

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 Smithfield

is authorized to discharge from a facility located at the

Smithfield Wastewater Treatment Plant
20 Esmond Mill Drive
Smithfield, Rhode Island 02917

to receiving waters named

Woonasquatucket River

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

This permit shall become effective _____.

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

This permit supersedes the permit issued on April 4, 2007.

This permit consists of 22 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, 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 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 Requirements	
	Quantity - lbs/day		Concentration – units specified			Measurement Frequency	Sample Type
	Average Monthly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily		
Flow	3.5 MGD					Continuous	Recorder
CBOD ₅ (May-Oct)	292	496	10 mg/l	15 mg/l	17 mg/l	3/Week	24 hr comp.
CBOD ₅ (Nov-Apr)	437	729	15 mg/l	25 mg/l	25 mg/l	3/Week	24 hr comp.
CBOD ₅ % Removal			85%			1/Month	Calculated
TSS (May-Oct)	437	729	15 mg/l	20 mg/l	25 mg/l	3/Week	24 hr comp.
TSS (Nov-Apr)	437	729	15 mg/l	25 mg/l	25 mg/l	3/Week	24 hr comp.
TSS - % Removal			85%			1/Month	Calculated
Settleable Solids				--- ml/l	--- ml/l	1/Day	Grab
Oil and Grease					--- mg/l	1/Month	3 Grabs ¹

¹ Three (3) grab samples shall be taken, equally spaced over one (1) eight- (8-) hour working shift, with a minimum of three (3) hours between grabs. Each of the three (3) grab samples must be analyzed individually.

Testing for TSS and CBOD₅ shall be performed and reported on influent and effluent with appropriate allowances for hydraulic detention time. Sampling for TSS shall be performed on Tuesday, Thursday, and either Saturday or Sunday. Two (2) of the CBOD₅ samples shall be taken at the same time as two (2) of the TSS samples. Sampling for Flow and Settleable Solids shall be performed Sunday-Saturday.

---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 at the following location: Outfall 001A. (Final discharge after dechlorination).

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning 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:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>					<u>Monitoring Requirements</u>	
	Quantity - lbs/day		Concentration – units specified			Measurement <u>Frequency</u>	Sample <u>Type</u>
	Average	Maximum	Average	Average	Maximum		
	<u>Monthly</u>	<u>Daily</u>	<u>Monthly</u>	<u>Weekly</u>	<u>Daily</u>		
		* (Minimum)	* (Average)	* (Maximum)			
Enterococci			<u>54 cfu¹</u> 100 ml		<u>175 cfu¹</u> 100 ml	3/Week	Grab
Fecal Coliform			<u>--- MPN¹</u> 100 ml	<u>--- MPN¹</u> 100 ml	<u>--- MPN¹</u> 100 ml	1/Week	Grab
Total Residual Chlorine (TRC)			20 µg/l		34 µg/l	Continuous	Recorder ²
pH			(6.0 SU)		(9.0 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 sample shall be taken at the same time as one of the Enterococci samples. The Geometric Mean shall be used to obtain the “weekly average” and “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 a minimum of three (3) grab samples, Monday-Friday (except Holidays), equally spaced over one (1) eight- (8-) hour working shift with a minimum of three (3) hours between grabs, and on Saturdays, Sundays, and Holidays by taking at least two (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) Low Level Amperometric Titration, Standard Methods (18th Edition) No. 4500-CI E; and (2) DPD Spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No. 4500-CI G.

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

Sampling for TRC and pH shall be performed Sunday-Saturday.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Outfall 001A. (Final discharge after dechlorination).

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

3. During the period beginning 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:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>					<u>Monitoring Requirements</u>	
	Quantity - lbs/day		Concentration – units specified			Measurement <u>Frequency</u>	Sample <u>Type</u>
	<u>Average</u> <u>Monthly</u>	<u>Maximum</u> <u>Daily</u>	<u>Average</u> <u>Monthly</u>	<u>Average</u> <u>Weekly</u>	<u>Maximum</u> <u>Daily</u>		
Phosphorus, Total (Apr-Oct)			0.2 mg/l		--- mg/l	3/Week	24-hr comp
Phosphorus, Total (Nov-Mar)			1.0 mg/l		--- mg/l	1/Week	24-hr comp
Ortho-phosphorus (Nov-Mar)			--- mg/l		--- mg/l	1/Week	24-hr comp
Nitrate, Total (as N) (May-Oct)			--- mg/l		--- mg/l	3/Week	24-hr comp
Nitrate, Total (as N) (Nov-Apr)			--- mg/l		--- mg/l	1/Month	24-hr comp
Nitrite, Total (as N) (May-Oct)			--- mg/l		--- mg/l	3/Week	24-hr comp
Nitrite, Total (as N) (Nov-Apr)			--- mg/l		--- mg/l	1/Month	24-hr comp
TKN (as N) (May-Oct)			--- mg/l		--- mg/l	3/Week	24-hr comp
TKN (as N) (Nov-Apr)			--- mg/l		--- mg/l	1/Month	24-hr comp
Total Nitrogen (TKN + NO ₂ + NO ₃) (May-Oct)	--- lb/day		10.0 mg/l ¹		--- mg/l	3/Week	Calculated
Total Nitrogen (TKN + NO ₂ + NO ₃) (Nov-Apr)	--- lb/day		--- mg/l ¹		--- mg/l ¹	1/Month	Calculated
Ammonia, Total (as N) (May-Oct)			2.6 mg/l		17.0 mg/l	3/Week	24-hr comp
Ammonia, Total (as N) (Apr, Nov)			3.3 mg/l		22.0 mg/l	1/Week	24-hr comp
Ammonia, Total (as N) (Dec-Mar)			9.9 mg/l		22.0 mg/l	1/Week	24-hr comp

¹ 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, except methanol addition.

