

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,

U.S. Environmental Protection Agency
Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, RI

is authorized to discharge from a facility located at

U.S. Environmental Protection Agency
Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, Rhode Island

to receiving waters named

Narragansett Bay – West Passage

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

This permit shall become effective on _____.

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

This permit supersedes the permit issued on May 18, 2005.

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

Signed this _____ day of _____ 2013.

DRAFT

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

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

| Effluent Characteristic | Discharge Limitations | | | | Monitoring Requirement | | |
|-------------------------------|-----------------------|--------------------------|---------------------------------|----------------|------------------------|------------------------|--------------------------------|
| | Average Monthly | (lbs./day) Maximum Daily | (specify units) Average Monthly | Average Weekly | Maximum Daily | Measurement Frequency | Sample Type |
| Flow (MGD) | 0.98 MGD | | | | | 2/Quarter ² | Estimate |
| BOD ₅ | | | | | 9.2 mg/l | 2/Quarter ² | Composite ¹ |
| Total Suspended Solids (TSS) | | | | | --- mg/l | 2/Quarter ² | Composite ¹ |
| Fecal Coliform | | | | | -- MPN/100 ml | 2/Quarter ² | Grab |
| Dissolved Oxygen (DO) | | | | | (--- mg/l) | 2/Quarter ² | 3 Grabs/discharge |
| Total Residual Chlorine (TRC) | | | 0.434 mg/l | | 0.434 mg/l | 1/Quarter ² | 3 Grabs/discharge ³ |

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

¹The composite sample shall consist of sample aliquots taken a minimum of every 15 minutes during discharge.

²Sampling shall be done twice per quarter, one sampling event must take place concurrently with filter disinfection/rinsing and one sampling event must take place concurrently with filter backwash (no disinfection occurring).

³Compliance with these limitations shall be determined by taking three grab samples per discharge day while a filter disinfection/rinsing event is taking place, equally spaced over the discharge period. The maximum daily and average monthly values are to be computed from the averaged grab sample results for each day. The following methods may be used to analyze the grab samples: (1) DPD spectrophotometric, EPA No. 330.5 or Standard Methods (18th Edition) No.4500-CI G; (2) DPD Titrimetric, EPA No. 330.4 or Standard Methods (18th Edition) No. 4500-CI F; (3) Amperometric Titration, EPA No. 330.1 or Standard Methods (18th Edition) No. 4500-CI D or ASTM No. D1253-86(92);

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

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001 (final discharge point located outside the facility that includes the following: filtered seawater used in the wet labs, bypassed unfiltered seawater, and intermittent discharges of filter backwash and filter chlorination rinsate).

2.
 - a. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 standard units at anytime, 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.
3. This permit only authorizes the discharge of boat bottom wash water from aluminum and fiberglass boats that do not have anti-fouling paint, provided that detergents are not used. Proper Best Management Practices (BMPs) must be used during the washing process to minimize exposure of the motors and their components to the wash water.
4. The permittee is not authorized to use any chemical additive(s)/cleaner(s) in the operation of the seawater filtration system, except the use of sodium hypochlorite during the disinfection process. The permittee shall obtain Department approval prior to using any additive(s)/cleaner(s).
5. The permittee shall assure the proper management of solid and hazardous waste in accordance with regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1978 (40 U.S.C. 6901 et seq.), or amendments thereto.
6. This permit does not authorize discharges to the separate storm sewer system or to waters of the State from floor drains and trench drains located inside of the EPA building and/or laboratories.
7. The discharge shall not contain any waste flows from experimental test systems.
8. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:
 - a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 ug/l);
 - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitro-phenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21(g)(7); or
 - (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.
 - b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification

levels":

- (1) Five hundred micrograms per liter (500 ug/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. s122.21(g)(7); or
 - (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.
- c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or by-product any toxic pollutant which was not reported in the permit application
9. This permit serves as the State's Water Quality Certificate for the discharges described herein.

