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 Bristol
Bristol Town Hall
10 Court Street
Bristol, Rhode Island 02809

is authorized to discharge from a facility located at the

Bristol Wastewater Treatment Facility
Plant Avenue
Bristol, Rhode Island 02809

to receiving waters named

Bristol Harbor

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

This permit shall become effective on April 1, 2023.

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 9, 2016.

This permit consists of 26 pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this 5th day of January, 2023

Joseph B. Haberek, P.E., Administrator for 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 001A. Outfall 001A is the final discharge after dechlorination.

   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	3.79 MGD	--- MGD				Continuous	Recorder
BOD_5[1]	948 lbs/Day	1,580 lbs/Day	30 mg/l	45 mg/l	50 mg/l	3/Week	24-Hr. Comp.
BOD_5 - % Removal			85%			1/Month	Calculated
TSS[1]	948 lbs/Day	1,580 lbs/Day	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	1/Day	Grab

[1] Influent and effluent sampling is required for TSS and BOD_5.

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

Sampling for TSS and BOD_5 influent and effluent shall be performed Sunday, Tuesday, and Thursday 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 (final discharge after de-chlorination).

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 001A. Outfall 001A is the final discharge after dechlorination.

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
Fecal Coliform			--- MPN[1] 100 ml		--- MPN[1] 100 ml	3/Week	Grab
Enterococci			35 cfu[1] 100 ml		276 cfu[1] 100 ml	3/Week	Grab
Total Residual Chlorine (TRC)			364 ug/l[2]		364 ug/l[2]	Continuous	Recorder[2]
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 "average monthly" values. The facility shall immediately report to RIDEM, verbally, any fecal coliform sample result that exceeds 400 MPN/100 ml.

[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) eight (8) hour shift with a minimum of three hours between grabs. 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. 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; (2) DPD Titrimetric, EPA No. 330.4 or Standard Methods No. 4500-Cl F; (3) Amperometric Titration, EPA No. 330.1 or Standard Methods No. 4500-Cl D or ASTM No. D1253-86(92);

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

*Values in parentheses () are to be reported as Minimum/Average/Maximum for the reporting period rather than Average Monthly/Average Weekly/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 (final discharge after de-chlorination)

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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 001A. Outfall 001A is the final discharge after dechlorination.

Such discharges shall be monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs. per 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 (as N) [Nov. 1 – April 30]			--- mg/l		--- mg/l	1/Month	24-Hr. Comp.
TKN (as N) [May 1 – Oct. 31]			--- mg/l		--- mg/l	2/Month	24-Hr. Comp.
Nitrate, Total (as N) [Nov. 1 – April 30]			--- mg/l		--- mg/l	1/Month	24-Hr. Comp.
Nitrate, Total (as N) [May 1 – Oct. 31]			--- mg/l		--- mg/l	2/Month	24-Hr. Comp.
Nitrite, Total (as N) [Nov. 1 – April 30]			--- mg/l		--- mg/l	1/Month	24-Hr. Comp.
Nitrite, Total (as N) [May 1 – Oct. 31]			--- mg/l		--- mg/l	2/Month	24-Hr. Comp.
Nitrogen, Total [Nov. 1 – April 30]	--- lb/day		--- mg/l		--- mg/l	1/Month	Calculated
Nitrogen, Total [May 1 – Oct. 31]	--- lb/day		--- mg/l		--- mg/l	2/Month	Calculated

[1]Three (3) grab samples shall be equally spaced over the course of one (1) eight (8) hour shift with a minimum of three (3) hours between grabs. Each grab sample must be analyzed individually and the maximum values reported.

--- 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 (final discharge after dechlorination).

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 001A Outfall 001A is the final discharge after dechlorination.

Such discharges shall be monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs. per day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Total Copper[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Total Cadmium[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Hexavalent Chromium[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Total Lead[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Total Zinc[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Total Nickel[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Total Aluminum[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite
Cyanide[1]			--- ug/L		--- ug/L	1/Quarter	Composite[2]
Total Ammonia[1]			--- ug/L		--- ug/L	1/Quarter	24-Hr. Composite

[1] Monitoring data may be obtained in conjunction with the bioassay testing required in Part I.B of the permit.

[2] Composite shall be obtained 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 (final discharge after dechlorination).

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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 001A. Outfall 001A is the final discharge after dechlorination.

Such discharges shall be monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs. per day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Mysidopsis Bahia – LC_{50}[1]				≥100%[2]	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 which is composed of 100% effluent.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: Outfall 001A (final discharge after de-chlorination) in accordance with Part I.B. of the permit.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

6. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number 001A. Outfall 001A is the final discharge after dechlorination.

Such discharges shall be monitored by the permittee as specified below:

Characteristic	Discharge Limitations				Monitoring Requirement		
	Quantity - lbs. per day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Perfluorohexanesulfonic acid (PFHxS)[1]					--- ng/L	1/Quarter	24-Hr. Comp.[2]
Perfluoroheptanoic acid (PFHpA)[1]					--- ng/L	1/Quarter	24-Hr. Comp.[2]
Perfluorononanoic acid (PFNA)[1]					--- ng/L	1/Quarter	24-Hr. Comp.[2]
Perfluorooctanesulfonic acid (PFOS)[1]					--- ng/L	1/Quarter	24-Hr. Comp.[2]
Perfluorooctanoic acid (PFOA)[1]					--- ng/L	1/Quarter	24-Hr. Comp.[2]
Perfluorodecanoic acid (PFDA)[1]					--- ng/L	1/Quarter	24-Hr. Comp.[2]

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

[1]Influent and effluent sampling requirements for the listed PFAS parameters takes effect the first calendar quarter of 2024. PFAS shall be analyzed using Clean Water Act wastewater draft analytical method 1633 until a 40 CFR Part 136 approved test method for wastewater is approved.

[2]A "composite" sample is a composite of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow.

Influent and Effluent samples shall be taken of each of the above parameters: Influent samples taken in compliance with the monitoring requirements specified above shall be taken at the facility headworks at the same sampling location where influent BOD and influent TSS are sampled. The sampling location for effluent is after the chlorination contact tank within five feet of the beginning of the outfall pipe.

7. Prior to acceptance, the permittee shall notify DEM of the following:

   a. Any new introduction of pollutants into the Permittee's treatment facility from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into the Permittee's treatment facility by a source that was discharging pollutants into the facility at the time of permit issuance.

   c. Notice shall include information on
   (i) the quality and quantity of effluent introduced into the Permittee's treatment facility, and
   (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the Permittee's treatment facility.

8. 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 90 consecutive days exceeds 80 percent of the designed flow, the permittee shall submit to the permitting authority's projections 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, Tables II and III. The results of these analyses shall be submitted to the Department of Environmental Management by October 15th of each year for the previous calendar 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.

B. BIOMONITORING REQUIREMENTS AND INTERPRETATION OF RESULTS

1. General

Beginning on the effective date of the permit, the permittee shall perform four (4) acute toxicity tests per year on dechlorinated effluent 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. Acute data shall be reported as outlined in Section 9. The State may require additional screening, range finding, definitive acute or chronic bioassays testing 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

On four (4) sampling events, (one (1) each calendar quarter) the permittee will conduct forty-eight-hour (48) acute definitive toxicity tests on the specie listed below, for a total of four (4) acute toxicity tests per year.

Species	Test Type (Four Times Annually)	Frequency
Mysids (Mysidopsis Bahia)	Definitive 48-Hour Acute Static (LC_{50})	Quarterly

3. Testing Methods

Acute definitive toxicity tests shall be conducted in accordance with protocols listed in 40 CFR Part 136.

4. Sample Collection

For each sampling event a twenty-four- (24) hour flow-proportioned composite effluent sample shall be collected at a location after dechlorination 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°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°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 Section 7). 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 the 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)

Test conditions are required to be compliant with 40 CFR 136 using the following effluent concentrations:

Six (6) dilutions plus a control: 100%, 50%, 25%, 12.5%, 6.25%, 3.5%, and 0% effluent.

8. Chemical Analysis

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

Parameter	Effluent	Saline Diluent	Detection Limit (mg/l)
pH	X	X	---
Specific Conductance	X	X	---
Total Solids and Suspended Solids	X	X	---
Total Ammonia	X		0.1
Total Organic Carbon	X		0.5
Available 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 event, the following chemical analyses shall be performed:

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

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.

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.
- 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:

- 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.

10. 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 granting authorization to collect samples. Requests to use another source of dilution water will have to be approved by the Department of Environmental Management, Division of Water Resources.

11. Species Sensitivity Screening Report. For four (4) quarters of the permit beginning April 1, 2026, the permittee shall conduct a chronic species sensitivity screening for the discharge. Species sensitivity screening for chronic toxicity shall include, at a minimum, chronic toxicity testing for four consecutive calendar quarters using 40 CFR Part 136 approved methods for mysid (Mysidopsis Bahia), sea urchin (*Arbacia punctulata*), and fish (*Menidia beryllina*). Samples shall be obtained from the dechlorinated effluent collected from Outfall 001A during dry weather periods (no rain within forty-eight (48) hours prior to or during sampling unless approved by RIDEM).

If only a single species in the species sensitivity screening testing exceeds 1 TUc (as 100/NOEC), then that species shall be established as the most sensitive species. If there are more than one species that exceed 1 TUc (as 100/NOEC), then the species with the highest TUc (as 100/NOEC) shall be established as the most sensitive species. DEM shall have final discretion to determine which species is the most sensitive considering the test results from the species sensitivity screening.

Species Sensitivity Screening Reports shall be conducted during the following quarters:

Test #	Quarter Screening is to be Performed
1	April 1, 2026-June 30, 2026
2	July 1, 2026-September 30, 2026
3	October 1, 2026-December 31, 2026
4	January 1, 2027-March 30, 2027

The final Species Sensitivity Screening Report shall include all of the elements required under Part I.B.9 for each quarterly test and shall be submitted to DEM by June 30, 2027.

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

Reports shall be maintained by the permittee and shall be made available upon request by RIDEM.

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 Monitoring Plan

The permittee has an approved Local Limits Monitoring Plan (LLMP) dated July 21, 2022, that achieves the following minimum requirements:

a. Identify all sampling locations, including but not limited to: POTW influent, POTW

effluent, POTW sludge, septage and hauled wastes, and domestic wastewater (i.e., key manhole sampling). Domestic sampling location(s) must be strictly domestic and separate from any potential commercial or industrial sources or contributions.

b. Pollutants of concern (POCs) that will be sampled for at each sampling location. At minimum, the following pollutants should be sampled for: arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver, zinc, molybdenum, selenium, BOD, TSS, and ammonia. In addition, the IPP must identify as POCs any pollutants for which there are RIPDES permit effluent limitations or any other POCs that the IPP has identified. If any of the listed POCs would not be sampled for at a particular location, this must be justified by the LLMP.

c. Sampling type for each pollutant (grab, composite, time-proportioned, flow-proportioned). All sampling and reporting requirements shall be in accordance with 40 CFR 136.

d. Identification of analytical methods being used, which would include minimum detection levels (MDL) and minimum quantitative levels (MQL) for the analysis of each pollutant.

e. The sampling frequency at each sampling location. For pollutants that have an associated local limit, sampling must take place quarterly at a minimum. For POCs without a local limit, sampling must take place annually at a minimum. Other organic priority pollutants must be sampled at the influent at a minimum of annually. TCLP results must be taken for POTW sludge a minimum of annually.

f. The sampling plan must account for POTW detention time. For example, if the detention time through the facility is 24 hours, then effluent samples should be collected 24 hours after influent samples.

g. Identification of data to be recorded for each sample (date, time, initials of sampler, preservation, location, sample type, wastewater flow, etc.).

The permittee shall continue to implement its approved LLMP at all times. Changes to the LLMP shall be in accordance with Part I.C.6.f of this permit.

4. 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 affect disposal options, or adversely affect worker safety and health.

a. Within one hundred twenty (120) days of the effective date of this permit and in accordance with 40 CFR 122.44(j)(2)(ii), the permittee shall submit to the DEM a technically based local limitations evaluation. The evaluation must address whether the permittee will need to revise its current local limits in order to meet the discharge requirements contained in this permit, meet the permittee's current sludge disposal option criteria, protect against WWTF interference, and ensure protection of WWTF worker health and safety. If revision is required, the evaluation shall contain proposed numerical limitations developed by the permittee in accordance with the procedures set forth in the EPA's July, 2004 Local Limits Development Guidance Manual. All supporting data and calculations

must be submitted with the evaluation. In preparing this evaluation, the Permittee shall complete and submit the attached form (see Attachment B – Reassessment of Technically Based Industrial Discharge Limits) with the technical evaluation to assist in determining whether existing local limits need to be revised. Upon review, the DEM will provide written notification either granting preliminary approval of the local limits evaluation or stating the deficiencies revealed therein. Should the DEM determine that a deficiency exists in the local limits evaluation submittal, the permittee shall submit to the DEM, within thirty (30) days of the receipt of said notice (unless a longer timeframe is specified therein), a revised evaluation consistent with the DEM's notice of deficiency.

b. Should the evaluation determine the need to revise local limits, within sixty (60) days (unless a longer timeframe is granted) of the receipt of preliminary approval of the proposed limits, the permittee shall submit to the DEM a request for a pretreatment program modification in accordance with 40 CFR 403.18 and Part I.C.6.f of this permit. Upon final approval by the DEM and adoption by the permittee, these limits shall be deemed Pretreatment Standards for the purposes of Section 307(d) of the Clean Water Act. No longer than thirty (30) days (unless a longer timeframe is granted) following the DEM's final approval of the proposed local limits, the permittee shall commence implementation of the revised local limits and reissue or modify all applicable industrial user permits to contain the modified local limits.

5. Enforcement Response Plan (ERP)

The permittee has an approved ERP dated August 13, 2008, that meets the requirements of 40 CFR 403.8(f)(5). The permittee shall continue to implement its approved ERP at all times. Changes to the ERP shall be in accordance with Part I.C.6.f of this permit.

6. 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.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, January 2017 (EPA-831-B-17-001). 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 complete the "Industrial User Inspection Checklist" found in EPA-831-B-17-001 (or an equivalent inspection checklist) for each SIU inspection conducted and maintain a copy of the checklist in the SIU's permanent file. The permittee shall evaluate, at least every two years unless specific superseding 40 CFR 403 streamlining provisions have been adopted, whether each SIU requires a Slug Control Plan. If a Slug Control Plan is required, it shall include the contents specified by 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 prohibit Industrial Users from introducing into the POTW:

i. any pollutant which causes pass through or interference as defined in 40 CFR 403.3.

ii. pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;

iii. Pollutants which will cause corrosive structural damage to the POTW, but in no case Discharges with pH lower than 5.0, unless the works is specifically designed to accommodate such Discharges;

iv. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference;

v. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a Discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW.

vi. Heat in amounts which will inhibit biological activity in the POTW resulting in Interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40 °C (104 °F) unless the DEM, upon request of the permittee, approves alternate temperature limits.

vii. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

viii. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems;

ix. Any trucked or hauled pollutants, except at discharge points designated by the POTW.

f. 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 (unless a longer timeframe is granted), 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 timeframe 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 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 (unless a longer timeframe is granted) of DEM's final approval of the proposed modification(s), the permittee shall implement the modification and submit proof that the local officials have endorse and/or approved the modification(s) to the DEM. 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).

g. 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.

h. 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).

i. 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 summarized in 40 CFR 403.5.

j. 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 the

permittee shall also notify DEM of each such substantial change in discharge prior to acceptance.

k. 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).

l. 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.

m. 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).

n. 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.

o. 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.

p. 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.