--- 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 location: Outfall 001A. (Final discharge after dechlorination).

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

4. During the period beginning 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 Requirements	
	Quantity - lbs/day		Concentration – units specified			Measurement Frequency	Sample Type
	Average <u>Monthly</u>	Maximum <u>Daily</u>	Average <u>Monthly</u>	Average <u>Weekly</u>	Maximum <u>Daily</u>		
Total Cadmium ¹			0.16 ug/l ²		0.98 ug/l	1/Week	24-hr comp
Total Cyanide ¹			7.42 ug/l ²		31.4 ug/l	1/Quarter ³	24-hr comp ⁴
Total Lead ¹			0.88 ug/l ²		28.07 ug/l	1/Week	24-hr comp
Total Zinc ¹			50.1 ug/l		50.1 ug/l	1/Week	24-hr comp
Total Copper			--- ug/l		--- ug/l	1/Quarter ³	24-hr comp
Total Nickel			--- ug/l		--- ug/l	1/Quarter ³	24-hr comp
Total Aluminum			--- ug/l		--- ug/l	1/Quarter ³	24-hr comp
Total Iron			--- ug/l		--- ug/l	1/Week	24-hr comp

¹ Influent and effluent shall be sampled for the above parameters once per week, except where noted. Sampling of influent and effluent shall be done to account for detention time through the plant.

² The limit at which compliance/noncompliance determinations will be based is the Minimum Level (ML) which is defined as 0.5 µg/l for cadmium, 10.0 µg/l for cyanide, and 3.0 µg/l for lead. These values may be reduced by permit modification as more sensitive methods are approved by EPA and the State.

³ Bioassay sampling required in Part I.B.VII. may be used to fulfill this requirement.

⁴ Compliance with these limitations shall be determined by taking three (3) grab samples per day with a minimum of three (3) hours between grabs and preserved immediately upon collection. All three samples shall be composited then analyzed. Samples must be collected during a dry weather period (no rain forty-eight (48) hours prior to or during sampling unless approved by RIDEM).

--- 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 location: Outfall 001A. (Final discharge after dechlorination).

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

5. During the period beginning 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:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>					<u>Monitoring Requirements</u>	
	Quantity - lbs/day		Concentration – units specified			Measurement <u>Frequency</u>	Sample <u>Type</u>
	<u>Average</u> <u>Monthly</u>	<u>Maximum</u> <u>Daily</u>	<u>Average</u> <u>Monthly</u>	<u>Average</u> <u>Weekly</u>	<u>Maximum</u> <u>Daily</u>		
<u>Ceriodaphnia sp</u> LC ₅₀ ¹					100% or Greater ²	1/Quarter	24-hr comp
C-NOEC ³					50% ⁴	1/Quarter	24-hr comp

¹ LC₅₀ 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 which is composed of 100% effluent.

³ C-NOEC or Chronic – No Observed Effects Concentration is defined as the highest concentration of toxicant or effluent at which no adverse effects are observed.

⁴ The 50% or greater limit is defined as a sample which is composed of 50% effluent.

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

6.
 - a. The pH of the effluent shall not be less than 6.0 nor greater than 9.0 standard units at any time, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.
 - b. The discharge shall not cause visible discoloration of the receiving waters.
 - c. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.
 - d. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and 5-day carbonaceous biochemical oxygen demand. The percent removal shall be based on monthly average values.
 - e. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the designed flow, the permittee shall submit to the permitting authorities 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.
7. The permittee shall analyze its effluent annually for the EPA Priority Pollutants as listed in 40 CFR 122, Appendix D, Tables II and III. The results of these analyses shall be submitted to the Department of Environmental Management by January 15th of each year for the previous calendar year's sample. If the priority pollutant scan is to be used to satisfy part I.B.7, the scan must be submitted with the 3rd quarter bioassay by October 15th. 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.
8. This permit serves as the State's Water Quality Certificate for the discharges described herein.

B. BIOMONITORING REQUIREMENTS AND INTERPRETATION OF RESULTS

1. General

Beginning on the effective date of the permit, the permittee shall perform four (4) chronic 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 and acute toxicity data shall be reported as outlined in part I.B.8. The chronic daphnid tests shall be used to calculate the acute LC₅₀ at the forty-eight (48) hour exposure interval. 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 investigate the causes and to identify corrective actions necessary to eliminate or reduce toxicity to an acceptable level.

2. Test Frequency

For four (4) sampling events (one each calendar quarter), the permittee will conduct seven-day chronic toxicity tests on the species listed below, for a total of four (4) chronic toxicity tests per year. This requirement entails performing one-species testing as follows:

<u>Species</u>	<u>Test Type</u>	<u>Frequency</u>
	One-Species Test (Four Times Annually)	
Daphnid (<u>Ceriodaphnia sp.</u>)	Reproduction/Survival Acute Static (LC ₅₀)	Quarterly

A sampling event is defined as three 24-hour composites collected over the seven-day test period (see Part I.B.4).

3. Testing Methods

Chronic 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 after dechlorination shall be collected during a dry weather period (no rain forty-eight (48) hours prior to or during sampling unless approved by RIDEM). For each sampling event, the effluent samples shall be collected on days 0, 3 and 5 of the 7-day exposure period. The first sample is used for test initiation, Day 1, and for test solution renewal on Day 2. The second sample would be used for test solution renewal on Days 3 and 4. The third sample would be used for test solution renewal on Days 5, 6 and 7.