B. DETECTION LIMITS

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

The report entitled "Methods for the Determination of Metals in Environmental Samples" includes a test which must be performed in order to determine if matrix interferences are present, and a series of tests to enable reporting of sample results when interferences are identified. Each step of the series of tests becomes increasingly complex, concluding with the complete Method of Standard Additions analysis. The analysis need not continue once a result which meets the applicable quality control requirements has been obtained. Documentation of all steps conducted to identify and account for matrix interferences shall be 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 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 required MDL from this section 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) | Pesticides - EPA Method 608 | | MDL ug/l (ppb) |
|--|----------------------------|-----------------------|--------------------------------------|--|-----------------------|
| 1V | acrolein | 10.0 | 18P | PCB-1242 | 0.289 |
| 2V | acrylonitrile | 5.0 | 19P | PCB-1254 | 0.298 |
| 3V | benzene | 1.0 | 20P | PCB-1221 | 0.723 |
| 5V | bromoform | 1.0 | 21P | PCB-1232 | 0.387 |
| 6V | carbon tetrachloride | 1.0 | 22P | PCB-1248 | 0.283 |
| 7V | chlorobenzene | 1.0 | 23P | PCB-1260 | 0.222 |
| 8V | chlorodibromomethane | 1.0 | 24P | PCB-1016 | 0.494 |
| 9V | chloroethane | 1.0 | 25P | toxaphene | 1.670 |
| 10V | 2-chloroethylvinyl ether | 5.0 | | | |
| 11V | chloroform | 1.0 | | | |
| 12V | dichlorobromomethane | 1.0 | | | |
| 14V | 1,1-dichloroethane | 1.0 | | | |
| 15V | 1,2-dichloroethane | 1.0 | | | |
| 16V | 1,1-dichloroethylene | 1.0 | | | |
| 17V | 1,2-dichloropropane | 1.0 | | | |
| 18V | 1,3-dichloropropylene | 1.0 | | | |
| 19V | ethylbenzene | 1.0 | | | |
| 20V | methyl bromide | 1.0 | | | |
| 21V | methyl chloride | 1.0 | | | |
| 22V | methylene chloride | 1.0 | | | |
| 23V | 1,1,2,2-tetrachloroethane | 1.0 | | | |
| 24V | tetrachloroethylene | 1.0 | | | |
| 25V | toluene | 1.0 | | | |
| 26V | 1,2-trans-dichloroethylene | 1.0 | | | |
| 27V | 1,1,1-trichloroethane | 1.0 | | | |
| 28V | 1,1,2-trichloroethane | 1.0 | | | |
| 29V | trichloroethylene | 1.0 | | | |
| 31V | vinyl chloride | 1.0 | | | |
| Acid Compounds - EPA Method 625 | | MDL ug/l (ppb) | Base/Neutral - EPA Method 625 | | MDL ug/l (ppb) |
| 1A | 2-chlorophenol | 1.0 | 1B | acenaphthene * | 1.0 |
| 2A | 2,4-dichlorophenol | 1.0 | 2B | acenaphthylene * | 1.0 |
| 3A | 2,4-dimethylphenol | 1.0 | 3B | anthracene * | 1.0 |
| 4A | 4,6-dinitro-o-cresol | 1.0 | 4B | benzidine | 4.0 |
| 5A | 2,4-dinitrophenol | 2.0 | 5B | benzo(a)anthracene * | 0.013 |
| 6A | 2-nitrophenol | 1.0 | 6B | benzo(a)pyrene * | 0.023 |
| 7A | 4-nitrophenol | 1.0 | 7B | 3,4-benzofluoranthene * | 0.018 |
| 8A | p-chloro-m-cresol | 2.0 | 8B | benzo(ghi)perylene * | 2.0 |
| 9A | pentachlorophenol | 1.0 | 9B | benzo(k)fluoranthene * | 0.017 |
| 10A | phenol | 1.0 | 10B | bis(2-chloroethoxy)methane | 2.0 |
| 11A | 2,4,6-trichlorophenol | 1.0 | 11B | bis(2-chloroethyl)ether | 1.0 |
| | | | 12B | bis(2-chloroisopropyl)ether | 1.0 |
| | | | 13B | bis(2-ethylhexyl)phthalate | 1.0 |
| | | | 14B | 4-bromophenyl phenyl ether | 1.0 |
| | | | 15B | butylbenzyl phthalate | 1.0 |
| | | | 16B | 2-chloronaphthalene | 1.0 |
| | | | 17B | 4-chlorophenyl phenyl ether | 1.0 |
| | | | 18B | chrysene * | 0.15 |
| | | | 19B | dibenzo (a,h) anthracene * | 0.03 |
| | | | 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 * | 0.043 |
| | | | 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 |
| 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 | chlordan | 0.211 | | | |
| 7P | 4,4' -DDT | 0.251 | | | |
| 8P | 4,4' -DDE | 0.049 | | | |
| 9P | 4,4' -DDD | 0.139 | | | |
| 10P | dieldrin | 0.082 | | | |
| 11P | alpha-endosulfan | 0.031 | | | |
| 12P | beta-endosulfan | 0.036 | | | |
| 13P | endosulfan sulfate | 0.109 | | | |
| 14P | endrin | 0.050 | | | |
| 15P | endrin aldehyde | 0.062 | | | |
| 16P | heptachlor | 0.029 | | | |
| 17P | heptachlor epoxide | 0.040 | | | |