7. 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.

8. Annual Report

The annual report for the permittee's Industrial Pretreatment Program shall contain information pertaining to the reporting year which shall extend from January 1 through December 31 and shall be submitted to the DEM by March 15 each year. The annual report shall be submitted in hard copy in accordance with Part I.G.4 of this permit. The requirements for the annual report are included in Attachment C of this permit.

9. Interjurisdictional Agreement

The DEM has no interjurisdictional agreements on file regarding the contribution of industrial wastewater to the Bristol WPCF. Any such interjurisdictional agreements which may become necessary must be submitted to the DEM in draft form for approval prior to signature and execution.

10. Sewer Use Ordinance

The permittee has an approved Sewer Use Ordinance which shall continue to be implemented at all times.

11. Monitoring and Reporting for Emerging Contaminants

Starting January 1, 2024, the Permittee shall commence annual sampling of the below-listed types of industrial discharges into the POTW. PFAS shall be analyzed using Clean Water Act wastewater draft analytical method 1633 until a 40 CFR Part 136 approved test method for wastewater is made available to the public.

- Platers/Metal Finishers
- Paper and Packaging Manufacturers
- Tanneries and Leather/Fabric/Carpet Treaters
- Manufacturers of Parts with Polytetrafluorethylene (PTFE) or Teflon type coatings (i.e. bearings)
- Landfill Leachate
- Centralized Waste Treaters
- Contaminated Sites
- Fire Fighting Training Facilities
- Airports
- Any Other Known or Expected Sources of PFAS

Sampling shall be for the following PFAS chemicals:

Industrial User Effluent Characteristic	Maximum Daily	Monitoring Requirements	
		Frequency	Sample Type
Perfluorohexanesulfonic acid (PFHxS)	Report ng/L	1/Year	Composite
Perfluoroheptanoic acid (PFHpA)	Report ng/L	1/Year	Composite
Perfluorononanoic acid (PFNA)	Report ng/L	1/Year	Composite
Perfluorooctanesulfonic acid (PFOS)	Report ng/L	1/Year	Composite
Perfluorooctanoic acid (PFOA)	Report ng/L	1/Year	Composite
Perfluorodecanoic acid (PFDA)	Report ng/L	1/Year	Composite

The Industrial discharges sampled, and the sampling results shall be summarized and included in the Annual Report required by Part I.C.8. of the permit.

D. OPERATION AND MAINTENACE OF 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.

3. Resiliency Planning

Within one year of the effective date of this permit, the Town shall submit a Resiliency Plan and schedule of short- and long-term actions that will be taken to maintain, operate, and protect key collection and treatment system assets. The plan shall be consistent with the most current version of DEM's Guidance for the Consideration of Climate Change Impacts in the Planning and Design of Municipal Wastewater Collection and Treatment Infrastructure and include consideration of the findings of the 2017 DEM report Implications of Climate Change for Rhode Island Wastewater Collection and Treatment Infrastructure. The Resiliency Plan shall include, but not be limited to: (i) an assessment of current and projected impacts from natural hazards on critical components within the Town's collection and treatment systems, as well as on the systems themselves; (ii) a plan to adapt and protect vulnerable components and systems; (iii) an analysis that provides justification for selected adaptation methods, including relevant cost-benefit analyses. The overall analysis must consider component and system design life and sea-level rise projections. For the purposes of this Resiliency Plan, critical components are considered those necessary to ensure the forward flow and treatment of wastewater in accordance with the limits set forth in this permit. The Resiliency Plan shall also consider impacts—such as debris carried in high winds—on the Town's treatment facility and wastewater collection system from neighboring facilities during high hazard events. This Plan shall be subject to DEM review and approval. If DEM determines that modifications need to be made to the Plan, DEM

shall notify the permittee in writing which elements of the Plan need to be modified and the reason for the needed modification. This notification shall include a schedule for making required changes. After such notification from the DEM, the permittee shall make changes to the Plan and submit the revisions to the DEM for their approval.

4. Facilities Plan Update

   a. Within nine (9) months of the effective date of this permit, the permittee shall submit to DEM a wastewater Facilities Plan Update (FPU) that evaluates existing and future influent flows and loadings for a 20-year planning period and evaluates and recommends alternatives to ensure continued efficient operation of the treatment facility and permit compliance. The FPU shall be subject to DEM review, modification, and approval.

   b. If the FPU recommends improvements to the treatment facility then, within six (6) months of DEM's approval of the FPU, the permittee shall submit to DEM an Application for Order of Approval for the design and construction of the recommended improvements. The Application for Order shall include final plans, technical specifications, design calculations, appropriate application fee, and a construction schedule, which are subject to RIDEM review, modification, and approval.

   c. Upon DEM issuance of an Order of Approval for the recommended improvements, the permittee shall complete installation and commence operation of the equipment required therein in accordance with the approved construction schedule.

5. Outfall Inspection

   a. Within 180 days of the effective date of this permit the permittee shall conduct a video inspection of its outfall, to verify its physical integrity and ensure proper operation, and submit a report to DEM. The report shall include a copy of the video inspection. Proper operation means that the plumes from each port, if equipped with a multi-port diffuser, are balanced relative to each other and that all ports, single- or multi-port, have unobstructed external/internal flow. If the video inspection shows evidence of damage to the outfall pipeline, additional action, including measurement of the outfall position or underwater video inspection of the outfall pipeline and diffuser from the outside of the pipe may be required.

   b. If the physical integrity or proper operation of the outfall are compromised, then the report shall include a proposed schedule for obtaining required permits and completing any necessary cleaning, repairs, or other necessary maintenance of the outfall.

   c. The outfall inspection report shall be subject to DEM review and approval, and, upon DEM approval, the permittee shall complete any cleaning/repairs in accordance with the approved schedule.

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 (250-RICR-

150-10-3). The permittee shall comply with its RIDEM Order of Approval for the disposal of sludge.

F. DETECTION LIMITS

All analyses of parameters under this permit must comply with the National Pollutant Discharge Elimination System (NPDES): *Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting* rule. Only sufficiently sensitive test methods may be used for analyses of parameters under this permit. The permittee shall assure that all wastewater testing required by this permit, is performed in conformance with the method detection limits listed below. All sludge testing required by this permit shall be in conformance with the method detection limits found in 40 CFR 503.8. 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 Environmental Samples" (EPA/600/4-91/010) and "Methods for Chemical Analysis of Water and Wastes" (EPA/600/4-79/020).

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

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

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

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

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

2. results reported as less than the MDL shall be included as zeros.

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
Aluminum, Total	5.0
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

The monitoring program in the permit specifies sampling and analysis, which will provide continuous information on compliance and the reliability and effectiveness of the installed

pollution abatement equipment. The approved analytical procedures found in 40 CFR Part 136 are required unless other procedures are explicitly required in the permit. The Permittee is obligated to monitor and report sampling results to the DEM within the time specified within the permit.

Unless otherwise specified in this permit, the permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

   The permittee shall continue to submit its monthly monitoring data in discharge monitoring reports (DMRs) to DEM no later than the 15th day of the month electronically using NetDMR. When the permittee submits DMRs using NetDMR, it is not required to submit hard copies of DMRs to DEM.

2. Submittal of Reports as NetDMR Attachments

   Unless otherwise specified in this permit, the permittee must submit electronic copies of documents in NetDMR that are directly related to the DMR. These include the following:

   - DMR Cover Letters
   - Below Detection Limit summary tables
   - Monthly Operating Reports

   All other reports (i.e. I/I reports, Bioassays, P/T reports, etc.) should be submitted to DEM hard copy via regular US mail (see Part I.F.4 below).

3. Submittal of Requests and Reports to DEM

   The following requests, reports, and information described in this permit shall be submitted to the DEM.

   A. Transfer of Permit notice
   B. Request for changes in sampling location
   C. Request for reduction in testing frequency
   D. Request for reduction in WET testing requirement
   E. Report on unacceptable dilution water / request for alternative dilution water for WET testing

   These reports, information, and requests shall be submitted to DEM by hard copy mail to the following address:

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

4. Submittal of Reports in Hard Copy Form

The following notifications and reports shall be submitted as hard copy with a cover letter describing the submission. These reports shall be signed and dated originals submitted to DEM.

A. Written notifications required under Part II (as needed)
B. Notice of unauthorized discharges, including Sanitary Sewer Overflow (SSO) reporting (as needed)
C. Priority Pollutant Scan results (October 15 each year)
D. Species Sensitivity Report (June 30, 2027)
E. Infiltration/Inflow Reports (January 15 and July 15 each year)
F. Pretreatment Annual Reports (March 15 each year)
G. Facilities Plan Update (January 1, 2024)
H. Resiliency Plan (April 1, 2024)
I. Outfall Inspection Report (October 1, 2023)

This information shall be submitted to DEM at the following address:

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

5. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this permit, shall be made to the DEM. This includes verbal reports and notifications which require reporting within 24 hours. (See Part II.(I)(5) General Requirements for 24-hour reporting) Verbal reports and verbal notifications shall be made to DEM at (401) 222-4700 or (401) 222-3070 at night.

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. RI0100005

NAME AND ADDRESS OF APPLICANT:

Town of Bristol
Bristol Town Hall
10 Court Street
Bristol, Rhode Island 02809

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Bristol Wastewater Treatment Facility
Plant Avenue
Bristol, Rhode Island 02809

RECEIVING WATER: Bristol Harbor
WBID: RI0007026E-01D

CLASSIFICATION: SB1

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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 Wastewater Treatment Plant (outfall 001A). The latitude / longitude coordinates of the outfall are 41.656833, -71.271611, which is approximately 800 feet from shore, and is located in water approximately 18 feet deep. The sampling location is after dechlorination. A layout/process diagram of the facility is shown in Attachment A-2.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on DMR data from October 2016 to September 2021 is shown on Attachment A-1. A review of the historic discharge data demonstrate that the Bristol WWTF can comply with all limitations given.

III. Permit Limitations and Conditions

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

IV. Permit Basis and Explanation of Effluent Limitation Derivation

Variances, Alternatives, and Justifications for Waivers of Application Requirements

No variances or alternatives to required standards were requested or granted.

No waivers were requested or granted for any application requirements per 40 CFR §122.21(j) or (q).

Facility Description

The Town of Bristol owns and operates the Wastewater Treatment Facility located on Plant Avenue in Bristol, Rhode Island. The discharge to Bristol Harbor consists of treated domestic and industrial sewage contributed by the municipality of Bristol. As of December 31, 2021 the end of Bristol's most recent Industrial Pretreatment Program reporting year, there were four Significant Industrial Users (SIUs) and 161 other (i.e., non-SIU) permitted industrial users contributing wastewater to the Bristol WWTF.

Treatment consists of Aerated Grit Chamber, Fine Screening, Primary Settling, Rotating Biological Contactors, Secondary Settling, Chlorination using Sodium Hypochlorite, and Dechlorination using Sodium Bisulfite. A process flow diagram is attached as Attachment A-2.

Bristol's most recent RIPDES permit, authorizing discharges from the above-mentioned facility, was issued on September 9, 2016. This permit became effective on October 1, 2016 and expired on October 1, 2021. The facility submitted an application for permit reissuance to the DEM on January 6, 2021. On March 4, 2022, DEM issued a deficiency letter in response to the January 6, 2021 permit application. On March 15, 2021, the facility submitted a revised permit application. On April 14, 2021, the DEM issued an application complete letter to the facility. In accordance with 250-RICR-150-10-1 §13 of the Regulations for the Rhode Island Pollutant Discharge Elimination System, the facility's October 1, 2016 permit remains in effect since the DEM has determined that a timely and complete permit application was submitted. Once this permit is reissued, it will supersede the October 1, 2016 permit.

Receiving Water Description

The waterbody segment for the Bristol Harbor is RI0007026E-01D and is located in Bristol, Rhode Island. This waterbody segment is delineated by Bristol Harbor waters east of a line extending from McKee's Wharf north to the Coast Guard dock. This segment is not listed as impaired on DEM's March 2022 Integrated Report. Impaired waters include those where TMDLs are required (i.e., Category 5 Waters or 303d List of Impaired Waters) and those where TMDLs are not required (i.e., Category 4 Waters).

Existing permit limits for the Bristol WWTF were developed to be consistent with water quality regulations.

This segment of Bristol Harbor has a Waterbody Classification of SB1. These waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for aquacultural uses (other than shellfish for direct human consumption), 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.

Permit Limit Development

The requirements set forth in this permit are from the State's Water Quality Regulations and the State's Regulations for the Rhode Island Pollutant Discharge Elimination System, both filed pursuant to RIGL Chapter 46-12, as amended. RIDEM'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 RIPDES permit limitations is a multi-step process consisting of: determining if Federal effluent guidelines apply; calculation of allowable water quality-based discharge levels based on background data and available dilution; assigning appropriate Best Professional Judgement (BPJ) based limits; comparing existing and proposed limits; comparing discharge data to proposed limits; performing an antidegradation/antibacksliding analysis to determine the final permit limits; and developing interim limits as appropriate.

Water quality criteria are comprised of numeric and narrative criteria. Numeric criteria are scientifically derived ambient concentrations developed by EPA or the State for various pollutants of concern to protect human health and aquatic life. Narrative criteria are statements that describe the desired water quality goal.

Technology-based limits are numeric limits, which are determined by examining the capability of a treatment process to reduce or eliminate pollutants.

<u>WWTF Conventional Pollutant Permit Limitations</u>

Flow Limits

The basis for the facility's average monthly flow limit of 3.79 MGD is the facility's Facilities Plan dated April 2000. DEM analyzed Monthly Operating Report data submitted by the facility. DEM's analysis indicated of daily flows from the facility exceeded 80% of design flow for a period of at least 90 consecutive days beginning in late January of 2019. Due to this pattern of exceedance of 80% of design flow for a period of at least 90 consecutive days, the Town must submit a Facilities Plan Update (FPU) to DEM within nine months of the effective date of the permit. The Facilities Plan Update, referenced in Part I.D.4. of the permit, must evaluate existing and future influent flows and loadings for a 20-year planning period and recommend alternatives to ensure continued efficient operation of the treatment facility and permit compliance.

BOD_5, TSS, and pH

The BOD_5 and TSS limitations as well as the pH limitations contained in this permit are based upon the secondary treatment requirements of Section 301 (b)(1)(B) of the CWA as defined in 40 CFR 133.102 (a) - (c). The "Maximum Daily" BOD_5 and TSS limits and the enterococci limits are based on Rhode Island requirements for Publicly Owned Treatment Works (POTW's) under Section 401 (a)(1) of the CWA and in 40 CFR 124.53 and 124.56.

Settleable Solids

Settleable Solids monitoring has been included as a process-control parameter that can aid in the assessment of the operation of the plant but does not need to have an effluent limit.

BOD_5 and TSS % Removal

The "Percent Removal" requirements for BOD_5 and TSS are assigned in accordance with 40 CFR 133.102(a) and (b) respectively.

Bacteria

Table 10.E.1 of the RI Water Quality Regulations (RICR 250-RICR-150-05-1) 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 Bristol 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 DEM has assigned a monthly average Enterococci limit of 35 colonies/100 ml. This limit is consistent with the water quality criteria from Table 10.E.1 in the Rhode Island 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 maintained 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.