To eliminate the problem of potential rainfall interference during the five-day sampling period for the chronic tests, the permittee shall collect enough sample on Day 0 to properly store and use one-third on both Days 3 and 5 if rain has occurred since Day 0. In addition, if no rainfall has occurred since Day 3, enough sample shall also be collected on Day 3 to use for Day 5 if necessary.

In the laboratory, the initial sample (Day 0) will be split into two (2) subsamples, after thorough mixing, for the following:

- A: Chemical Analysis
- B: Chronic Toxicity Testing

Day 3 and 5 samples will be held until test completion. If either the Day 3 or 5 renewal sample is of sufficient potency to cause lethality to 50% or more test organisms in any of the dilutions for either species, then a chemical analysis shall be performed on the appropriate sample(s) as well.

All samples held overnight shall be refrigerated at 4°C.

5. Dilution Water

Dilution water used for freshwater chronic toxicity analyses should be of sufficient quality to meet minimum acceptability of test results (see Part I.B.6). For both species, natural freshwater shall be used as the dilution water. This water shall be collected from Pawtucket

Reservoir. If this natural freshwater diluent is found to be, or suspected to be toxic or unreliable, an alternate or laboratory source of water of known quality with a hardness and pH similar to that of the receiving water may be substituted AFTER RECEIVING APPROVAL FROM RIDEM.

6. Effluent Toxicity Test Conditions for the Daphnid
(Ceriodaphnia sp.) Survival and Reproduction Test

a.	Test Type	Static Renewal
b.	Temperature (C)	25° ± 1° C
c.	Light Quality	Ambient laboratory illumination
d.	Photoperiod	16 hours light, 8 hours dark
e.	Test Chamber Size	30 ml
f.	Test Solution Volume	15 ml
g.	Renewal of Test Solutions	Daily, using most recently collected sample.
h.	Age of Test Organisms	Less than twenty-four (24) hours and all released within an eight (8) hour period of each other.
i.	Number of Neonates Per Test Chamber	1
j.	Number of Replicate Test Chambers Per Treatment	10
k.	Number of Neonates Per Test Concentration	10
l.	Feeding Regime	Feed 0.1 ml each of YTC and algal suspension per exposure chamber daily.
m.	Aeration	None
n.	Dilution Water	Pawtucket Reservoir, see Section 5.
o.	Effluent Concentrations	Five (5) dilutions plus a control: 100%, 50%, 25%, 12.5%, 6.25% and 0% effluent.
p.	Test Duration	Until 60% of control females have three (3) broods (may require seven (7) days).

7. Effluent Toxicity Test Conditions for the Daphnid (Ceriodaphnia sp.) Survival and Reproduction Test (Continued)

- q. End Points Survival and reproduction.
- r. Test Acceptability 80% or greater survival and an average of fifteen (15) or more young per female in the control solutions. At least 60% of surviving females in controls should have produced third brood.
- s. Sampling Requirements For off-site tests, a minimum of three (3) samples are collected (i.e., Days 0, 3 & 5) and used for renewal (see Section 4). Off-site test samples must be first used within forty-eight (48) hours of collection.
- t. Sample Volume Required Minimum 2 liters/day

8. Chemical Analysis

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

<u>Parameter</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Detection Limit (mg/l)</u>
Hardness	X	X	0.5
Alkalinity	X	X	2.0
pH	X	X	---
Specific Conductance	X	X	---
Total Solids and Suspended Solids	X	X	---
Ammonia	X	X	0.1
Total Organic Carbon	X		0.5
Cyanide	X		0.010

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

<u>Total Metals</u>	<u>Effluent</u>	<u>Diluent</u>	<u>Minimum Detection Limit (µg/l)</u>
Cu	X	X	1.0
Pb	X	X	1.0
Zn	X	X	5.0
Cd	X	X	0.1
Ni	X	X	1.0
Al	X	X	20.0

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.

In addition, the following chemical analyses shall be performed as part of each daily renewal procedures on each dilution and the controls.

<u>Parameter</u>	<u>Beginning of 24-Hour Exposure Period</u>	<u>End of 24-Hour Exposure Period</u>
Dissolved Oxygen	X	X
Temperature	X	
pH	X	
Specific Conductance	X	
Alkalinity	X ¹	
Hardness	X ¹	

¹These are performed on the 100% effluent and control samples only.

9. 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.

- Raw data and laboratory sheets.
- Any other observations or test conditions affecting test outcome.
- Results of required chemical and physical analyses.

Toxicity test data shall include the following:

Chronic

- Daily survival of test organisms in the controls and all replicates in each dilution. Survival data should be analyzed by Fisher's Exact Test prior to analysis of reproduction data.
- Young per female for all replicates in each dilution for Ceriodaphnia and weight for minnow larvae.
- Dissolved oxygen, pH, specific conductance and temperature for each dilution.
- Results of Dunnett's Procedure and/or other EPA recommended or approved methods for analyzing the data.
- C-NOEC = Chronic No Observed Effect Concentration
- LOEC = Lowest Observed Effect Concentration
- MATC = Maximum Allowable Toxicant Concentration

Acute - (These data points are to be obtained 48 hours into the chronic test).

- Survival for each concentration and replication at time 24 and 48 hours.
- Dissolved oxygen, pH and specific conductance for each concentration.
- LC₅₀ and 95% confidence limits using one of the following methods in order of preference: Probit, Trimmed Spearman Karber, Moving Average Angle, or the graphical method; printout or copy of these calculations. 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 (% 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), a LC₅₀ may be estimated using the graphical method.