OTHER TOXIC POLLUTANTS

| | MDL ug/l (ppb) |
|--------------------------------|-----------------------|
| BOD ₅ | 4.0 mg/l |
| TSS | 2.0 mg/l |
| Fecal Coliform | 2.0 MPN/100 ml |
| TRC | 5.0 mg/l |
| Antimony, Total | 3.0 |
| Arsenic, Total | 1.0 |
| Beryllium, Total | 0.2 |
| Cadmium, Total | 0.1 |
| Chromium, Total | 1.0 |
| Chromium, Hexavalent*** | 20.0 |
| Copper, Total | 1.0 |
| Lead, Total | 1.0 |
| Mercury, Total | 0.2 |
| Nickel, Total | 1.0 |
| Selenium, Total | 2.0 |
| Silver, Total | 0.5 |
| Thallium, Total | 1.0 |
| Zinc, Total | 5.0 |
| Asbestos | ** |
| Cyanide, Total | 10.0 |
| Phenols, Total*** | 50.0 |
| TCDD | ** |
| MTBE (Methyl Tert Butyl Ether) | 1.0 |
| Total Xylenes | 0.5 |
| Ethanol | 2.0 mg/l |

* Polynuclear Aromatic Hydrocarbons

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

*** Not a priority pollutant as designated in the 1997 Water Quality Regulations (Table 5)

NOTE:

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.

C. MONITORING AND REPORTING

1. Monitoring

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

2. Reporting

Monitoring results obtained during the previous calendar quarter shall be summarized and reported on Discharge Monitoring Report Form(s), postmarked no later than the 15th day of the month following the completed calendar quarter.

Testing shall be reported as follows:

| <u>Quarter Testing to be Performed</u> | <u>Report Due No Later Than</u> |
|--|---------------------------------|
| January 1 – March 31 | April 15 |
| April 1 – June 30 | July 15 |
| July 1 – September 30 | October 15 |
| October 1 – December 31 | January 15 |

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

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

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RHODE ISLAND 02908-5767

STATEMENT OF BASIS

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

RIPDES PERMIT NO.

RI0000949

NAME AND ADDRESS OF APPLICANT:

U.S. Environmental Protection Agency
Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, Rhode Island 02882

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

U.S. Environmental Protection Agency
Atlantic Ecology Division
27 Tarzwell Drive
Narragansett, Rhode Island

RECEIVING WATER:

Narragansett Bay – West Passage

CLASSIFICATION:

SB

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

The above named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for reissuance of a RIPDES Permit to discharge into the designated receiving water. The applicant's discharges consist of filtered seawater used in the wet labs, bypassed unfiltered seawater, and intermittent discharges of filter back wash and filter chlorination rinsate. This permit also authorizes the discharge of boat bottom wash water from aluminum and fiberglass boats that are not painted with anti-fouling paints provided that detergents are not used. The discharge is to the West Passage of Narragansett Bay.

II. Limitations and Conditions

The effluent limitations of the draft permit, the monitoring requirements, and any implementation
RI0000949_USEPA2013_PN

schedule (if required) may be found in the draft permit.

III. **Description of Discharge**

The Environmental Protection Agency (EPA) Atlantic Ecology Division (AED) in Narragansett, Rhode Island is engaged in measuring the effects of pollutants on marine and estuarine organisms and ecosystems. Research at the AED focuses on the ecological effects of human activities on the coastal waters and watersheds of the Atlantic seaboard, with particular emphasis on the effects of these activities on the populations of fish, shellfish, and aquatic dependent life. AED's research activities primarily fall within the disciplines of coastal marine ecology, aquatic toxicology, and marine chemistry. Using this expertise, AED researchers support the mission of EPA by (1) conducting scientific research, (2) providing scientific and organizational leadership, and (3) supplying technical advice to the EPA program offices and regions.