Emerging Contaminants

PFAS are a group of synthetic chemicals that have been in use since the 1940s. They are found in a wide array of consumer and industrial products. PFAS manufacturing and processing facilities, facilities using PFAS in production of other products, airports, and military installations can be contributors of PFAS releases into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Exposure to some PFAS above certain levels may increase risk of adverse health effects.[1] DEM is collecting information to evaluate the potential impacts that discharges of PFAS from wastewater treatment plants may have on downstream uses, which can include drinking water, recreational and aquatic life uses depending on the receiving water.

The Environmental Protection Agency (EPA) established a Drinking Water Health Advisory in 2016

[1] EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan,* EPA 823R18004, February 2019. https://www.epa.gov/sites/production/files/201902/documents/pfas_action_plan_021319_508compliant_1.pdf

for Perfluorooctanoic Acid (PFOA), Perfluorooctanesulfonic Acid (PFOS), or a combination of these chemicals at 70 parts per trillion (ppt). This Drinking Water Health Advisory was established to protect against adverse health effects that studies have indicated can be caused by exposure to these chemicals. In 2017, the Rhode Island Department of Health (DOH) began the process of sampling public wells for these pollutants due to increasing public health concerns about their possible presence in drinking water. Also in 2017, DEM adopted the EPA health advisory as a groundwater quality standard.

In 2022, Rhode Island passed a law concerning PFAS in drinking water, groundwater, and surface waters. The Rhode Island law establishes monitoring requirements for public water supplies as well as treatment requirements if the sum of the concentrations of the following six species of PFAS exceed 20 parts per trillion (ppt).

Perfluorohexanesulfonic acid (PFHxS)
Perfluoroheptanoic acid (PFHpA)
Perfluorononanoic acid (PFNA)
Perfluorooctanesulfonic acid (PFOS)
Perfluorooctanoic acid (PFOA)
Perfluorodecanoic acid (PFDA)

The 2022 Rhode Island law is consistent with the MassDEP public drinking water standard regarding allowable concentrations and PFAS species. In addition to drinking water requirements, the 2022 Rhode Island law also compels DEM to adopt a groundwater quality standard and a surface water action level by December 31, 2023.

Although the Rhode Island Water Quality Regulations (250-RICR-150-05-1) do not include numeric criteria for PFAS, the RI Water Quality Regulations § 1.10(E)(1)(saltwater) under Chemical Constituents have narrative requirements that prohibits the discharge of pollutants in concentration or combinations that could be harmful to humans or fish and wildlife for the most sensitive and governing water class use.

Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the Permit requires that the facility conduct quarterly influent and effluent sampling for PFAS chemicals and annual sampling of certain industrial users using draft EPA Method 1633 until a 40 CFR Part 136 approved test method is made available to the public.

The purpose of this monitoring and reporting requirement is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits on a facility- specific basis. DEM is authorized to require this monitoring and reporting by CWA § 308(a), which states:

> "SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—
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> > (A) the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other

information as he may reasonably require..."

Since an EPA method for sampling and analyzing PFAS in wastewater is not currently available, the permit requires that PFAS be analyzed using draft EPA method 1633 until a 40 CFR Part 136 approved test method for wastewater is made available to the public. This approach is consistent with 40 CFR § 122.44(i)(1)(iv)(B) which states that in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters.

The reporting requirement for the listed PFAS parameters takes effect the first calendar quarter of 2024.

Industrial Pretreatment Program (IPP)

The General Pretreatment Regulations at 40 CFR 403 require all large POTWs (design flow greater than 5 MGD) that receive pollutants from Industrial Users which may Pass Through or Interfere with the operations of the POTW or are otherwise subject to Pretreatment Standards to establish local pretreatment programs. Smaller POTWs may also be required to develop a pretreatment program if the Director finds that the nature or volume of the industrial effluent, treatment process upsets, violations of POTW effluent limitations, contamination of municipal sludge, or other circumstances warrant in order to prevent Interference with the POTW or Pass Through. These local programs must enforce all national pretreatment standards and requirements in addition to any more stringent local requirements necessary to protect site-specific conditions at the POTW. Bristol is required to develop and implement a local pretreatment program.

The Bristol WPCF's Industrial Pretreatment Program was first approved by DEM in 1985 and was most recently modified on October 30, 2019, to change the language regarding surcharges for TSS and BOD. Contributing Industrial Users to the Bristol WPCF include a plastics/polymeric manufacturer, a university, and several breweries. The Bristol WPCF accepts septage at the septage receiving station located at the facility but does not accept hauled industrial wastes.

The Bristol WPCF's previous permit issued September 9th, 2016, required a technical local limits evaluation to be submitted along with the permit renewal application. This permit requires a local limits evaluation to be submitted within 120 days of the effective date of the permit for consistency with federal requirements (see 40 CFR 122.44(j)(2)(ii)).

The permittee shall commence annual sampling of the below-listed types of industrial discharges into the POTW starting in January 2024. The PFAS analyzed shall include perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid (PFOA); perfluorohexane sulfonic acid (PFHxS); perfluorononanoic acid (PFNA); perfluoroheptanoic acid (PFHpA); and perfluorodecanoic acid (PFDA), and shall be analyzed using draft EPA method 1633 until a 40 CFR Part 136 approved test method for wastewater is made available to the public. The Industrial discharges sampled, and the sampling results shall be summarized and included in the Annual Report required by Part I.C.8 of the permit.

- Platers/Metal Finishers
- Paper and Packaging Manufacturers
- Tanneries and Leather/Fabric/Carpet Treaters
- Manufacturers of Parts with Polytetrafluorethylene (PTFE) or Teflon type coatings (i.e. bearings)
- Landfill Leachate
- Centralized Waste Treaters
- Contaminated Sites
- Fire Fighting Training Facilities

- Airports
- Any Other Known or Expected Sources of PFAS

WWTF Toxic Pollutant Limits

Water Quality-Based Limit (WQBEL) Calculations

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 (250-RICR-150-05-1). 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, which influence their calculation, and the selection of final permit limitations are included below or in the attached documents.

The Bristol WWTF's September 9, 2016, permit also contained WQBELs. The Town's first permit to contain WQBELs was issued on September 29, 1989.

Mixing Zones and Dilution Factors

In order to evaluate the need for water quality based limits, it is necessary to determine the mixing which occurs in the immediate vicinity of the wastewater discharge (initial dilution). The Bristol WWTF's effluent is discharged through a 30-inch (0.76 meters) pipe which is approximately 800 feet offshore. As presented in the Bristol Wastewater Treatment Facility's March 2005 Development Document, it was determined that a mixing zone and corresponding dilution factor is acceptable for the effluent from the Bristol WWTF. Based on the Town of Bristol, Rhode Island Outfall Dilution Study (ASA, 1991), a chronic dilution factor of 100 with a mixing zone of 200m in radius and an acute dilution factor of 28 with a mixing zone of 34m in radius were established with the August 24, 1995 permit. Attachment A-3 contains a map of the WWTF mixing zone, a table of observed dilutions within 50 meters of the outfall measured during the 1991 dye study, and a figure showing the dilution at 0.3 meters as a function of distance from the outfall during the 1991 dye study. The acute mixing zone size was calculated to be 34 meters, which is fifty times the discharge length scale, defined as the square root of the outfall cross-sectional area. This calculation was the most restrictive of three criteria described in the 1985 Technical Support Document for Water Quality-based Toxics Control (USEPA, 1985). The acute dilution factor of 28 was selected because, as shown in the table in Attachment A-3, it is the lowest dilution factor calculated for distances between 34 and 50 meters from the outfall. As shown in the dilution figure, a chronic dilution zone with a 200-meter radius and a dilution factor of 100 captures all but a few outlier measurements. The results of the Dye Study were deemed to have been acceptable based upon the Dye Study having been developed in a manner consistent with USEPA Guidelines (USEPA, 1985).

The Rhode Island Water Quality Regulations at 250-RICR-150-05-1.18(N)(1) require in-stream concentrations of discharged pollutants to be determined by specific formulas, or other methods which may be found to be acceptable.

Ammonia removal is strongly dependent on temperature (nitrification rate decreases as temperature decreases). Since Ammonia does not bioaccumulate or accumulate in sediment, historical pH and temperature background data were used to determine the appropriate Ammonia limitations.

Using 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.

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

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

b) Using available background concentration data[2].

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

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

Based on the above dilution factors and the saltwater aquatic life and non-Class A human health criteria from the Rhode Island Water Quality regulations, allowable discharge concentrations were established using 80% allocation when no background data were available. A 90% allocation was used when background data were available. Background data for Cadmium, Chromium, Copper, Lead, Nickel, and Silver were obtained from the four (4) SINBADD cruises in "Cruise and Data Report", SINBADD 1, 2, 3 and 4. The allocation of total residual chlorine (TRC) is 100% since Chlorine is not expected to be found in ambient water and is a non-conservative pollutant. Attachment A-4 includes the calculations of allowable limits based on Aquatic Life and Human Health Criteria. A Summary of Priority Pollutant Scan Data and RIPDES Permit Application Data for the Years 2016 through 2021 can be found in Attachment A-5. And a Comparison of Allowable Limits with Discharge Monitoring Report data and State User Fee Data can be found in Attachment A-6.

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

I. 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.

II. 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.

III. 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.

Wasteload Allocation

Based on the above dilution factors and the saltwater aquatic life and non-Class AA human health criteria, from the Rhode Island Water Quality Regulations, allowable discharge concentrations were established using 80% allocation for pollutants without background data, 90% allocation for pollutants with background data, and 100% allocation of total residual chlorine (TRC) due to the fact that chlorine is not expected to be found in ambient water and it is a non-conservative pollutant.

[2]Source of background data is *Water Quality Survey of Narragansett Bay - A Summary of Results from the SINBADD 1985-1986*; Pilson, Michael E.Q. and Hunt, Carlton, D.; March 1989; Report #NBP-89-22.

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 in-stream criteria. In order to evaluate the need for permit limitations, the allowable discharge levels (permit limits) were compared to Discharge Monitoring Report (DMR) data, Priority Pollutant Scan data, and data provided in the facility's March 15, 2021 permit application. An assessment was made to determine if limits were necessary, using the data collected during the previous five (5) years. Based on these comparisons, water quality limitations have been deemed necessary for Total Residual Chlorine In addition, monitoring for Cyanide, Cadmium, Zinc, Nickel, Ammonia, Copper, Lead, Hexavalent Chromium and Aluminum have been maintained in the permit as part of the bioassay requirements.

Priority Pollutants

The required priority pollutant scans are to be performed annually for the EPA Priority Pollutants as listed in 40 CFR 122, Appendix D, Tables II and III. The priority pollutant scans are typically performed during the third calendar quarter bioassay sampling event.

WET Testing

The biomonitoring requirements are set forth in 40 CFR 131.11 and in the State's Water Quality Regulations, containing narrative conditions at 250-RICR-150-05-1.10(B) that state that at a minimum, all waters shall be free of pollutants in concentrations or combinations or from anthropogenic activities subject to these regulations that: adversely affect the composition of fish and wildlife; adversely affect the physical, chemical, or biological integrity of the habitat; interfere with the propagation of fish and wildlife; adversely alter the life cycle functions, uses, processes, and activities of fish and wildlife; or adversely affect human health. In order to determine compliance with many of these conditions, WET testing is required.

RIDEM's toxicity permitting policy is based on past toxicity data and the level of available dilution. Bristol's bioassay limit of ≥100% effluent for an LC_{50} value is based upon 40 CFR 131.11. If recurrent toxicity is demonstrated, then toxicity identification and reduction will be required. The bioassay requirement (Whole Effluent Toxicity [WET Testing]) in the permit consists of an acute LC_{50} test, and an LC_{50} toxicity limit of ≥100% effluent. WET testing requirement can be found in Section I.B. of the permit. Section I.B.11 has been added to the permit, containing a requirement for a Species Sensitivity Screening Report to be submitted with the facility's next RIPDES Permit reapplication. Section I.B.11 of the permit has been added to be consistent with DEM's WET Policy in order to ensure the WET limits in the permit are evaluated using the most sensitive applicable marine species.

Nutrients

The effluent monitoring requirements have been maintained in accordance with the RIPDES regulations as well as 40 CFR 122.41 (j), 122.44 (i), and 122.48 to yield data representative of the discharge. The requirement of testing for nitrogen parameters is necessary to make a determination on nutrient loadings in the receiving water.

Ammonia

The potential ammonia limitations were derived from acute and chronic water quality criteria for saltwater from the Rhode Island Water Quality Regulations (250-RICR-150-05-1.26), tables L.2.a. and L.2.b, which are based upon salinity, pH, and temperature. A salinity equal to 30 parts per thousand (ppt.), a Winter (November-April) pH equal to 8.0 standard units, a summer (May-October) 90th percentile monthly pH of 7.92 standard units, and a winter Temperature of 5°C and a summer 90th percentile Temperature of 23.9°C were used to calculate the allowable water quality-based discharge levels for ammonia. The Salinity and winter temperature values were based upon

data contained in the Narragansett Bay Project Reports, #NBP-89-22 and #NBP-89-24, titled "Water Quality Survey of Narragansett Bay-A Summary of the SINBADD 1985-1986" and "SPRAY Cruise-Dissolved Oxygen and Chlorophyll", respectively. The winter pH value was determined from data contained in a report titled "Monitoring of the Providence and Seekonk Rivers for Trace Metals and Associated Parameters-SPRAY Cruises I, II, III" [Deoring et al., 1988], and from a University of Rhode Island Graduate School of Oceanography research paper titled "Co-occurrence of Dinoflagellate Blooms and High pH in Marine Enclosures", [Hinga, 1992]. The 90th percentile summer temperature data and 90th percentile summer pH were calculated based upon site-specific data in the DEM Water Quality Standards Program's database; for the summer pH value, a 90th percentile of the monthly averages for the months of May-October were used (7.92 S.U.), and for the summer temperature value, a 90th percentile value of the monthly average temperature values for the months of May-October were used (23.9° C). As noted above, water quality sampling data and related calculations to compute the summer 90th percentile pH and Temperature values used may be found in Attachment A-7.

Sludge Requirements

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.

Antibacksliding

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 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)

1. 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.

2. 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 asked 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 pollutant levels, which would result after the 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 DEM's "*Policy on the Implementation of the Antidegradation Provisions of the Rhode Island*

Water Quality Regulations July 2006" (the Policy) established 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 criteria 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 in water quality as determined by the Director and in accordance with the Antidegradation Implementation Policy, as amended. In addition, the Director may allow significant degradation, which is determined to be necessary to achieve important economic or social benefits to the State in accordance with the Antidegradation Policy.

Tier 2½. Where high quality waters constitute Special Resource Protection Waters SRPWs[3], 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. 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 forth in Tier 1 and Tier 2.

Tier 3. Where high quality waters constitute an Outstanding Natural Resource ONRWs[4], that water quality shall be maintained and protected. The State may allow some limited activities that result in temporary or 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.

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.