10. Reporting of Bioassay Testing

Bioassay Testing shall be reported as follows:

<u>Quarter Testing to be Performed</u>	<u>Report Due No Later Than</u>	<u>Results Submitted on DMR for</u>
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 testing following the protocol described herein shall commence the _____ quarter of 20____, and the first report shall be submitted to RIDEM no later than _____.

A signed copy of these, and all other reports required herein, shall be submitted to:

Electronic Computer Operator
Rhode Island Department of Environmental Management
RIPDES Program
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 and an approved Local Limits Monitoring Plan, both of which shall 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 local limits monitoring plan and current RIPDES permit discharge limits, sludge disposal criteria, secondary treatment inhibition, and worker health and safety criteria.

4. Enforcement Response Plan (ERP)

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

5. 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.D.7 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 unless streamlining provisions have been adopted to the contrary, 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 which 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 documentation (as required by 403.9(b)(2)) that any local public notification/participation procedures required by local law have been completed, including any responses to public comments and a statement that the local officials will endorse and/or approve the modification upon approval by DEM.

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)(vii), 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 in 40 CFR 403.3 and the permittee's sewer use ordinance.
- o. 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.

6. 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.

7. Annual Report

The annual report for the permittee's program shall contain information pertaining to the reporting year which shall extend from October 1st through September 30th and shall be submitted to the DEM by November 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.D.5.(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.

8. Sewer Use Ordinance

The permittee has an approved Sewer Use Ordinance (SUO) that shall be implemented at all times. If the permittee submits to the DEM a request for a pretreatment program modification in accordance with 40 CFR 403.18 and Part C.5.e of this permit, a draft SUO amendment shall be submitted to DEM if applicable to the associated modification.

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 two years shall be submitted to RIDEM, Office of Water Resources, by the 15th day of January following the two year period. The first report is due January 15, 20.

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.(I)(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 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)	17P	heptachlor epoxide	0.040
1V	acrolein	10.0	Pesticides - EPA Method 608		MDL ug/l (ppb)
2V	acrylonitrile	5.0	18P	PCB-1242	0.289
3V	benzene	1.0	19P	PCB-1254	0.298
5V	bromoform	1.0	20P	PCB-1221	0.723
6V	carbon tetrachloride	1.0	21P	PCB-1232	0.387
7V	chlorobenzene	1.0	22P	PCB-1248	0.283
8V	chlorodibromomethane	1.0	23P	PCB-1260	0.222
9V	chloroethane	1.0	24P	PCB-1016	0.494
10V	2-chloroethylvinyl ether	5.0	25P	toxaphene	1.670
11V	chloroform	1.0	Base/Neutral - EPA Method 625		MDL ug/l (ppb)
12V	dichlorobromomethane	1.0	1B	acenaphthene *	1.0
14V	1,1-dichloroethane	1.0	2B	acenaphthylene *	1.0
15V	1,2-dichloroethane	1.0	3B	anthracene *	1.0
16V	1,1-dichloroethylene	1.0	4B	benzidine	4.0
17V	1,2-dichloropropane	1.0	5B	benzo(a)anthracene *	2.0
18V	1,3-dichloropropylene	1.0	6B	benzo(a)pyrene *	2.0
19V	ethylbenzene	1.0	7B	3,4-benzofluoranthene *	1.0
20V	methyl bromide	1.0	8B	benzo(ghi)perylene *	2.0
21V	methyl chloride	1.0	9B	benzo(k)fluoranthene *	2.0
22V	methylene chloride	1.0	10B	bis(2-chloroethoxy)methane	2.0
23V	1,1,2,2-tetrachloroethane	1.0	11B	bis(2-chloroethyl)ether	1.0
24V	tetrachloroethylene	1.0	12B	bis(2-chloroisopropyl)ether	1.0
25V	toluene	1.0	13B	bis(2-ethylhexyl)phthalate	1.0
26V	1,2-trans-dichloroethylene	1.0	14B	4-bromophenyl phenyl ether	1.0
27V	1,1,1-trichloroethane	1.0	15B	butylbenzyl phthalate	1.0
28V	1,1,2-trichloroethane	1.0	16B	2-chloronaphthalene	1.0
29V	trichloroethylene	1.0	17B	4-chlorophenyl phenyl ether	1.0
31V	vinyl chloride	1.0	18B	chrysene *	1.0
Acid Compounds - EPA Method 625		MDL ug/l (ppb)	19B	dibenzo (a,h)anthracene *	2.0
1A	2-chlorophenol	1.0	20B	1,2-dichlorobenzene	1.0
2A	2,4-dichlorophenol	1.0	21B	1,3-dichlorobenzene	1.0
3A	2,4-dimethylphenol	1.0	22B	1,4-dichlorobenzene	1.0
4A	4,6-dinitro-o-cresol	1.0	23B	3,3'-dichlorobenzidine	2.0
5A	2,4-dinitrophenol	2.0	24B	diethyl phthalate	1.0
6A	2-nitrophenol	1.0	25B	dimethyl phthalate	1.0
7A	4-nitrophenol	1.0	26B	di-n-butyl phthalate	1.0
8A	p-chloro-m-cresol	2.0	27B	2,4-dinitrotoluene	2.0
9A	pentachlorophenol	1.0	28B	2,6-dinitrotoluene	2.0
10A	phenol	1.0	29B	di-n-octyl phthalate	1.0
11A	2,4,6-trichlorophenol	1.0	30B	1,2-diphenylhydrazine (as azobenzene)	1.0
Pesticides - EPA Method 608		MDL ug/l (ppb)	31B	fluoranthene *	1.0
1P	aldrin	0.059	32B	fluorene *	1.0
2P	alpha-BHC	0.058	33B	hexachlorobenzene	1.0
3P	beta-BHC	0.043	34B	hexachlorobutadiene 1.0	
4P	gamma-BHC	0.048	35B	hexachlorocyclopentadiene	2.0
5P	delta-BHC	0.034	36B	hexachloroethane	1.0
6P	chlordane	0.211	37B	indeno(1,2,3-cd)pyrene *	2.0
7P	4,4 ¹ -DDT	0.251	38B	isophorone	1.0
8P	4,4 ¹ -DDE	0.049	39B	naphthalene *	1.0
9P	4,4 ¹ -DDD	0.139	40B	nitrobenzene	1.0
10P	dieldrin	0.082	41B	N-nitrosodimethylamine	1.0
11P	alpha-endosulfan	0.031	42B	N-nitrosodi-n-propylamine	1.0
12P	beta-endosulfan	0.036	43B	N-nitrosodiphenylamine	1.0
13P	endosulfan sulfate	0.109	44B	phenanthrene *	1.0
14P	endrin	0.050	45B	pyrene *	1.0
15P	endrin aldehyde	0.062	46B	1,2,4-trichlorobenzene	
16P	heptachlor	0.029			

