---	---	---	---
Gamma BHC (Lindane)	0.64	0.64	---	---	---	---	---	---
CHLORDANE	0.36	0.032	---	---	---	---	---	---
4,4DDT	0.52	0.008	---	---	---	---	---	---
4,4DDE	No Criteria	0.0176	---	---	---	---	---	---
4,4DDD	No Criteria	0.0248	---	---	---	---	---	---
DIELDRIN	2.84	0.00432	---	---	---	---	---	---
ENDOSULFAN (alpha)	0.136	0.0696	---	---	---	---	---	---
ENDOSULFAN (beta)	0.136	0.0696	---	---	---	---	---	---
ENDOSULFAN (sulfate)	No Criteria	712	---	---	---	---	---	---
ENDRIN	0.148	0.0184	---	---	---	---	---	---
ENDRIN ALDEHYDE	No Criteria	2.4	---	---	---	---	---	---
HEPTACHLOR	0.212	0.00632	---	---	---	---	---	---
HEPTACHLOR EPOXIDE	0.212	0.00312	---	---	---	---	---	---
POLYCHLORINATED BIPHENYLS3	No Criteria	0.00512	---	---	---	---	---	---
2,3,7,8TCDD (Dioxin)	No Criteria	0.000000408	---	---	---	---	---	---
TOXAPHENE	0.84	0.0016	---	---	---	---	---	---
TRIBUTYLTIN	1.68	0.0592	---	---	---	---	---	---
TETRACHLOROETHYLENE	No Criteria	264	---	---	---	---	---	---
TOLUENE	No Criteria	120000	---	---	---	---	---	---
1,2TRANSDICHLOROETHYLENE	No Criteria	80000	---	---	---	---	---	---

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NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	Concentration Limits (ug/L) Based on Saltwater Criteria		Ave UFP Data (ug/L) 10/08 - 07/11		Ave. DMR Data (ug/L) 10/07 - 12/11		Potential Permit Limits (ug/L)	
	Daily Max	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave
1,1,1TRICHLOROETHANE	No Criteria	No Criteria	---	---	---	---	---	---
1,1,2TRICHLOROETHANE	No Criteria	1280	---	---	---	---	---	---
TRICHLOROETHYLENE	No Criteria	2400	---	---	---	---	---	---
VINYL CHLORIDE	No Criteria	19.2	---	---	---	---	---	---
2CHLOROPHENOL	No Criteria	1200	---	---	---	---	---	---
2,4DICHLOROPHENOL	No Criteria	2320	---	---	---	---	---	---
2,4DIMETHYLPHENOL	No Criteria	6800	---	---	---	---	---	---
4,6DINITRO2METHYL PHENOL	No Criteria	2240	---	---	---	---	---	---
2,4DINITROPHENOL	No Criteria	42400	---	---	---	---	---	---
4NITROPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
PENTACHLOROPHENOL	52	52	---	---	---	---	---	---
PHENOL	No Criteria	13600000	---	---	---	---	---	---
2,4,6TRICHLOROPHENOL	No Criteria	192	19	19	---	---	---	---
ACENAPHTHENE	No Criteria	7920	---	---	---	---	---	---
ANTHRACENE	No Criteria	320000	---	---	---	---	---	---
BENZIDINE	No Criteria	0.016	---	---	---	---	---	---
PAHs	No Criteria	1.44	---	---	---	---	---	---
BIS(2CHLOROETHYL)ETHER	No Criteria	42.4	---	---	---	---	---	---
BIS(2CHLOROISOPROPYL)ETHER	No Criteria	520000	---	---	---	---	---	---
BIS(2ETHYLHEXYL)PHTHALATE	No Criteria	176	---	---	---	---	---	---
BUTYL BENZYL PHTHALATE	No Criteria	15200	---	---	---	---	---	---
2CHLORONAPHTHALENE	No Criteria	12800	---	---	---	---	---	---
1,2DICHLOROBENZENE	No Criteria	10400	---	---	---	---	---	---
1,3DICHLOROBENZENE	No Criteria	7680	---	---	---	---	---	---
1,4DICHLOROBENZENE	No Criteria	1520	---	---	---	---	---	---
3,3DICHLOROBENZIDENE	No Criteria	2.24	---	---	---	---	---	---
DIETHYL PHTHALATE	No Criteria	352000	15.3	15.3	---	---	---	---
DIMETHYL PHTHALATE	No Criteria	8800000	---	---	---	---	---	---
DI-n-BUTYL PHTHALATE	No Criteria	36000	---	---	---	---	---	---
2,4DINITROTOLUENE	No Criteria	272	---	---	---	---	---	---
1,2DIPHENYLHYDRAZINE	No Criteria	16	---	---	---	---	---	---
FLUORANTHENE	No Criteria	1120	---	---	---	---	---	---
ALUMINUM, TOTAL	No Criteria	No Criteria	---	---	---	---	---	---
AMMONIA (as N), WINTER (NOV-APR)	101928	30907.2	---	---	2738	1967	---	---
AMMONIA (as N), SUMMER (MAY-OCT)	23344.8	7233.6	---	---	2101	686	---	---

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NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	Concentration Limits (ug/L) Based on Saltwater Criteria		Ave UFP Data (ug/L) 10/08 - 07/11		Ave. DMR Data (ug/L) 10/07 - 12/11		Potential Permit Limits (ug/L)	
	Daily Max	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave
4BROMOPHENYL PHENYL ETHER	No Criteria	No Criteria	---	---	---	---	---	---
CHLORIDE	No Criteria	No Criteria	---	---	---	---	---	---
CHLORINE	65	65	---	---	39.54	13.12	65	65
4CHLORO2METHYLPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
1CHLORONAPHTHALENE	No Criteria	No Criteria	---	---	---	---	---	---
4CHLOROPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
2,4DICHLORO6METHYLPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
1,1DICHLOROPROPANE	No Criteria	No Criteria	---	---	---	---	---	---
1,3DICHLOROPROPANE	No Criteria	No Criteria	---	---	---	---	---	---
2,3DINITROTOLUENE	No Criteria	No Criteria	---	---	---	---	---	---
2,4DINITRO6METHYL PHENOL	No Criteria	No Criteria	---	---	---	---	---	---
IRON	No Criteria	No Criteria	---	---	---	---	---	---
pentachlorobenzene	No Criteria	No Criteria	---	---	---	---	---	---
PENTACHLOROETHANE	No Criteria	No Criteria	---	---	---	---	---	---
1,2,3,5tetrachlorobenzene	No Criteria	No Criteria	---	---	---	---	---	---
1,1,1,2TETRACHLOROETHANE	No Criteria	No Criteria	---	---	---	---	---	---
2,3,4,6TETRACHLOROPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
2,3,5,6TETRACHLOROPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
2,4,5TRICHLOROPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
2,4,6TRINITROPHENOL	No Criteria	No Criteria	---	---	---	---	---	---
XYLENE	No Criteria	No Criteria	---	---	---	---	---	---