In terms of the applicability of Tier 2 of the Policy, a water body is assessed as being high quality on a parameter-by-parameter basis. In accordance with Part II of the Policy, "Antidegradation applies to all new or increased projects or activities which may lower water quality or affect existing water uses, including but not limited to all 401 Water Quality Certification reviews and any new, reissued, or modified RIPDES permits." Part VI.A of the Policy indicates that it is not applicable to activities which result in insignificant (i.e., short-term minor) changes in water quality and that significant changes in water quality will only be allowed if it is necessary to accommodate important economic and social development in the area in which the receiving waters are located (important benefits demonstration). Part VI.B.4 of the Policy states that: "Theoretically, any new or increased discharge or activity could lower existing water quality and thus require the important benefits demonstration. However, DEM will: 1) evaluate applications on a case-by-case basis, using BPJ and all pertinent and available facts, including scientific and technical data and calculations as provided by the applicant; and 2) determine whether the incremental loss is significant enough to require the important benefits demonstration described below. [If not then as a general rule DEM will allocate no more than 20%.] Some of the considerations which will be made to determine if an impact is significant in each site-specific decision are: 1) percent change in water quality parameter value and their temporal distribution; 2) quality and value of the resource; 3) cumulative impact of discharges and activities on water quality to date; 4) measurability of the change; 5) visibility of the change; 6) impact on fish and wildlife habitat; and 7) impact on potential and existing uses. As a general guide, any discharge or activity which consumes greater than 20% of the remaining assimilative capacity may be deemed significant and invoke full requirements to demonstrate

[3] SRPWs are surface waters identified by the Director as having significant recreational or ecological uses.
[4] ONRWs are a special subset of high-quality water bodies, identified by the State as having significant recreational or ecological water uses.

important economic or social benefits."

In terms of a RIPDES permit, an increased discharge is defined as an increase in any limitation, which would result in an increased mass loading to a receiving water. The baseline for this comparison would be the monthly average mass loading established in the previous permit. It would be inappropriate to use the daily maximum mass loading since the Policy is not applicable to short-term changes in water quality.

For the purposes of ensuring that the revised limit is consistent with the requirements of antidegradation, existing water quality must be defined. As explained earlier, DEM evaluates existing water quality by determining the pollutant levels which would result under the design conditions appropriate for the particular criteria (i.e., background water quality, when available and/or appropriate, non-point source inputs; and existing RIPDES permit limitations or recent historical discharge data, whichever is higher). In general, available data would be used to make this determination.

Using the above-mentioned criteria, the present instream water quality C_p is defined as:

$$C_p = \frac{(DF - 1) \cdot C_B + (1 \cdot C_d)}{DF}$$

where: C_b = background concentration[5]
C_d = discharge data[6]
DF = dilution factor

In this permit, all monthly average limitations are either the same as or more stringent than the limits in the 2016 permit. Therefore, the limits contained in this permit are consistent with the Department's anti-degradation policy.

Resiliency Planning Requirements

The permit requires that, within one year of the effective date of this permit, the Town shall submit a Resiliency Plan and schedule of short- and long-term actions that will be taken to maintain, operate, and protect key collection and treatment system assets. The plan shall be consistent with the most current version of DEM's Guidance for the Consideration of Climate Change Impacts in the Planning and Design of Municipal Wastewater Collection and Treatment Infrastructure and include consideration of the findings of the 2017 DEM report Implications of Climate Change for Rhode Island Wastewater Collection and Treatment Infrastructure. The Resiliency Plan shall include, but not be limited to: (i) an assessment of current and projected impacts from natural hazards on critical components within the Town's collection and treatment systems, as well as on the systems themselves; (ii) a plan to adapt and protect vulnerable components and systems; (iii) an analysis that provides justification for selected adaptation methods, including relevant cost-benefit analyses. The overall analysis must consider component and system design life and sea-level rise projections. For the purposes of this Resiliency Plan, critical components are considered those necessary to ensure the forward flow and treatment of wastewater in accordance with the limits set forth in this permit. The Resiliency Plan shall also consider impacts—such as debris carried in high winds— on the Town's treatment facility and wastewater collection system from neighboring facilities during high hazard events.

[5] Data collected at a location that is unimpacted by significant point source discharges.
[6]Discharge data refers to the maximum of the permit limit or the historic discharge level. The historic discharge level is determined by calculating the upper 95th confidence interval for the monthly average reported data for the past five (5) years. For specific cases, changes in treatment efficiency or pretreatment limitations may support the use of an alternative period of time.

Other Conditions

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

Table I. Permit Limits – Outfall 001A (final discharge after dechlorination)

Effluent Characteristic	Monthly Average Permit Limit	Weekly Average Permit Limit	Daily Max Permit Limit	Sampling Frequency
Flow	3.79 MGD		--- MGD	Continuous
BOD_5 Load	948 lbs/Day		1,580 lbs/Day	3/Week
BOD_5 Concentration	30 mg/l	45 mg/l	50 mg/l	3/Week
BOD_5 - % Removal	85%			1/Month
TSS concentration	948 lbs/Day		1,580 lbs/Day	3/Week
TSS - % Removal	30 mg/l	45 mg/l	50 mg/l	3/Week
BOD_5 - % Removal	85%			1/Month
Settleable Solids		--- ml/l	--- ml/l	1/Day
Fecal Coliform	--- MPN 100 ml		--- MPN 100 ml	3/Week
Enterococci	35 cfu 100 ml		276 cfu 100 ml	3/Week
Total Residual Chlorine (TRC)	364 µg/l		364 µg/l	Continuous
pH	(6.5 SU)		(8.5 SU)	2/Day
Oil and Grease			--- mg/l	1/Month
TKN (as N) [Nov. 1 – April 30]	--- mg/l		--- mg/l	1/Month
TKN (as N) [May 1 – Oct. 31]	--- mg/l		--- mg/l	2/Month
Nitrate, Total (as N) [Nov. 1 – April 30]	--- mg/l		--- mg/l	1/Month
Nitrate, Total (as N) [May 1 – Oct. 31]	--- mg/l		--- mg/l	2/Month
Nitrite, Total (as N) [Nov. 1 – April 30]	--- mg/l		--- mg/l	1/Month
Nitrite, Total (as N) [May 1 – Oct. 31]	--- mg/l		--- mg/l	2/Month
Nitrogen, Total [Nov. 1 – April 30]	--- mg/l		--- mg/l	1/Month
Nitrogen, Total [May 1 – Oct. 31]	--- mg/l		--- mg/l	2/Month
Nitrogen, Total [Nov. 1 – April 30]	--- lb/day			1/Month
Nitrogen, Total [May 1 – Oct. 31]	--- lb/day			2/Month

Effluent Characteristic	Monthly Average Permit Limit	Weekly Average Permit Limit	Daily Max Permit Limit	Sampling Frequency
Total Copper[1]	--- µg/l		--- µg/l	1/Quarter
Total Cadmium[1]	--- µg/l		--- µg/l	1/Quarter
Hexavalent Chromium[1]	--- µg/l		--- µg/l	1/Quarter
Total Lead[1]	--- µg/l		--- µg/l	1/Quarter
Total Zinc[1]	--- µg/l		--- µg/l	1/Quarter
Total Nickel[1]	--- µg/l		--- µg/l	1/Quarter
Total Aluminum[1]	--- µg/l		--- µg/l	1/Quarter
Cyanide[1]	--- µg/l		--- µg/l	1/Quarter
Total Ammonia[1]	--- µg/l		--- µg/l	1/Quarter
Mysidopsis Bahia – LC_{50}			≥100%	1/Quarter

() Values in parentheses represent the minimum and maximum values.
---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 the bioassay testing required in Part I.B of the permit.

Table II. Influent Monitoring at facility headworks and Effluent Monitoring at Outfall 001A (final discharge after dechlorination)

Influent Characteristic	Monthly Average Permit Limit	Weekly Average Permit Limit	Daily Max Permit Limit	Sampling Frequency
Perfluorohexanesulfonic acid			--- ng/l	1/Quarter
Perfluoroheptanoic acid			--- ng/l	1/Quarter
Perfluorononanoic acid			--- ng/l	1/Quarter
Perfluorooctanesulfonic acid			--- ng/l	1/Quarter
Perfluorooctanoic acid			--- ng/l	1/Quarter
Perfluorodecanoic acid			--- ng/l	1/Quarter

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

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. 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 250-RICR-150-10-1.50 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:

Samuel Kaplan, P.E.
Environmental Engineer II
Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-4700, ext: 2777046
Email: samuel.kaplan@dem.ri.gov

02 Nov 2022
Date

Heidi Travers
Heidi Travers, P.E.
Environmental Engineer IV
RIPDES Program
Office of Water Resources
Department of Environmental Management

ATTACHMENT A-1: Historical Effluent Data

DESCRIPTION OF DISCHARGE: Secondary treated domestic and industrial wastewater.

EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE

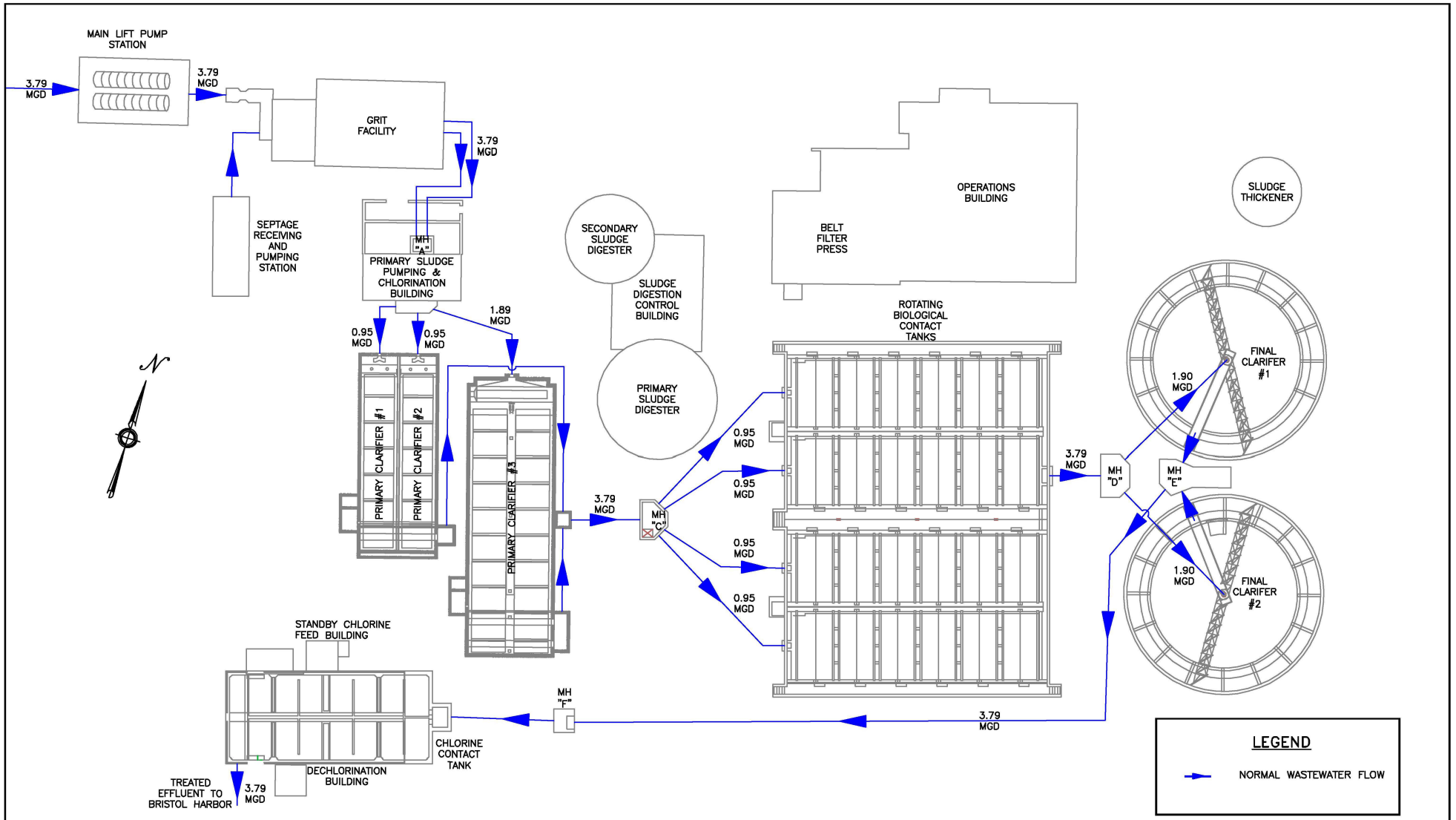
Parameter	Monthly Average[1]	Weekly Average[2]	Daily Maximum[3]
Flow, MGD	3.41		6.65[4]
BOD, lbs/day	311.4 (avg. mass)		550.4 (max. mass)
BOD, mg/L	11.29	13.58	17.65
BOD, % removal	92.83		
TSS, lbs/day	431.05		922.20
TSS, mg/L	14.76	19.72	28.09
TSS, % removal[5]	91.21		
Settleable Solids, mL/L		0.1465	0.4358
Fecal Coliform, MPN/ 100 M	8.73[6]	75.44	800492.42
Enterococci CFU/100 mL	13.71[6]		800124.47
Chlorine, Total Residual, µg/L	55.07		151.86
pH, S.U.	6.61		7.45
Oil & Grease, mg/L			2.73
Nitrogen, Total Kjeldhal, mg/L	11.70		13.33
Nitrogen, Ammonia (Total as N), mg/L	6.454		6.5865
Nitrogen, Nitrate (Total as N), mg/L	8.44		9.03
Nitrogen, Nitrite (Total as N), mg/L	0.21		0.24
Total Nitrogen, mg/L	20.30		22.29
Total Nitrogen Load (lb / day)	515.40		
Aluminum, Total, µg/L	66.1		75.1
Cadmium, Total, µg/L	4.1		4.1
Chromium, Hexavalent, µg/L	3.55		3.55
Copper, Total, µg/L	20.275		21.3
Cyanide, Free Available, µg/L	3.87		3.87
Cyanide, Total, µg/L	3.08		3.08
Lead, Total, µg/L	7.6		7.6
Nickel, Total, µg/L	28.3		29.1
Zinc, Total, µg/L	39.3		39.7

[1]Statistical mean of the monthly average from October 2016 – September 2021
[2]Statistical mean of the weekly average from October 2016 – September 2021
[3]Statistical mean of the daily maximum from October 2016 – September 2021
[4]Maximum monthly value of maximum flow from October 2016 – September 2021
[5]Mean minimum value from October 2016 – September 2021
[6]Mean of the monthly geometric means from October 2016 – September 2021

Biotoxicity Data LC_{50} Values (in percent effluent) Pre-Cl_2 Mysid

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2016				=100%
2017	>100%	>100%	>100%	>100%
2018	>100%	>100%	=100%	=100%
2019	>100%	=100%	=100%	=100%
2020	=100%	>100%	=100%	>100%
2021	>100%	>100%	>100%	

ATTACHMENT A-2: Process flow diagram for Bristol WWTF



NUMBER	DATE	MADE BY	CHECKED BY	DESCRIPTION
				REVISIONS

DRAWN BY: AJG
DEPT. CHECK: BW
PROJ. CHECK: JRD

BRISTOL WASTEWATER TREATMENT FACILITY
BRISTOL, RI

BETA Group, Inc.
Engineers . Scientists . Planners
6 Blackstone Valley Place
Lincoln, RI 02865
401.333.2382
email: BETA@BETA-inc.com