OTHER TOXIC POLLUTANTS

	MDL (ug/l)
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

** 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. A copy of the analytical laboratory report, specifying analytical methods used, shall be included with each report submission. The first report is due on [REDACTED]. Signed copies of these, and all other reports required herein, shall be submitted to:

Electronic Computer Operator
Rhode Island Department of Environmental Management
RIPDES Program
235 Promenade Street
Providence, Rhode Island 02908-5767

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. **RI0100251**

NAME AND ADDRESS OF APPLICANT:

The Town of Smithfield

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Smithfield Wastewater Treatment Plant
Esmond Mill Drive
Smithfield, RI 02917

RECEIVING WATER: Woonasquatucket River

CLASSIFICATION: B1

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

The above-named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for the reissuance of its RIPDES Permit to discharge into the designated receiving water. The facility is engaged in the treatment of domestic and industrial wastewater. The discharge is from outfall 001A to the Woonasquatucket River. A map showing the location of the facility can be found in Attachment A-1.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based upon DMR data from May 2007 through November 2012 is shown in Attachment A-2.

III. Permit Limitations and Conditions

The proposed effluent limitations and monitoring requirements may be found in the draft permit. Until this draft permit is finalized the Town of Smithfield will continue to operate under its existing Consent Agreement which includes a compliance schedule that provides time for the Town to implement changes necessary to comply with the Total Phosphorus and Total Zinc limitations. Once this permit becomes final the current Consent Agreement will require modification to reflect the resolution of this new permit. It is anticipated that all other components of the existing Consent Agreement will be carried forward into the revised agreement.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The Town of Smithfield owns the Regional Wastewater Treatment Facility located on Esmond Mill

Drive in Smithfield, Rhode Island. The discharge to the Woonasquatucket River consists of treated domestic and industrial wastewater contributed by the municipality of Smithfield. Treatment consists of: Screening/Grinding, Primary Settling, Activated Sludge employing the A2O process, Secondary Clarification, Disc Filtration, Chlorination and Dechlorination. Treated wastewater is discharged from Outfall 001A to the Woonasquatucket River.

Outfall 001A discharges to the Woonasquatucket River in the segment defined as water body ID number RI0002007R-10C. This segment is described as the Woonasquatucket River and tributaries from the Smithfield WWTF discharge point at Esmond Mill Drive to the CSO outfall at Glenbridge Avenue in Providence. This segment is located in Smithfield, North Providence, Providence, and Johnston. This segment is classified as a Class B1 water body, and is designated as a warm water fishery according to the RI Water Quality Regulations. Class B1 waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses. These waters shall have good aesthetic value. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges, however all Class B criteria must be met. Currently, this segment is impaired. Specifically it is not yet supporting Fish and Wildlife habitat due to the fact that it is impaired for Benthic-Macro invertebrate Bioassessments, Dioxin (including 2,3,7,8-TCDD), Mercury, and Non-Native Aquatic Plants, Dissolved Oxygen, and Polychlorinated biphenyls. It is also not supporting Fish Consumption due to impairments from Dioxin (including 2,3,7,8-TCDD), Mercury in Fish Tissue, and PCB in Fish Tissue. This segment is also not supporting Primary and Secondary Contact Recreation due to Fecal Coliform impairments.

The Town has an Industrial Pretreatment Program that was approved by the Department of Environmental Management (DEM) on September 10, 1996. Based on the Town's most recent Pretreatment Annual Report, dated 12/14/12, the Town receives industrial wastewater from six (6) Significant Industrial Users. The permit includes specific pretreatment requirements that are consistent with the requirements from 40 CFR 403.

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

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 Judgement (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. The facility's 2007 RIPDES Permit also contained water quality based limits. Changes to these limits and the reasons for them, are detailed below.

Water quality based effluent limitations as they appear in the draft permit were established on the basis of acute and chronic aquatic life and applicable human health criteria, from the Rhode Island Water Quality Regulations, as amended. Where upstream data is available, 90% of the criteria was allocated; and 80% of the criteria were allocated where instream data is unavailable. Permit limits for Cadmium, Copper, Lead, and Zinc were developed to be consistent with the requirements from the Woonasquatucket River TMDL that was finalized by the Office of Water Resources in 2007.