SCALE: NOT TO SCALE

FIGURE 1-1
FLOW SCHEMATIC

JOB 3800
FILE NO.
SHEET 1

ATTACHMENT A-3: Bristol WWTF Mixing Zone

FIGURE #1 BRISTOL WWTF MIXING ZONE

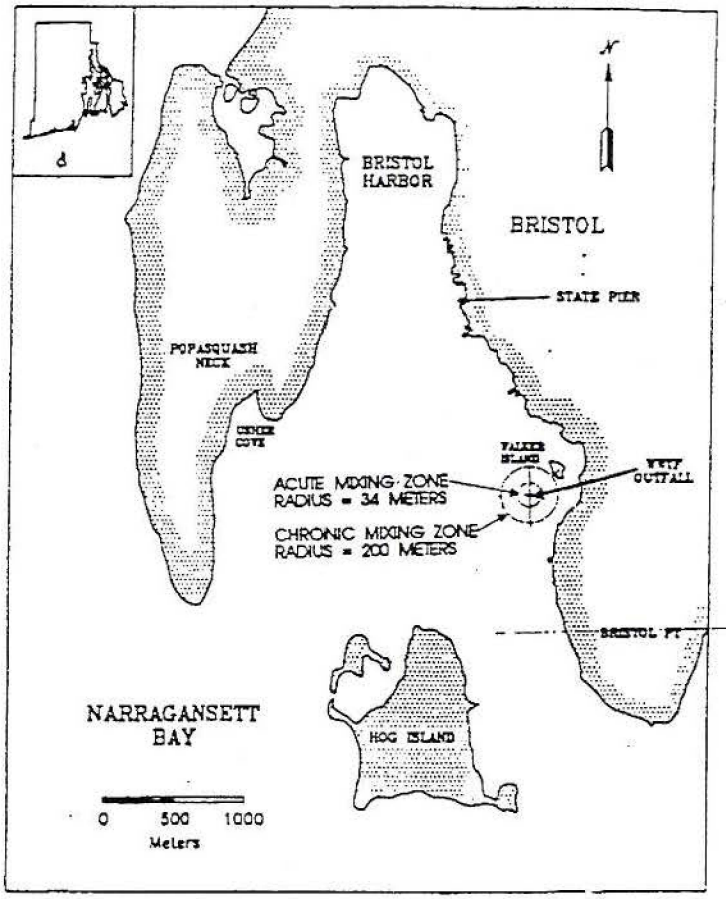


Table 3.2 Listing of observed dilution as a function of distance for all 0.3 m observations within 50 m of the outfall for all surveys

distance from outfall (m)	dilution factor	distance from outfall (m)	dilution factor	distance from outfall (m)	dilution factor
1.41	46.00	14.32	44.00	1 34.23	64.00
3.16	2415.00	14.87	34.00	2 34.41	80.00
4.24	41.00	15.56	247.00	3 35.36	157.00
4.24	156.00	15.81	71.00	4 35.61	55.00
4.47	22.00	16.55	18.00	5 35.69	44.00
5.00	25.00	17.00	63.00	36.25	955.00
5.10	61.00	17.20	139.00	6 36.40	71.00
5.83	326.00	18.60	33.00	7 38.01	135.00
6.00	52.00	19.10	31.00	8 38.21	134.00
6.40	44.00	19.10	65.00	9 38.21	117.00
7.00	50.00	19.24	67.00	10 39.05	46.00
7.00	49.00	19.24	51.00	39.56	1037.00
7.28	887.00	20.22	108.00	11 39.56	28.00
7.62	17.00	20.62	90.00	41.48	2093.00
7.81	13.00	21.02	367.00	41.76	1560.00
8.49	43.00	23.02	54.00	43.29	1248.00
8.60	74.00	23.09	164.00	43.29	1131.00
8.60	51.00	23.35	48.00	43.29	1170.00
8.94	30.00	23.77	104.00	43.42	1230.00
9.00	48.00	24.74	41.00	43.42	1170.00
9.22	65.00	24.84	74.00	43.42	1261.00
9.43	1892.00	25.06	1589.00	43.42	1209.00
9.49	26.00	25.06	67.00	12 43.86	169.00
9.49	16.00	25.18	2217.00	13 44.10	70.00
10.00	45.00	25.94	49.00	44.27	1227.00
10.30	22.00	26.08	59.00	44.27	1382.00
10.77	20.00	26.63	28.00	44.55	1153.00
12.00	1154.00	26.68	27.00	45.00	1171.00
12.21	17.00	27.20	73.00	14 45.54	73.00
12.21	63.00	27.20	102.00	46.39	1363.00
12.65	1423.00	27.89	942.00	15 47.68	98.00
13.00	50.00	29.15	132.00	16 47.89	49.00
13.04	92.00	30.15	274.00	17 48.08	63.00
13.04	327.00	31.14	2256.00	18 48.26	109.00
13.60	70.00	32.31	104.00	48.33	1671.00
13.60	33.00	32.76	1224.00	49.34	2466.00
14.21	53.00	33.11	34.00	19 49.65	131.00
14.21	3563.00	33.62	42.00	50.45	164.00

Town of Bristol, Rhode Island Outfall Dilution Study (1991). Report prepared by Applied Science Associates.

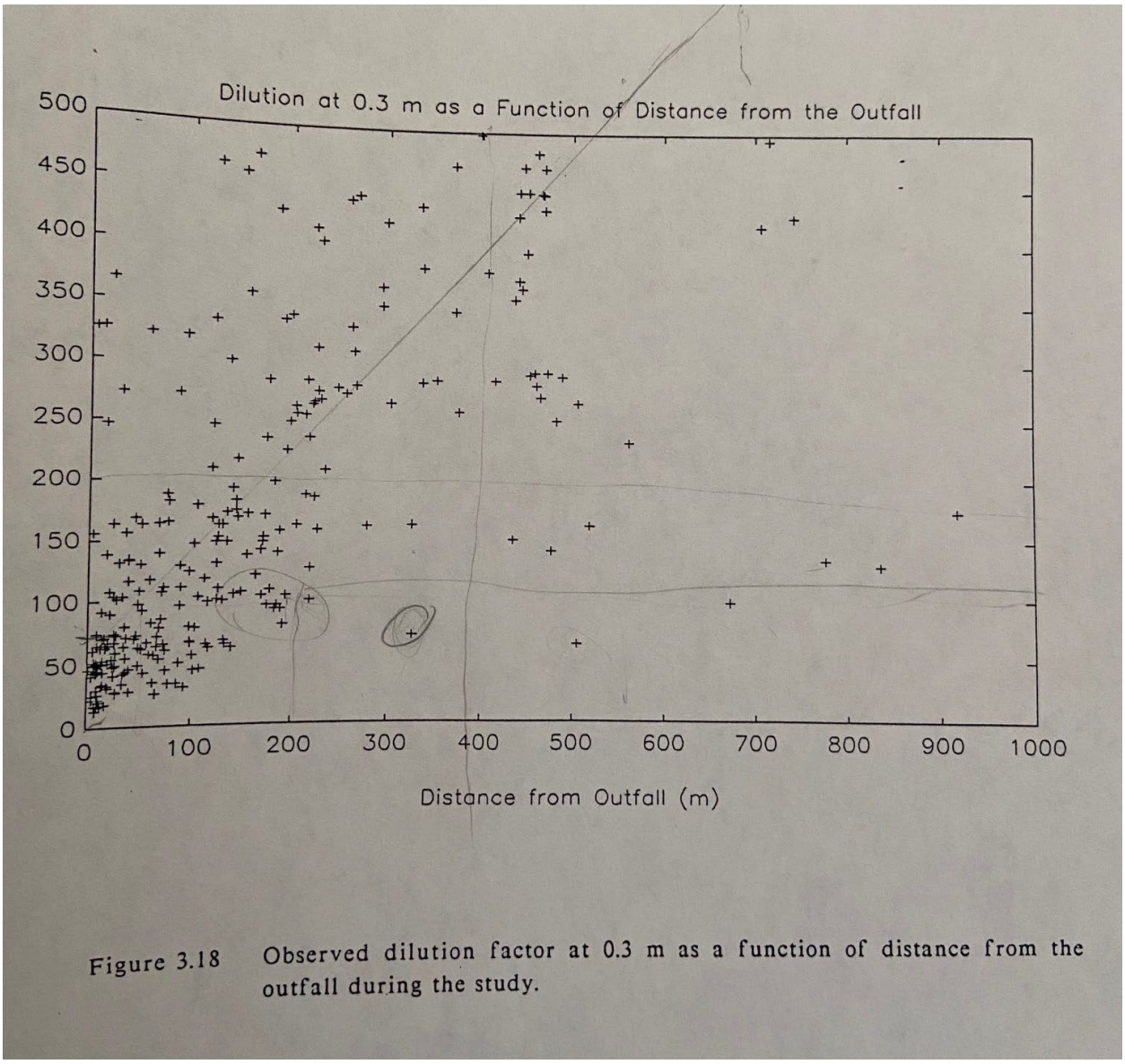


Figure 3.18 Observed dilution factor at 0.3 m as a function of distance from the outfall during the study.

Town of Bristol, Rhode Island Outfall Dilution Study (1991). Report prepared by Applied Science Associates.

ATTACHMENT A-4: 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: **Bristol WWTF**

RIPDES PERMIT #: **RI0100005**

	DISSOLVED BACKGROUND DATA (ug/L)	ACUTE METAL TRANSLATOR	CHRONIC METAL TRANSLATOR
ALUMINUM	NA	NA	NA
ARSENIC	NA	1	1
CADMIUM	0.04601	0.994	0.994
CHROMIUM III	NA	NA	NA
CHROMIUM VI	0.2137	0.993	0.993
COPPER	0.992	0.83	0.83
LEAD	0.07987	0.951	0.951
MERCURY	NA	0.85	NA
NICKEL	2.1862	0.99	0.99
SELENIUM	NA	0.998	0.998
SILVER	0.008523	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 OBTAINED FROM THE FOUR SINBADD CRUISES IN JANUARY 1987 REPORT LOCATION 12 B8, B9, B13, B14, B15, & B16).

NOTE 2: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

DILUTION FACTORS		
ACUTE =	28	x
CHRONIC =	100	x
HUMAN HEALTH =	100	x

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

TOTAL AMMONIA CRITERIA (ug/L)		
WINTER ACUTE =		21000
CHRONIC =		3100
SUMMER ACUTE =		6736
CHRONIC =		1020

NOTE 1: LIMITS ARE FROM TABLES L.2.a. AND L.2.b From the Rhode Island Water Quality Regulations (250-RICR-150-05-1.26)
USING:
SALINITY = 30 g/Kg
WINTER (NOV-APRIL) pH=8.0 s.u.;
SUMMER (MAY-OCT) pH=7.92 s.u.;
WINTER (NOV-APRIL) TEMP=5.0 C;
SUMMER (MAY-OCT) TEMP=20.3 C.

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: Bristol WWTF RIPDES PERMIT #: RI0100005

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	51200
ARSENIC (limits are total recoverable)	7440382	NA	69	1545.6	36	1.4	112
ASBESTOS	1332214			No Criteria			No Criteria
BERYLLIUM	7440417			No Criteria			No Criteria
CADMIUM (limits are total recoverable)	7440439	0.04601	40	1012.834738	8.8		792.1981992
CHROMIUM III (limits are total recoverable)	16065831	NA		No Criteria			No Criteria
CHROMIUM VI (limits are total recoverable)	18540299	0.2137	1100	27909.59728	50		4510.416616
COPPER (limits are total recoverable)	7440508	0.992	4.8	113.4650602	3.1		217.8216867
CYANIDE	57125		1	22.40	1	140	80
LEAD (limits are total recoverable)	7439921	0.07987	210	5562.401167	8.1		758.2469716
MERCURY (limits are total recoverable)	7439976	NA	1.8	47.43529412	0.94	0.15	12
NICKEL (limits are total recoverable)	7440020	2.1862	74	1824.012727	8.2	4600	526.8345455
SELENIUM (limits are total recoverable)	7782492	NA	290	6509.018036	71	4200	5691.382766
SILVER (limits are total recoverable)	7440224	0.008523	1.9	56.05868118			No Criteria
THALLIUM	7440280			No Criteria		0.47	37.6
ZINC (limits are total recoverable)	7440666	NA	90	2131.078224	81	26000	6849.894292
VOLATILE ORGANIC COMPOUNDS							
ACROLEIN	107028			No Criteria		290	23200
ACRYLONITRILE	107131			No Criteria		2.5	200
BENZENE	71432			No Criteria		510	40800
BROMOFORM	75252			No Criteria		1400	112000
CARBON TETRACHLORIDE	56235			No Criteria		16	1280
CHLOROBENZENE	108907			No Criteria		1600	128000
CHLORODIBROMOMETHANE	124481			No Criteria		130	10400
CHLOROFORM	67663			No Criteria		4700	376000
DICHLOROBROMOMETHANE	75274			No Criteria		170	13600
1,2DICHLOROETHANE	107062			No Criteria		370	29600
1,1DICHLOROETHYLENE	75354			No Criteria		7100	568000
1,2DICHLOROPROPANE	78875			No Criteria		150	12000
1,3DICHLOROPROPYLENE	542756			No Criteria		21	1680
ETHYLBENZENE	100414			No Criteria		2100	168000
BROMOMETHANE (methyl bromide)	74839			No Criteria		1500	120000
CHLOROMETHANE (methyl chloride)	74873			No Criteria			No Criteria
METHYLENE CHLORIDE	75092			No Criteria		5900	472000

1,1,2,2TETRACHLOROETHANE	79345			No Criteria		40	3200
TETRACHLOROETHYLENE	127184			No Criteria		33	2640
TOLUENE	108883			No Criteria		15000	1200000
1,2TRANSDICHLOROETHYLENE	156605			No Criteria		10000	800000
1,1,1TRICHLOROETHANE	71556			No Criteria			No Criteria
1,1,2TRICHLOROETHANE	79005			No Criteria		160	12800
TRICHLOROETHYLENE	79016			No Criteria		300	24000
VINYL CHLORIDE	75014			No Criteria		2.4	192
ACID ORGANIC COMPOUNDS							
2CHLOROPHENOL	95578			No Criteria		150	12000
2,4DICHLOROPHENOL	120832			No Criteria		290	23200
2,4DIMETHYLPHENOL	105679			No Criteria		850	68000
4,6DINITRO2METHYL PHENOL	534521			No Criteria		280	22400
2,4DINITROPHENOL	51285			No Criteria		5300	424000
4NITROPHENOL	88755			No Criteria			No Criteria
PENTACHLOROPHENOL	87865		13	291.2	7.9	30	632
PHENOL	108952			No Criteria		1700000	136000000
2,4,6TRICHLOROPHENOL	88062			No Criteria		24	1920
BASE NEUTRAL COMPUNDS							
ACENAPHTHENE	83329			No Criteria		990	79200
ANTHRACENE	120127			No Criteria		40000	3200000
BENZIDINE	92875			No Criteria		0.002	0.16
POLYCYCLIC AROMATIC HYDROCARBONS				No Criteria		0.18	14.4
BIS(2CHLOROETHYL)ETHER	111444			No Criteria		5.3	424
BIS(2CHLOROISOPROPYL)ETHER	108601			No Criteria		65000	5200000
BIS(2ETHYLHEXYL)PHTHALATE	117817			No Criteria		22	1760
BUTYL BENZYL PHTHALATE	85687			No Criteria		1900	152000
2CHLORONAPHTHALENE	91587			No Criteria		1600	128000
1,2DICHLOROBENZENE	95501			No Criteria		1300	104000
1,3DICHLOROBENZENE	541731			No Criteria		960	76800
1,4DICHLOROBENZENE	106467			No Criteria		190	15200
3,3DICHLOROBENZIDENE	91941			No Criteria		0.28	22.4
DIETHYL PHTHALATE	84662			No Criteria		44000	3520000
DIMETHYL PHTHALATE	131113			No Criteria		1100000	88000000
DInBUTYL PHTHALATE	84742			No Criteria		4500	360000
2,4DINITROTOLUENE	121142			No Criteria		34	2720
1,2DIPHENYLHYDRAZINE	122667			No Criteria		2	160
FLUORANTHENE	206440			No Criteria		140	11200
FLUORENE	86737			No Criteria		5300	424000
HEXACHLOROBENZENE	118741			No Criteria		0.0029	0.232
HEXACHLOROBUTADIENE	87683			No Criteria		180	14400
HEXACHLOROCYCLOPENTADIENE	77474			No Criteria		1100	88000
HEXACHLOROETHANE	67721			No Criteria		33	2640
ISOPHORONE	78591			No Criteria		9600	768000

NAPHTHALENE	91203			No Criteria				No Criteria
NITROBENZENE	98953			No Criteria			690	55200
NNITROSODIMETHYLAMINE	62759			No Criteria			30	2400
NNITROSODINPROPYLAMINE	621647			No Criteria			5.1	408
NNITROSODIPHENYLAMINE	86306			No Criteria			60	4800
PYRENE	129000			No Criteria			4000	320000
1,2,4trichlorobenzene	120821			No Criteria			70	5600
PESTICIDES/PCBs								
ALDRIN	309002		1.3	29.12			0.0005	0.04
Alpha BHC	319846			No Criteria			0.049	3.92
Beta BHC	319857			No Criteria			0.17	13.6
Gamma BHC (Lindane)	58899		0.16	3.584			1.8	144
CHLORDANE	57749		0.09	2.016	0.004		0.0081	0.32
4,4DDT	50293		0.13	2.912	0.001		0.0022	0.08
4,4DDE	72559			No Criteria			0.0022	0.176
4,4DDD	72548			No Criteria			0.0031	0.248
DIELDRIN	60571		0.71	15.904	0.0019		0.00054	0.0432
ENDOSULFAN (alpha)	959988		0.034	0.7616	0.0087		89	0.696
ENDOSULFAN (beta)	33213659		0.034	0.7616	0.0087		89	0.696
ENDOSULFAN (sulfate)	1031078			No Criteria			89	7120
ENDRIN	72208		0.037	0.8288	0.0023		0.06	0.184
ENDRIN ALDEHYDE	7421934			No Criteria			0.3	24
HEPTACHLOR	76448		0.053	1.1872	0.0036		0.00079	0.0632
HEPTACHLOR EPOXIDE	1024573		0.053	1.1872	0.0036		0.00039	0.0312
POLYCHLORINATED BIPHENYLS3	1336363			No Criteria	0.03		0.00064	0.0512
2,3,7,8TCDD (Dioxin)	1746016			No Criteria			0.000000051	0.00000408
TOXAPHENE	8001352		0.21	4.704	0.0002		0.0028	0.016
TRIBUTYLTIN			0.42	9.408	0.0074			0.592
NON PRIORITY POLLUTANTS:								
OTHER SUBSTANCES								
ALUMINUM (limits are total recoverable)	7429905	NA		No Criteria				No Criteria
AMMONIA as N (winter/summer)	7664417		21000 6736	386669 158770	3100 1020			203856 86500.7
4BROMOPHENYL PHENYL ETHER				No Criteria				No Criteria
CHLORIDE	16887006			No Criteria				No Criteria
CHLORINE	7782505		13	364	7.5			750
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: Bristol WWTF RIPDES PERMIT #: RI0100005

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:			
TOXIC METALS AND CYANIDE			
ANTIMONY	7440360	No Criteria	51200.00
ARSENIC, TOTAL	7440382	1545.60	112.00
ASBESTOS	1332214	No Criteria	No Criteria
BERYLLIUM	7440417	No Criteria	No Criteria
CADMIUM, TOTAL	7440439	1012.83	792.20
CHROMIUM III, TOTAL	16065831	No Criteria	No Criteria
CHROMIUM VI, TOTAL	18540299	27909.60	4510.42
COPPER, TOTAL	7440508	113.47	113.47
CYANIDE	57125	22.40	22.40
LEAD, TOTAL	7439921	5562.40	758.25
MERCURY, TOTAL	7439976	47.44	12.00
NICKEL, TOTAL	7440020	1824.01	526.83
SELENIUM, TOTAL	7782492	6509.02	5691.38
SILVER, TOTAL	7440224	56.06	No Criteria
THALLIUM	7440280	No Criteria	37.60
ZINC, TOTAL	7440666	2131.08	2131.08
VOLATILE ORGANIC COMPOUNDS			
ACROLEIN	107028	No Criteria	23200.00
ACRYLONITRILE	107131	No Criteria	200.00
BENZENE	71432	No Criteria	40800.00
BROMOFORM	75252	No Criteria	112000.00
CARBON TETRACHLORIDE	56235	No Criteria	1280.00
CHLOROBENZENE	108907	No Criteria	128000.00
CHLORODIBROMOMETHANE	124481	No Criteria	10400.00
CHLOROFORM	67663	No Criteria	376000.00
DICHLOROBROMOMETHANE	75274	No Criteria	13600.00
1,2DICHLOROETHANE	107062	No Criteria	29600.00
1,1DICHLOROETHYLENE	75354	No Criteria	568000.00
1,2DICHLOROPROPANE	78875	No Criteria	12000.00
1,3DICHLOROPROPYLENE	542756	No Criteria	1680.00
ETHYLBENZENE	100414	No Criteria	168000.00
BROMOMETHANE (methyl bromide)	74839	No Criteria	120000.00
CHLOROMETHANE (methyl chloride)	74873	No Criteria	No Criteria
METHYLENE CHLORIDE	75092	No Criteria	472000.00
1,1,2,2TETRACHLOROETHANE	79345	No Criteria	3200.00
TETRACHLOROETHYLENE	127184	No Criteria	2640.00
TOLUENE	108883	No Criteria	1200000.00
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	800000.00
1,1,1TRICHLOROETHANE	71556	No Criteria	No Criteria
1,1,2TRICHLOROETHANE	79005	No Criteria	12800.00
TRICHLOROETHYLENE	79016	No Criteria	24000.00
VINYL CHLORIDE	75014	No Criteria	192.00
ACID ORGANIC COMPOUNDS			
2CHLOROPHENOL	95578	No Criteria	12000.00
2,4DICHLOROPHENOL	120832	No Criteria	23200.00
2,4DIMETHYLPHENOL	105679	No Criteria	68000.00
4,6DINITRO2METHYL PHENOL	534521	No Criteria	22400.00
2,4DINITROPHENOL	51285	No Criteria	424000.00
4NITROPHENOL	88755	No Criteria	No Criteria
PENTACHLOROPHENOL	87865	291.20	291.20
PHENOL	108952	No Criteria	136000000.00
2,4,6TRICHLOROPHENOL	88062	No Criteria	1920.00
BASE NEUTRAL COMPUNDS			
ACENAPHTHENE	83329	No Criteria	79200.00
ANTHRACENE	120127	No Criteria	3200000.00
BENZIDINE	92875	No Criteria	0.16
PAHs		No Criteria	14.40
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	424.00
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	5200000.00
BIS(2ETHYLHEXYL)PHTHALATE	117817	No Criteria	1760.00
BUTYL BENZYL PHTHALATE	85687	No Criteria	152000.00
2CHLORONAPHTHALENE	91587	No Criteria	128000.00
1,2DICHLOROBENZENE	95501	No Criteria	104000.00
1,3DICHLOROBENZENE	541731	No Criteria	76800.00
1,4DICHLOROBENZENE	106467	No Criteria	15200.00
3,3DICHLOROBENZIDENE	91941	No Criteria	22.40
DIETHYL PHTHALATE	84662	No Criteria	3520000.00
DIMETHYL PHTHALATE	131113	No Criteria	88000000.00
DI-n-BUTYL PHTHALATE	84742	No Criteria	360000.00
2,4DINITROTOLUENE	121142	No Criteria	2720.00
1,2DIPHENYLHYDRAZINE	122667	No Criteria	160.00
FLUORANTHENE	206440	No Criteria	11200.00

FLUORENE	86737	No Criteria	424000.00
HEXACHLOROBENZENE	118741	No Criteria	0.23
HEXACHLOROBUTADIENE	87683	No Criteria	14400.00
HEXACHLOROCYCLOPENTADIENE	77474	No Criteria	88000.00
HEXACHLOROETHANE	67721	No Criteria	2640.00
ISOPHORONE	78591	No Criteria	768000.00
NAPHTHALENE	91203	No Criteria	No Criteria
NITROBENZENE	98953	No Criteria	55200.00
N-NITROSODIMETHYLAMINE	62759	No Criteria	2400.00
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	408.00
N-NITROSODIPHENYLAMINE	86306	No Criteria	4800.00
PYRENE	129000	No Criteria	320000.00
1,2,4trichlorobenzene	120821	No Criteria	5600.00
PESTICIDES/PCBs			
ALDRIN	309002	29.12	0.04
Alpha BHC	319846	No Criteria	3.92
Beta BHC	319857	No Criteria	13.60
Gamma BHC (Lindane)	58899	3.58	3.58
CHLORDANE	57749	2.02	0.32
4,4DDT	50293	2.91	0.08
4,4DDE	72559	No Criteria	0.18
4,4DDD	72548	No Criteria	0.25
DIELDRIN	60571	15.90	0.04
ENDOSULFAN (alpha)	959988	0.76	0.70
ENDOSULFAN (beta)	33213659	0.76	0.70
ENDOSULFAN (sulfate)	1031078	No Criteria	7120.00
ENDRIN	72208	0.83	0.18
ENDRIN ALDEHYDE	7421934	No Criteria	24.00
HEPTACHLOR	76448	1.19	0.06
HEPTACHLOR EPOXIDE	1024573	1.19	0.03
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.05
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00
TOXAPHENE	8001352	4.70	0.02
TRIBUTYLTIN		9.41	0.59

NON PRIORITY POLLUTANTS:			
OTHER SUBSTANCES			
ALUMINUM, TOTAL	7429905	No Criteria	No Criteria
AMMONIA (as N), WINTER (NOV-APR	7664417	386668.80	203856.00
AMMONIA (as N), SUMMER (MAY-OC	7664417	158769.89	86500.70
4BROMOPHENYL PHENYL ETHER		No Criteria	No Criteria
CHLORIDE	16887006	No Criteria	No Criteria
CHLORINE	7782505	364.00	364.00
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 A-5: Summary of Priority Pollutant Scan Data and RIPDES Permit Application Data 2017 Through 2021

source	AP/PPS year	parameter	value, mg/L	average, mg/L	max, mg/L
PPS	2021	Bromoform	0.0025		
PPS	2020	Bromoform	0.017	0.00975	0.017
PPS	2017	Copper	0.021		
PPS	2018	Copper	0.023	0.022	0.023
PPS	2021	Dibromochloromethane	0.0012	0.0012	0.0012
PPS	2020	Phenols	0.06	0.06	0.06
PPS	2017	Zinc	0.04		
PPS	2018	Zinc	0.037		
PPS	2019	Zinc	0.052	0.043	0.052
PPS	2021	Aluminum	0.126	0.126	0.126
PPS	2017	Ammonia	7800	7800	7800
Application r2	2021	Ammonia		6.23	20.3
Application r2	2021	Cadmium		0.0022	0.01
Application r2	2021	Copper		0.0168	0.045
Application r2	2021	Lead		0.01133	0.061
Application r2	2021	Nickel		0.0272	0.088
Application r2	2021	Zinc		0.04144	0.061
Application r2	2021	Total Phenolic Compounds		0.06	0.06
Application r2	2021	Bromoform		0.017	0.017
Application r2	2021	Chlorine		120	3000

Notes:

Application r2 is the 3/15/22 version of the Application which can be found in this folder:

WPLAN › Individual Permits › Major › Bristol WWTF › Bristol WWTF - 2022 Permit Reissuance › 2021 Bristol RIPDES permit reapplication

PPSs are Priority Pollutant Scans

Priority Pollutant scans referenced above can be found in this folder:

WPLAN › Individual Permits › Major › Bristol WWTF › Bristol WWTF - 2022 Permit Reissuance › priority pollutant scans

ATTACHMENT A-6: Comparison of Allowable Limits with Discharge Monitoring Report Data and State User Fee Data

Facility Name: *Bristol WWTF*
RIPDES Permit #: *RI0100005*
Outfall #: *001A*

`	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	higher of PPS/Ap Data (ug/L) 2017-2021		Ave. DMR Data (ug/L) 10/16 - 9/21		Potential Permit Limits (ug/L)		Reasonable Potential?	
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave
PRIORITY POLLUTANTS												
TOXIC METALS AND CYANIDE												
ANTIMONY	7440360	No Criteria	51200.00	---	---	---	---	---	---	51200		
ARSENIC (limits are total recoverable)	7440382	1545.60	112.00	---	---	---	---	---	1545.6	112		
ASBESTOS	1332214	No Criteria	No Criteria	---	---	---	---	---	---	---		
BERYLLIUM	7440417	No Criteria	No Criteria	---	---	---	---	---	---	---		
CADMIUM (limits are total recoverable)	7440439	1012.83	792.20	---	10	2.2	4.1	4.1	1012.83474	792.1981992	N	N
CHROMIUM III (limits are total recoverable)	16065831	No Criteria	No Criteria	---	---	---	---	---	---	---		
CHROMIUM VI (limits are total recoverable)	18540299	27909.60	4510.42	---	---	---	3.55	3.55	27909.5973	4510.416616	N	N
COPPER (limits are total recoverable)	7440508	113.47	113.47	73	45	22	21.3	20.275	113.46506	73	N	N
CYANIDE	57125	22.40	22.40	---	---	---	3.87	3.87	22.4	22.4		
LEAD (limits are total recoverable)	7439921	5562.40	758.25	---	61	11.3	7.6	7.6	5562.40117	758.2469716	N	N
MERCURY (limits are total recoverable)	7439976	47.44	12.00	---	---	---	---	---	47.4352941	12		
NICKEL (limits are total recoverable)	7440020	1824.01	526.83	---	88	27.2	29.1	28.3	1824.01273	526.8345455	N	N
SELENIUM (limits are total recoverable)	7782492	6509.02	5691.38	---	---	---	---	---	6509.01804	5691.382766		
SILVER (limits are total recoverable)	7440224	56.06	No Criteria	---	---	---	---	---	56.0586812	56.05868118		
THALLIUM	7440280	No Criteria	37.60	---	---	---	---	---	---	37.6		
ZINC (limits are total recoverable)	7440666	2131.08	2131.08	---	61	43	39.7	39.3	2131.07822	2131.078224	N	N
VOLATILE ORGANIC COMPOUNDS												
ACROLEIN	107028	No Criteria	23200.00	---	---	---	---	---	---	23200		
ACRYLONITRILE	107131	No Criteria	200.00	---	---	---	---	---	---	200		
BENZENE	71432	No Criteria	40800.00	---	---	---	---	---	---	40800		
BROMOFORM	75252	No Criteria	112000.00	---	17	9.75	---	---	---	112000	N	N
CARBON TETRACHLORIDE	56235	No Criteria	1280.00	---	---	---	---	---	---	1280		
CHLOROBENZENE	108907	No Criteria	128000.00	---	---	---	---	---	---	128000		
CHLORODIBROMOMETHANE	124481	No Criteria	10400.00	---	---	---	---	---	---	10400		
CHLOROFORM	67663	No Criteria	376000.00	---	---	---	---	---	---	376000		
DICHLOROBROMOMETHANE	75274	No Criteria	13600.00	---	1.2	1.2	---	---	---	13600	N	N
1,2DICHLOROETHANE	107062	No Criteria	29600.00	---	---	---	---	---	---	29600		
1,1DICHLOROETHYLENE	75354	No Criteria	568000.00	---	---	---	---	---	---	568000		