In accordance with 40 CFR Part 122.4(d)(1)(iii), it is only necessary to establish limitations for those

pollutants in the discharge which have the reasonable potential to cause or contribute to the exceedance of the instream criteria. In order to evaluate the need for permit limitations, the monthly average (chronic) permit limits were compared to the average of monthly average Discharge Monitoring Report (DMR) data and the mean of the concentrations reported from the State User Fee Program. In addition, the daily maximum (acute) permit limits were compared to the average of daily DMR data and the maximum concentrations reported from the State User Fee Program. This procedure established that water quality-based permit limitations will be continued for Total Residual Chlorine, Cadmium, Lead, Cyanide, and Zinc. In addition, although the historic ammonia levels were well below the allowable discharge limits, this is only because the facility is nitrifying year-round. If the facility were not nitrifying, these ammonia concentrations would exceed the allowable discharge limits. Therefore, the facility has reasonable potential and Ammonia limits have been assigned. Effluent limitations for these parameters are consistent with those established in the 2007 permit. A detailed explanation of how limitations were set for Cadmium, Lead, and Zinc to be consistent with the TMDL can be found in the 2007 Smithfield WWTF Permit Development Document.

The wastewater treatment plant upgrade designed to meet the effluent limits established in the previous permit for Total Phosphorus (0.2 mg/L) and Total Zinc (50.1 ug/L) uses a Ballasted Microsand Flocculation Tertiary Treatment System. The tertiary treatment process will consist of rapid mix with ferric chloride coagulant addition and lime for pH adjustment (pH goal 7.5). Following rapid mix, each treatment train process consists of coagulation, maturation (polymer and micro-sand ballast added), followed by settling with lamella tubes. It was noted in the Order of Approval Application Design Assumptions and Computations dated January 14, 2011 that typical chemical addition will consist of using hydrated lime for pH adjustment, ferric chloride as a coagulant and diluted dry polymer. After reviewing this chemical addition data it was determined that monitoring for iron is required to collect data on the iron concentrations in the plant's effluent to allow the DEM to perform a reasonable potential analysis once data has been collected. As a result, monitoring for Total Iron has been included in the permit.

The permit issued in 2000 contained phosphorus limits of 1.0 mg/L (November-March), 0.5 mg/L (April, May & October) and 0.2 mg/L (June-September). After discussions with EPA, consideration of instream data and available dilution, the DEM determined that phosphorus limits are necessary to reduce cultural eutrophication and meet water quality standards (refer to the 2000 Development Document). During the development of the 2007 permit, these previously established limits were retained, however, the warm weather phosphorus limit of 0.2 mg/L was applied April – October, the period during which eutrophic conditions are most likely to occur and during which Phosphorus loadings are most detrimental to water quality goals. EPA and DEM EPA and DEM have established April-October as the critical algae growing season. This warm weather season of April-October is consistent with similar POTW permits in Rhode Island and throughout New England. The phosphorus limits in this permit are consistent with the limits from the 2007 permit.

A higher phosphorus effluent discharge limitation in the winter period is appropriate because the predominant form of phosphorus (the dissolved fraction), lacking plant growth to absorb it, will likely remain dissolved and flow out of the system. Imposing a limit on phosphorus during the cold weather months ensures that there will not be a discharge of particulate phosphorus that will accumulate in the sediments, and subsequently release during the warm weather growing season. To ensure that DEM's understanding of the anticipated behavior of dissolved and particulate phosphorus is correct, a monitoring requirement for orthophosphorus has been carried forward in this permit for the cold weather months in order to determine the dissolved particulate fraction.

The Rhode Island Water Quality Regulations include Enterococci criteria for primary contact/swimming of a geometric mean of 54 colonies/100ml and a single sample maximum of 61 colonies/100ml. The "single sample maximum" value is only used to evaluate swimming advisories at designated public beaches and does not apply to the receiving water in the area of

the outfall. EPA's November 12, 2008 memorandum regarding "Initial Zones of Dilution for Bacteria in Rivers and Streams Designated for Primary Contact Recreation" clarifies 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 DEM has assigned a monthly average Enterococci limit of 54 colonies/100ml. The daily maximum enterococci limit has been set at the 90% upper confidence level value for "lightly used full body contact recreation" of 175 colonies/100ml. The DEM has also assigned Fecal Coliform monitoring to ensure that the WWTF is providing treatment that is comparable to historic treatment levels.

Based on an evaluation of the sources of excessive Nitrogen levels discharged to the Providence River and the upper Narragansett Bay, the DEM has determined that it is appropriate to establish a seasonal Total Nitrogen limit for the Smithfield Wastewater Treatment Facility. Therefore, a monthly average total Nitrogen limit of 10.0 mg/L was implemented for the months of May through October. In addition, the permit requires that the permittee operate the treatment facility, during the months of November through April, to reduce the discharge of Total Nitrogen to the maximum extent possible using all available treatment equipment in place at the facility.