1,2DICHLOROPROPANE	78875	No Criteria	12000.00	---	---	---	---	---	---	12000		
1,3DICHLOROPROPYLENE	542756	No Criteria	1680.00	---	---	---	---	---	---	1680		
ETHYLBENZENE	100414	No Criteria	168000.00	---	---	---	---	---	---	168000		
BROMOMETHANE (methyl bromide)	74839	No Criteria	120000.00	---	---	---	---	---	---	120000		
CHLOROMETHANE (methyl chloride)	74873	No Criteria	No Criteria	---	---	---	---	---	---	---		
METHYLENE CHLORIDE	75092	No Criteria	472000.00	---	---	---	---	---	---	472000		
1,1,2,2TETRACHLOROETHANE	79345	No Criteria	3200.00	---	---	---	---	---	---	3200		
TETRACHLOROETHYLENE	127184	No Criteria	2640.00	---	---	---	---	---	---	2640		
TOLUENE	108883	No Criteria	1200000.00	---	---	---	---	---	---	1200000		
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	800000.00	---	---	---	---	---	---	800000		
1,1,1TRICHLOROETHANE	71556	No Criteria	No Criteria	---	---	---	---	---	---	---		
1,1,2TRICHLOROETHANE	79005	No Criteria	12800.00	---	---	---	---	---	---	12800		
TRICHLOROETHYLENE	79016	No Criteria	24000.00	---	---	---	---	---	---	24000		
VINYL CHLORIDE	75014	No Criteria	192.00	---	---	---	---	---	---	192		
ACID ORGANIC COMPOUNDS												
2CHLOROPHENOL	95578	No Criteria	12000.00	---	---	---	---	---	---	12000		
2,4DICHLOROPHENOL	120832	No Criteria	23200.00	---	---	---	---	---	---	23200		
2,4DIMETHYLPHENOL	105679	No Criteria	68000.00	---	---	---	---	---	---	68000		
4,6DINITRO2METHYL PHENOL	534521	No Criteria	22400.00	---	---	---	---	---	---	22400		
2,4DINITROPHENOL	51285	No Criteria	424000.00	---	---	---	---	---	---	424000		
4NITROPHENOL	88755	No Criteria	No Criteria	---	---	---	---	---	---	---		
PENTACHLOROPHENOL	87865	291.20	291.20	---	---	---	---	---	291.2	291.2		
PHENOL	108952	No Criteria	136000000.00	---	60	60	---	---	---	136000000	NA	N
2,4,6TRICHLOROPHENOL	88062	No Criteria	1920.00	---	---	---	---	---	---	1920		
BASE NEUTRAL COMPOUNDS												
ACENAPHTHENE	83329	No Criteria	79200.00	---	---	---	---	---	---	79200		
ANTHRACENE	120127	No Criteria	3200000.00	---	---	---	---	---	---	3200000		
BENZIDINE	92875	No Criteria	0.16	---	---	---	---	---	---	0.16		
POLYCYCLIC AROMATIC HYDROCARBONS		No Criteria	14.40	---	---	---	---	---	---	14.4		
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	424.00	---	---	---	---	---	---	424		
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	5200000.00	---	---	---	---	---	---	5200000		
BIS(2ETHYLHEXYL)PHTHALATE	117817	No Criteria	1760.00	---	---	---	---	---	---	1760		
BUTYL BENZYL PHTHALATE	85687	No Criteria	152000.00	---	---	---	---	---	---	152000		
2CHLORONAPHTHALENE	91587	No Criteria	128000.00	---	---	---	---	---	---	128000		
1,2DICHLOROBENZENE	95501	No Criteria	104000.00	---	---	---	---	---	---	104000		
1,3DICHLOROBENZENE	541731	No Criteria	76800.00	---	---	---	---	---	---	76800		
1,4DICHLOROBENZENE	106467	No Criteria	15200.00	---	---	---	---	---	---	15200		
3,3DICHLOROBENZIDENE	91941	No Criteria	22.40	---	---	---	---	---	---	22.4		
DIETHYL PHTHALATE	84662	No Criteria	3520000.00	---	---	---	---	---	---	3520000		
DIMETHYL PHTHALATE	131113	No Criteria	88000000.00	---	---	---	---	---	---	88000000		

DInBUTYL PHTHALATE	84742	No Criteria	360000.00	---	---	---	---	---	---	360000	
2,4DINITROTOLUENE	121142	No Criteria	2720.00	---	---	---	---	---	---	2720	
1,2DIPHENYLHYDRAZINE	122667	No Criteria	160.00	---	---	---	---	---	---	160	
FLUORANTHENE	206440	No Criteria	11200.00	---	---	---	---	---	---	11200	
FLUORENE	86737	No Criteria	424000.00	---	---	---	---	---	---	424000	
HEXACHLOROBENZENE	118741	No Criteria	0.23	---	---	---	---	---	---	0.232	
HEXACHLOROBUTADIENE	87683	No Criteria	14400.00	---	---	---	---	---	---	14400	
HEXACHLOROCYCLOPENTADIENE	77474	No Criteria	88000.00	---	---	---	---	---	---	88000	
HEXACHLOROETHANE	67721	No Criteria	2640.00	---	---	---	---	---	---	2640	
ISOPHORONE	78591	No Criteria	768000.00	---	---	---	---	---	---	768000	
NAPHTHALENE	91203	No Criteria	No Criteria	---	---	---	---	---	---	---	
NITROBENZENE	98953	No Criteria	55200.00	---	---	---	---	---	---	55200	
NNITROSODIMETHYLAMINE	62759	No Criteria	2400.00	---	---	---	---	---	---	2400	
NNITROSODINPROPYLAMINE	621647	No Criteria	408.00	---	---	---	---	---	---	408	
NNITROSODIPHENYLAMINE	86306	No Criteria	4800.00	---	---	---	---	---	---	4800	
PYRENE	129000	No Criteria	320000.00	---	---	---	---	---	---	320000	
1,2,4trichlorobenzene	120821	No Criteria	5600.00	---	---	---	---	---	---	5600	
PESTICIDES/PCBs											
ALDRIN	309002	29.12	0.04	---	---	---	---	---	29.12	0.04	
Alpha BHC	319846	No Criteria	3.92	---	---	---	---	---	---	3.92	
Beta BHC	319857	No Criteria	13.60	---	---	---	---	---	---	13.6	
Gamma BHC (Lindane)	58899	3.58	3.58	---	---	---	---	---	3.584	3.584	
CHLORDANE	57749	2.02	0.32	---	---	---	---	---	2.016	0.32	
4,4DDT	50293	2.91	0.08	---	---	---	---	---	2.912	0.08	
4,4DDE	72559	No Criteria	0.18	---	---	---	---	---	---	0.176	
4,4DDD	72548	No Criteria	0.25	---	---	---	---	---	---	0.248	
DIELDRIN	60571	15.90	0.04	---	---	---	---	---	15.904	0.0432	
ENDOSULFAN (alpha)	959988	0.76	0.70	---	---	---	---	---	0.7616	0.696	
ENDOSULFAN (beta)	33213659	0.76	0.70	---	---	---	---	---	0.7616	0.696	
ENDOSULFAN (sulfate)	1031078	No Criteria	7120.00	---	---	---	---	---	---	7120	
ENDRIN	72208	0.83	0.18	---	---	---	---	---	0.8288	0.184	
ENDRIN ALDEHYDE	7421934	No Criteria	24.00	---	---	---	---	---	---	24	
HEPTACHLOR	76448	1.19	0.06	---	---	---	---	---	1.1872	0.0632	
HEPTACHLOR EPOXIDE	1024573	1.19	0.03	---	---	---	---	---	1.1872	0.0312	
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.05	---	---	---	---	---	---	0.0512	
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---	---	---	---	---	---	0.00000408	
TOXAPHENE	8001352	4.70	0.02	---	---	---	---	---	4.704	0.016	
TRIBUTYLTIN		9.41	0.59						9.408	0.592	
NON PRIORITY POLLUTANTS:											
OTHER SUBSTANCES											

ALUMINUM (limits are total recoverable)	7429905	No Criteria	No Criteria	---	126	126	75.05	66.05	---	---	NA	NA
AMMONIA (winter)	7664417	386668.80	203856.00	---	20300	7800	5983	5423	386668.8	203856	N	N
AMMONIA (summer)		158769.89	86500.70	---	20300	7800	7190	6215	158769.892	86500.704	N	N
4BROMOPHENYL PHENYL ETHER	16887006	No Criteria	No Criteria	---	---	---	---	---	---	---		
CHLORIDE	7782505	No Criteria	No Criteria						---	---		
CHLORINE		364.00	364.00	---	3000	120	151.9	55.07	364	364	Y	N
4CHLORO2METHYLPHENOL		No Criteria	No Criteria	---	---	---	---	---	---	---		
1CHLORONAPHTHALENE	106489	No Criteria	No Criteria	---	---	---	---	---	---	---		
4CHLOROPHENOL		No Criteria	No Criteria	---	---	---	---	---	---	---		
2,4DICHLORO6METHYLPHENOL		No Criteria	No Criteria	---	---	---	---	---	---	---		
1,1DICHLOROPROPANE	142289	No Criteria	No Criteria	---	---	---	---	---	---	---		
1,3DICHLOROPROPANE		No Criteria	No Criteria	---	---	---	---	---	---	---		
2,3DINITROTOLUENE		No Criteria	No Criteria	---	---	---	---	---	---	---		
2,4DINITRO6METHYL PHENOL	7439896	No Criteria	No Criteria	---	---	---	---	---	---	---		
IRON	608935	No Criteria	No Criteria						---	---		
pentachlorobenzene		No Criteria	No Criteria	---	---	---	---	---	---	---		
PENTACHLOROETHANE		No Criteria	No Criteria	---	---	---	---	---	---	---		
1,2,3,5tetrachlorobenzene	630206	No Criteria	No Criteria	---	---	---	---	---	---	---		
1,1,1,2TETRACHLOROETHANE	58902	No Criteria	No Criteria	---	---	---	---	---	---	---		
2,3,4,6TETRACHLOROPHENOL		No Criteria	No Criteria	---	---	---	---	---	---	---		
2,3,5,6TETRACHLOROPHENOL	95954	No Criteria	No Criteria	---	---	---	---	---	---	---		
2,4,5TRICHLOROPHENOL	88062	No Criteria	No Criteria	---	---	---	---	---	---	---		
2,4,6TRINITROPHENOL	1330207	No Criteria	No Criteria	---	---	---	---	---	---	---		
XYLENE		No Criteria	No Criteria						---	---		

ATTACHMENT A-7: Water Quality Data

ANALYTE	SAMPLEDATE		Result	UNITS				Water Body ID	PROJECT			
Parameter	SampleDate	Reported Result	Result-pH	Unit	Station	Detection Limit	Quantitation Level	RiverID	Project	Waterbody	Station Type	SampleDepth
pH	5/17/2018	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	6/14/2018	7.8	7.8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.25
pH	7/12/2018	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	8/9/2018	8.1	8.1	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	9/6/2018	8.1	8.1	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	10/4/2018	7.8	7.8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	5/18/2017	7.88	7.88	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	6/15/2017	8.14	8.14	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	7/13/2017	7.79	7.79	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	8/10/2017	7.95	7.95	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	9/7/2017	7.75	7.75	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	10/5/2017	8.05	8.05	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	5/12/2016	8	8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	6/9/2016	7.8	7.8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	7/7/2016	7.87	7.87	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	8/4/2016	7.89	7.89	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	9/1/2016	7.95	7.95	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	9/29/2016	7.82	7.82	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	5/14/2015	8	8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	6/11/2015	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	7/9/2015	7.7	7.7	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	8/6/2015	7.7	7.7	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	9/3/2015	7.8	7.8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	10/1/2015	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	5/16/2019	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	6/13/2019	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	7/11/2019	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	7/11/2019	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Replicate	0.5
pH	8/8/2019	7.8	7.8	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	9/5/2019	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
pH	10/3/2019	7.9	7.9	Standard Units	WW488	1	1	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
	SampleDate		Result-Salinity									
Salinity, (ppt)	5/18/2017	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	6/1/2017	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	6/15/2017	28	28	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	6/29/2017	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	7/13/2017	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	7/27/2017	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	8/10/2017	31	31	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	8/24/2017	32	32	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	9/7/2017	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	9/21/2017	31	31	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	10/5/2017	31.5	31.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5

Salinity, (ppt)	6/9/2016	30.5	30.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	7/7/2016	30.5	30.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	8/4/2016	33	33	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	9/1/2016	32.5	32.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	5/14/2015	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	5/28/2015	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	6/11/2015	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	6/25/2015	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	7/9/2015	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	9/17/2015	34.5	34.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	10/1/2015	33.5	33.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	5/17/2018	27	27	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	5/31/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	6/14/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.25
Salinity, (ppt)	6/28/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	7/12/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	8/9/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	9/6/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	9/20/2018	30	30	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	10/4/2018	28	28	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Salinity, (ppt)	10/3/2019	34.5	34.5	Parts per Thousand	WW488	0.4	0.4	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
	SampleDate		Result-TdegC									
Temperature	5/18/2017	15.5	15.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	6/1/2017	15.3	15.3	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	6/15/2017	19.5	19.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	6/29/2017	20.4	20.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	7/13/2017	23	23	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	7/27/2017	20.6	20.6	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	8/10/2017	21	21	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	8/24/2017	20.5	20.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	9/7/2017	19.9	19.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	9/21/2017	19.9	19.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	10/5/2017	18.2	18.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	5/12/2016	12.4	12.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/26/2016	17.9	17.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/9/2016	17.2	17.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/23/2016	19.7	19.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/7/2016	23	23	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/21/2016	30	30	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/4/2016	22.7	22.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/18/2016	23.9	23.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	9/1/2016	23.5	23.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/12/2016	12.4	12.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/26/2016	17.9	17.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/9/2016	17.2	17.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/23/2016	19.7	19.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1

Temperature	7/7/2016	23	23	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/21/2016	30	30	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/4/2016	22.7	22.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/18/2016	23.9	23.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	9/1/2016	23.5	23.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/12/2016	12.4	12.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/26/2016	17.9	17.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/9/2016	17.2	17.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/23/2016	19.7	19.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/7/2016	23	23	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/21/2016	30	30	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/4/2016	22.7	22.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/18/2016	23.9	23.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	9/1/2016	23.5	23.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/14/2015	13.8	13.8	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	5/28/2015	17.7	17.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	6/11/2015	18.5	18.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	6/25/2015	21.6	21.6	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	7/9/2015	21.7	21.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	7/23/2015	23	23	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	8/6/2015	23.2	23.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	8/20/2015	25.7	25.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	9/3/2015	23.7	23.7	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	9/17/2015	22.3	22.3	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	10/1/2015	19.9	19.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	6/14/2018	17.2	17.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.25
Temperature	6/28/2018	20.1	20.1	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	7/12/2018	21.4	21.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	8/9/2018	26.6	26.6	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	9/6/2018	23.4	23.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	9/20/2018	20	20	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	10/4/2018	18	18	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.5
Temperature	5/16/2019	11.4	11.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	5/30/2019	15.1	15.1	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/13/2019	17.8	17.8	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	6/27/2019	21.6	21.6	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/11/2019	23.4	23.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	7/25/2019	22.4	22.4	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/8/2019	24	24	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	8/22/2019	24.9	24.9	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	9/5/2019	21.5	21.5	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	9/19/2019	17.6	17.6	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1
Temperature	10/3/2019	18.2	18.2	Degrees Celsius	WW488	0	0	RI0007026E-01D	Watershed Watch Lakes Program - URI	Bristol Harbor	Grab	0.1

ATTACHMENT B: Reassessment of the Technically Based Industrial Discharge Limit

ATTACHMENT

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see EPA's Local Limit Guidance Document (July 2004).