In addition, the DEM evaluated the Smithfield WWTF's past Total Ammonia DMR data to determine if it would be possible to normalize the Total Ammonia permit limitations into two seasons consisting of a winter (November – April) and summer (May – October) season. Such an approach would make the seasons listed in the Smithfield WWTF permit consistent with the seasons addressed in the states' other POTWs. Since Total Ammonia permit limitations are a function of water quality criteria, the DEM assumed an instream pH of 7.9, a winter temperature of 7 C, and a summer temperature of 24C to determine the applicable Ammonia criteria and applicable permit limitations which would apply to each of these two seasons. After comparing the applicable permit limitations to the DMR data for the normalized seasons discussed previously it was determined that the facility would be able to comply with these permit limitations if they were applied in the draft permit. However, due to antibacksliding/antidegradation requirements the DEM must retain the more stringent permit limitations which existed in the previous permit for the months of April and November. As a result three sets of seasonal limits have been maintained in the draft permit. These seasonal limits are provided in the draft permit. The only change from the limits in the previous permit issued in 2007 is that the May permit limitations have been reduced. Based on a review of historical DMR data it is anticipated that the facility will not have any issues complying with these new limitations during the month of May.

A comparison of the DMR and User Fee data sets with the final permit limitations indicated that the treatment facility is currently unable to attain the final permit limitations for Total Zinc and Total Phosphorus. As stated previously until this draft permit is finalized the Town of Smithfield will continue to operate under its existing Consent Agreement which includes a compliance schedule that provides time for the Town to implement changes necessary to comply with the Total Phosphorus and Total Zinc limitations. Once this permit becomes final the current Consent Agreement will require modification to reflect the issuance of this new permit. It is anticipated that all other components of the existing Consent Agreement will be carried forward into the revised agreement.

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

The required priority pollutant scans are specified in Part I.A.7 of this permit. The biomonitoring requirements are set forth in 40 CFR 131.11 and in the State's Water Quality Regulations. RIDEM's toxicity permitting policy is based on past toxicity data and the level of available dilution. The dilution requirements in the permit consist of chronic toxicity tests, where the chronic data can be used to calculate the acute LC₅₀, and an acute LC₅₀ toxicity limit of ≥ 100% effluent. Calculation of the

chronic C-NOEC with a chronic toxicity limit of $\geq 50\%$ effluent is also required. If recurrent toxicity is demonstrated, then toxicity identification and reduction will be required.

The permit also requires quarterly monitoring for Cyanide, Copper, Lead, Zinc, Cadmium, Nickel, and Aluminum as part of the bioassay process. Water quality-based limits were already deemed necessary for Cyanide, Cadmium, Lead, and Zinc. However, although water quality-based limits are not necessary for Copper, Nickel, and Aluminum, the permit includes quarterly reporting of the concentrations of these pollutants based on the monitoring associated with the bioassay testing.

The permit contains requirements for the permittee to comply with the State's Sludge Regulations and the RIDEM Order of Approval for sludge disposal in accordance with the requirements of Section 405(d) of the Clean Water Act (CWA). Permits must contain sludge conditions requiring compliance with limits, state laws, and applicable regulations as per Section 405(d) of the CWA and 40 CFR 503. The RIDEM Sludge Order of Approval sets forth the conditions to ensure this compliance.

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.

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

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

A permit development document dated March 2013 which outlines the permit development in greater detail is available upon request.

V. 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.


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

VI. DEM Contact

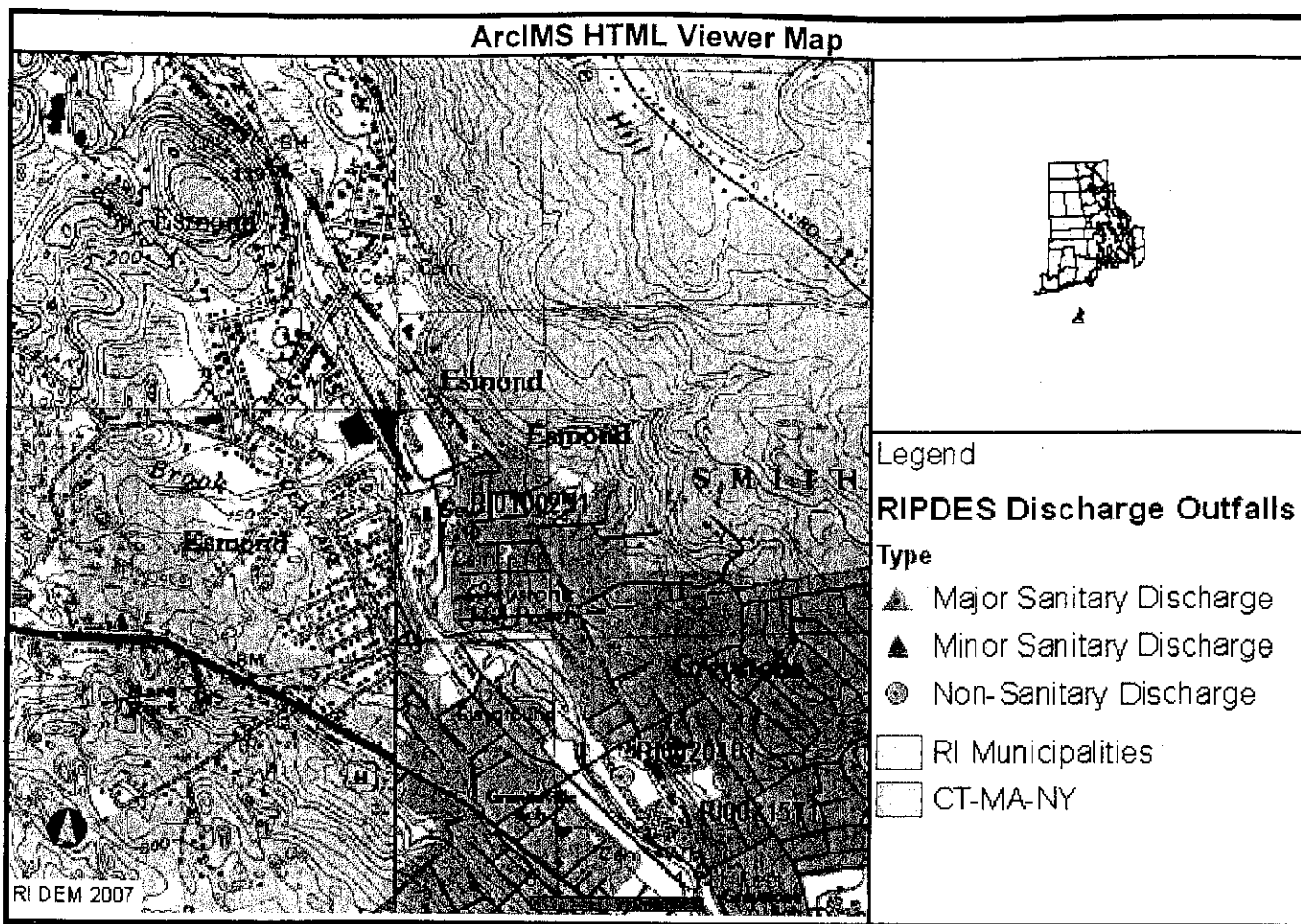
Additional information concerning the permit may be obtained between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday, excluding holidays from:

Brian Lafaille, PE
Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, Rhode Island, 02908-5767
Telephone: (401) 222-4700 ext. 7731

6/13/13
Date


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

ATTACHMENT A-1



**ATTACHMENT A-2 HISTORICAL DISCHARGE DATA – BASED ON DISCHARGE MONITORING REPORT DATA
FROM MAY 1, 2007 – November 30, 2012**

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

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

PARAMETER	AVERAGE¹	MAXIMUM²
FLOW	1.96 MGD	3.5 MGD
CBOD ₅	2.27 mg/l	4.34 mg/l
CBOD ₅ (LOAD)	39.33 lb/day	75.51 lb/day
CBOD ₅ % Removal	98.81%	
TSS	3.36 mg/l	6.31 mg/l
TSS (LOAD)	56.75 lb/day	111.87 lb/day
TSS % Removal	98.60 %	
Fecal Coliform	5.70 MPN/100 ml	1,075,087 MPN/100 ml
pH	7.00 S.U. (Min)	7.54 S.U. (Max)
Settleable Solids	0.10 mL/L (Weekly Average)	0.10 mL/L
Oil and Grease		1.25 mg/l
Chlorine Total Residual	12.03 µg/l	36.49 µg/l
Ammonia (as N) (Dec-Mar)	1.18 mg/l	2.17 mg/l
Ammonia (as N) (May-Oct)	0.35 mg/l	1.34 mg/l
Ammonia (as N) (April)	0.66 mg/l	2.12 mg/l
Ammonia (as N) (November)	0.27 mg/l	0.47 mg/l
Nitrogen, Nitrite (Total as N)	0.27 mg/l	0.44 mg/l
Nitrogen, Nitrate (Total as N)	5.84 mg/l	7.18 mg/l
Nitrogen, Kjeldahl, (Total as N)	2.47 mg/l	3.44 mg/l
Nitrogen, Total	8.23 mg/l	8.35 mg/l
Phosphorus (Total as P)	0.23 mg/l	0.45 mg/l
Phosphorus (Total as Orthophosphate)	0.18 mg/l	0.34 mg/l
Cadmium, Total (as Cd)	0.13 µg/l	0.14 µg/l
Copper, Total (as Cu)	5.26 µg/l	7.36 µg/l
Cyanide, Total (as CN)	8.00 µg/l	9.67 µg/l
Lead, Total (as Pb)	0.72 µg/l	0.94 µg/l
Silver, Total (as Ag)	0.15 ug/l	0.20 ug/l
Zinc	43.55 ug/l	53.58 ug/l

¹Data represents statistical mean of the monthly average data from May 1, 2007 – Nov. 30, 2012, unless otherwise noted.

²Data represents statistical mean of the daily maximum data from May 1, 2007 – Nov. 30, 2012, unless otherwise noted.

**ATTACHMENT A-2 HISTORICAL DISCHARGE DATA – BASED ON DISCHARGE MONITORING REPORT DATA
FROM MAY 1, 2007 – DECEMBER 31, 2012**

Whole Effluent Toxicity Data Values (in percent effluent)

	2007 3rd qtr.	2007 4th qtr.	2008 1st qtr.	2008 2nd qtr.	2008 3rd qtr.	2008 4th qtr.	2009 1st qtr.	2009 2nd qtr.
<u>Ceriodaphnia dubia</u> Acute LC ₅₀	100%	100%	100%	100%	100%	100%	100%	100%
Chronic C-NOEC	100%	50%	100%	100%	100%	100%	100%	100%
	2009 3rd qtr.	2009 4th qtr.	2010 1st qtr.	2010 2nd qtr.	2010 3rd qtr.	2010 4th qtr.	2011 1st qtr.	2011 2nd qtr.
<u>Ceriodaphnia dubia</u> Acute LC ₅₀	100%	100%	100%	100%	100%	100%	100%	100%
Chronic C-NOEC	100%	100%	13%	100%	100%	100%	100%	100%
	2011 3rd qtr.	2011 4th qtr.	2012 1st qtr.	2012 2nd qtr.	2012 3rd qtr.	2012 4th qtr.	---	---
<u>Ceriodaphnia dubia</u> Acute LC ₅₀	100%	100%	100%	100%	100%	100%		
Chronic C-NOEC	100%	50%	100%	100%	100%	100%	---	---