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period.

(Item VI. continued)

All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

  List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued RIPDES permit. For example, with a dilution ratio of 25: 1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

  All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

  In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at RIDEM.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)

POTW Name & Address : _____

RIPDES Permit # :

_____

Date RIDEM approved current TBLLs : _____

Date RIDEM approved current Sewer Use Ordinance :

_____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from RIPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?
If yes, explain.

_____

_____

Has your POTW violated any of its RIPDES permit limits and/or toxicity test requirements?

If yes, explain.

_____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.

Pollutant	Column (1) Influent Data Analyses		Column (2) MAHL Values	
	Maximum (lb/day)	Average (lb/day)	(lb/day)	Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses		Columns (2A) Water Quality Criteria (Gold Book)	
	Maximum (ug/l)	Average (ug/l)	(2A) From TBLLs (ug/l)	(2B) New (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued RIPDES permit. In Column (2), identify all pollutants that were limited in your old/expired RIPDES permit.			
Column (1) NEW PERMIT Pollutants	Limitations (ug/l)	Column (2) OLD PERMIT Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planning on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Column (1) Data Analyses		Columns (2A) (2B) Biosolids Criteria	
Pollutant	Biosolids Average (mg/kg)	From TBLLs (mg/kg)	New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

ATTACHMENT C: Industrial Pretreatment Program Annual Report Requirements

The permittee shall provide an annual report to the DEM that describes the POTW's pretreatment program activities, including activities of all participating agencies, if more than one jurisdiction is involved in the local program. The report required by this section shall be submitted electronically by March 15 annually as a NetDMR attachment or by an alternative electronic reporting system as it becomes available. The report must include, at a minimum, the applicable required data in appendix A to 40 CFR Part 127. The report required by this section must also include a summary of changes to the POTW's pretreatment program that have not been previously reported to the DEM and any other relevant information requested by the DEM. 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 permittee shall submit to the DEM a report that contains the following information:

1. A listing of Industrial Users which complies with requirements stated in 40 CFR 403.12(i). The list shall identify all Categorical Industrial Users (CIUs), Significant Industrial Users (SIUs), Non-Significant Categorical Industrial Users (NSCIUs), Middle Tier Categorical Industrial Users (MTCIUs), and any other categories of users established by the permittee;

    a. Names and addresses, or a list of deletions and additions keyed to a previously submitted list. The POTW shall provide a brief explanation of each deletion. The POTW shall also list the Industrial Users subject to categorical Pretreatment Standards that are subject to reduced reporting requirements under paragraph (e)(3);

    b. Permit status. Whether each SIU has an unexpired control mechanism and an explanation as to why any SIUs are operating without a current, unexpired control mechanism (e.g. permit);

    c. Baseline monitoring reporting requirements for newly promulgated industries;

    d. A brief description of the industry and general activities. The Standard Industrial Classification (SIC) codes that represent the economic activities of SIUs and/or CIUs must be included. If the SIC code is not provided, then the six-digit North American Industry Classification System (NAICS) code/description that represents the economic activity of SIUs must be included. If more than one SIC/NAICS code applies, each must be included;

    e. For each CIU, the permittee must state the applicable categorical standard(s) by its 40 CFR part number (e.g., Metal Finishing – part 433, Electrical and Electronic Components – part 469);

    f. For each CIU, the permittee must indicate whether the CIU is subject to one or more local limits that are more stringent than the applicable categorical standards;

    g. For each SIU and NSCIU, the maximum monthly average wastewater flow rate (in gallons per day) must be identified for the pretreatment year;

    h. For each NSCIU, identify whether the facility has reported its required annual compliance certification to the Control Authority; and

    i. For each MTSIU, identify whether the Control Authority has granted reduced reporting requirements in accordance with 40 CFR 403.12(e)(3).

2. A summary, 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.

3. A summary of compliance and enforcement activities of each Industrial User 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. This includes, but is not limited to:

    a. The number of SIUs inspected by the POTW (including inspection dates for each industrial user);

    b. SIUs sampled by the POTW for each industrial user; (including sampling dates for each industrial user);

    c. For each SIU, the number of required self-monitoring sampling events submitted to the Control Authority, and, if the SIU sampled more frequently, the actual number of self-monitoring sampling events;

    d. Compliance schedules issued (include list of subject users);

    e. Written notices of violations issues (include list of subject users);

    f. Administrative orders issued (include list of subject users);

    g. Criminal or civil suits filed (include list of subject users);

    h. Penalties obtained (include list of subject users and penalty amounts); and

    i. Other enforcement actions conducted in accordance with the approved Enforcement response Plan.

4. A list of industries which were determined, in accordance with Part I.C.6.(l) of this permit, to be in significant non-compliance required to be published in a local newspaper and a copy of proof of publication from the newspaper that the names of these violators has been published, and the month(s) that the IU(s) were in SNC.

5. A summary 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.

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

7. 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.

8. 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;

9. 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);

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

    - A description of any problems (e.g., interference with the use or disposal of biosolids or sewage sludge, violation of RIPDES permit requirements or EPA's regulations at 40 CFR 503) with the POTW's biosolids or sewage sludge within the pretreatment year.

    - 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;

11. 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. This summary may use the Annual Pretreatment Report Summary Sheet in part to fulfill this requirement. Such a comparison shall be based on the analytical results required in Parts I.A and I.B of this permit and any additional sampling data available to the permittee; and

12. A completed Annual Pretreatment Report Summary Sheet (See below).

Annual Pretreatment Report Summary Sheet

POTW Name:

RIPDES Permit #:

Pretreatment Report Period Start Date:

Pretreatment Report Period End Date:

# of Significant Industrial Users (SIUs):

# of SIUs Without Control Mechanisms:

# of SIUs not Inspected

# of SIUs not Sampled:

# of SIUs in Significant Noncompliance (SNC) with Pretreatment Standards:

# of SIUs in SNC with Reporting Requirements:

# of SIUs in SNC with Pretreatment Compliance Schedule:

# of SIUs in SNC Published in Newspaper:

# of SIUs with Compliance Schedules:

# of Violation Notices Issued to SIUs:

# of Administrative Orders Issued to SIUs:

# of Civil Suits Filed Against SIUs:

# of Criminal Suits Filed Against SIUs:

# of Categorical Industrial Users (CIUs):

# of CIUs in SNC:

Penalties
Total Dollar Amount of Penalties Collected ($):

# of IUs from which Penalties have been collected:

Local Limits
Date of Most Recent Technical Evaluation of Local Limits:

Date of Most Recent Adoption of Technically Based Local Limits:

Using current POTW influent sampling data, fill in Column (3) using the maximum and average of the 12 monthly average flows over the past year. In Column (4), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your Technically-Based Local Limits as submitted in your most recent approved Local Limits Evaluation. Include extra sheets as necessary.

Column 1	Column 2	Column 3		Column 4
Pollutant	Local Limit (mg/L)	Influent Data Analysis (lb/day)		MAHL values (lb/day)
		Maximum	Average	

PART II
TABLE OF CONTENTS

GENERAL REQUIREMENTS

DEFINITIONS

GENERAL REQUIREMENTS

(a) Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Chapter 46-12 of the Rhode Island General Laws and the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

(1) The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

(2) The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307 or 308 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment of not more than 1 year, or both.

(3) Chapter 46-12 of the Rhode Island General Laws provides that any person who violates a permit condition is subject to a civil penalty of not more than $5,000 per day of such violation. Any person who willfully or negligently violates a permit condition is subject to a criminal penalty of not more than $10,000 per day of such violation and imprisonment for not more than 30 days, or both. Any person who knowingly makes any false statement in connection with the permit is subject to a criminal penalty of not more than $5,000 for each instance of violation or by imprisonment for not more than 30 days, or both.

(b) Duty to Reapply

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

(c) Need to Halt or Reduce Not a Defense

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

(d) Duty to Mitigate

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

(e) Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures, and, where applicable, compliance with DEM "Rules and Regulations Pertaining to the Operation and Maintenance of Wastewater Treatment Facilities" and "Rules and Regulations Pertaining to the Disposal and Utilization of Wastewater Treatment Facility Sludge." This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

(f) Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause, including but not limited to: (1) Violation of any terms or conditions of this permit; (2) Obtaining this permit by misrepresentation or failure to disclose all relevant facts; or (3) A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(g) Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) Duty to Provide Information

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

(i) Inspection and Entry

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times any records that must be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

(4) Sample or monitor any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA or Rhode Island law.

(j) Monitoring and Records

(1) Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge over the sampling and reporting period.

(2) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings from continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 5 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

(3) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(4) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 and applicable Rhode Island regulations, unless other test procedures have been specified in this permit.

(5) The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall upon conviction, be punished by a fine of not more than $10,000 per violation or by imprisonment for not more than 6 months per violation or by both. Chapter 46-12 of the Rhode Island General Laws also provides that such acts are subject to a fine of not more than $5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.

(6) Monitoring results must be reported on a Discharge Monitoring Report (DMR).

(7) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136, applicable State regulations, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

(k) Signatory Requirement

All applications, reports, or information submitted to the Director shall be signed and certified in accordance with 250-RICR-150-10-1.12 of the Rhode Island Pollutant Discharge Elimination System (RIPDES) Regulations. Rhode Island General Laws, Chapter 46-12 provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.

(l) Reporting Requirements

(1) Planned changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

(2) Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with the permit requirements.

(3) Transfers. This permit is not transferable to any person except after written notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under State and Federal law.

(4) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(5) Twenty-four hour reporting. The permittee shall immediately report any noncompliance which may endanger health or the environment by calling DEM at (401) 222-4700 or (401) 222-3070 at night.

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

The following information must be reported immediately:

(i) Any unanticipated bypass which causes a violation of any effluent limitation in the permit; or

(ii) Any upset which causes a violation of any effluent limitation in the permit; or

(iii) Any violation of a maximum daily discharge limitation for any of the pollutants specifically listed by the Director in the permit.

The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

(6) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (1), (2), and (5), of this section, at the time monitoring reports are submitted. The reports shall contain the information required in paragraph (l)(5) of the section.

(7) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, they shall promptly submit such facts or information.

(m) Bypass

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

(1) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (2) and (3) of this section.

(2) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in 250-RICR-150-10-1.14(R) of the RIPDES Regulations.

(3) Prohibition of bypass.

(i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, where "severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production;

(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(C) The permittee submitted notices as required under paragraph (2) of this section.

(ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph (3)(i) of this section.

(n) Upset

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(1) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (2) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(2) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(a) An upset occurred and that the permittee can identify the cause(s) of the upset;

(b) The permitted facility was at the time being properly operated;

(c) The permittee submitted notice of the upset as required in 250-RICR-150-10-1.14(R) of the RIPDES Regulations; and

(d) The permittee complied with any remedial measures required under 250-RICR-150-10-1.14(E) of the RIPDES Regulations.

(3) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

(o) Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. Discharges which cause a violation of water quality standards are prohibited. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different or increased discharges of pollutants must be reported by submission of a new NPDES application at least 180 days prior to commencement of such discharges, or if such changes will not violate the effluent limitations specified in this permit, by notice, in writing, to the Director of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by the permit constitutes a violation.

(p) Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner consistent with applicable Federal and State laws and regulations including, but not limited to the CWA and the Federal Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq., Rhode Island General Laws, Chapters 46-12, 23-19.1 and regulations promulgated thereunder.

(q) Power Failures

In order to maintain compliance with the effluent limitation and prohibitions of this permit, the permittee shall either:

> In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or if such alternative power source is not in existence, and no date for its implementation appears in Part I,

> Halt reduce or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

(r) Availability of Reports

Except for data determined to be confidential under paragraph (w) below, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the DEM, 235 Promenade Street, Providence, Rhode Island 02908. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA and under Section 46-12-14 of the Rhode Island General Laws.

(s) State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law.

(t) Other Laws

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

(u) Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

(v) Reopener Clause

The Director reserves the right to make appropriate revisions to this permit in order to incorporate any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA or State law. In accordance with 250-RICR-150-10-1.16 and 250-RICR-150-10-1.24 of the RIPDES Regulations, if any effluent standard or prohibition, or water quality standard is promulgated under the CWA or under State law which is more stringent than any limitation on the pollutant in the permit, or controls a pollutant not limited in the permit, then the Director may promptly reopen the permit and modify or revoke and reissue the permit to conform to the applicable standard.

(w) Confidentiality of Information

(1) Any information submitted to DEM pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, DEM may make the information available to the pubic without further notice.

(2) Claims of confidentiality for the following information will be denied:

(i) The name and address of any permit applicant or permittee;

(ii) Permit applications, permits and any attachments thereto; and

(iii) NPDES effluent data.

(x) Best Management Practices

The permittee shall adopt Best Management Practices (BMP) to control or abate the discharge of toxic pollutants and hazardous substances associated with or ancillary to the industrial manufacturing or treatment process and the Director may request the submission of a BMP plan where the Director determines that a permittee's practices may contribute significant amounts of such pollutants to waters of the State.

(y) Right of Appeal

Within thirty (30) days of receipt of notice of a final permit decision, the permittee or any interested person may submit a request to the Director for an adjudicatory hearing to reconsider or contest that decision. The request for a hearing must conform to the requirements of 250-RICR-150-10-1.50 of the RIPDES Regulations.

DEFINITIONS

1. For purposes of this permit, those definitions contained in the RIPDES Regulations and the Rhode Island Pretreatment Regulations shall apply.

2. The following abbreviations, when used, are defined below.

cu. M/day or M^3/day	cubic meters per day
mg/l	milligrams per liter
ug/l	micrograms per liter
lbs/day	pounds per day
kg/day	kilograms per day
Temp. ^oC	temperature in degrees Centigrade
Temp. ^oF	temperature in degrees Fahrenheit
Turb.	turbidity measured by the Nephelometric Method (NTU)
TNFR or TSS	total nonfilterable residue or total suspended solids
DO	dissolved oxygen
BOD	five-day biochemical oxygen demand unless otherwise specified
TKN	total Kjeldahl nitrogen as nitrogen
Total N	total nitrogen
NH_3-N	ammonia nitrogen as nitrogen
Total P	total phosphorus
COD	chemical oxygen demand
TOC	total organic carbon
Surfactant	surface-active agent
pH	a measure of the hydrogen ion concentration
PCB	polychlorinated biphenyl
CFS	cubic feet per second
MGD	million gallons per day
Oil & Grease	Freon extractable material
Total Coliform	total coliform bacteria
Fecal Coliform	total fecal coliform bacteria
ml/l	milliliter(s) per liter
NO_3-N	nitrate nitrogen as nitrogen
NO_2-N	nitrite nitrogen as nitrogen
NO_3-NO_2	combined nitrate and nitrite nitrogen as nitrogen
$C1_2$	total residual chlorine