The facility reapplied to reissue its RIPDES permit on September 18, 2009 and amended its application on February 9, 2010. In the amendment it was noted that the facility had ceased its filter backwash chlorination process when the facility replaced sand as the filtration media with Perma-Bead Media. These beads eliminate clogging, channeling and compaction in sand filters and require no plumbing changes in the pre-existing filtration system. The very hard polymer surface properties of Perma-Beads prevent microbial growth from etching into the surface and the slipperiness prevents growth from adhering onto the polymer substrate. Growth can be scrubbed off as the bed fluidizes during the backwash cycle. Since it was anticipated that backwash and disinfection may still be required in the future, the facility requested to leave the permit requirements for both process flows. The DEM commented on the reapplication on April 26, 2011 and in a June 1, 2011 response to the deficiencies it was noted that filter chlorination and backwash was resuming.

Outfall 001A discharges to the West Passage of Narragansett Bay in the segment defined as water body ID number RI0007027E-03H. This segment is described as the West Passage waters within a 700 foot radius of the extension of South Ferry Road at the URI Bay Campus, including the EPA dock located north of South Ferry Road and the GSO dock located south of South Ferry Road. This segment is located in Narragansett and is classified as Class SB water body according to the RI Water Quality Regulations. Class SB waters are designated for primary and secondary contact recreational activities; shellfish harvesting for controlled relay and depuration; and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation, and industrial cooling. These waters shall have good aesthetic value. Currently, this segment is not listed as impaired.

The discharge to Narragansett Bay consists of water that is drawn from the Bay, some of which is directed to the aquaria used for raising experimental organisms. No contaminants are introduced into these aquaria. Most of the flow is bypassed back to the Bay. A portion of the water is filtered before use and the filters are backwashed every 24 hours without disinfection (or more often as needed). The backwash is included in the discharge.

The discharge is composed of filtered seawater used in the wet labs, bypassed unfiltered seawater, and intermittent discharges of filter back wash and filter chlorination rinsate. Wastewater generated in experimental test systems is pretreated and discharged to the Narragansett Municipal Sewer System. This permit also authorizes the discharge of boat bottom wash water from aluminum and fiberglass boats that are not painted with anti-fouling paints provided that detergents are not used.

A quantitative description of the discharge from Outfall 001 in terms of significant effluent parameters based on Discharge Monitoring Report Data for the past five (5) years is shown in Attachment A-1. Attachment A-2 includes a site location map; and Attachment A-3 includes a line flow diagram for Outfall 001A for estimated flow.

IV. **Permit Basis and Explanation of Effluent Limitation Derivation**

General Requirements

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

When developing effluent limits for RIPDES Permits DEM is required to consider treatment technology and water quality requirements. Technology based treatment requirements represent the minimum level of control that must be imposed under Section 402 and 301(b) of the CWA (see 40 CFR 125 Subpart A) to meet Best Practicable Control Technology Currently Available (BPT), Best Conventional Control Technology (BCT) for conventional pollutants, and Best Available Technology Economically Achievable (BAT) for toxic pollutants. EPA has not promulgated National Effluent Guidelines for discharges from aquatic research facilities. In the absence of technology-based guidelines, DEM is authorized to use Best Professional Judgement (BPJ) to establish effluent limitations, in accordance with Section 402(a)(1) of the CWA.

Under Section 301 (b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Rhode Island Water Quality Standards include a narrative statement that prohibits the discharge of any pollutant or combination of pollutants in quantities that would be toxic or injurious to aquatic life. In addition, the State has adopted EPA's numerical criteria for specific toxic pollutants and toxicity criteria as published in the EPA Quality Criteria for Water, 1986, (EPA 440/5-86-001) as amended.

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

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

Explanation of Effluent Limitation Derivation and Conditions

The draft RIDES permit for the EPA AED includes numeric effluent limitations for protection of the environment. The effluent parameters in the draft permit are discussed in more detail below following the effluent limitation derivation for the one Outfall being regulated by this permit.

Outfall 001A: Effluent limitations for Outfall 001A have been established for Flow, BOD₅, and Total Residual Chlorine (TRC). Flow and BOD₅ monitoring is carried over from the previous permits dated December 3, 1986 and May 18, 2005. As a result of the design flow increase at the EPA AED from 0.6 MGD to 0.98 MGD, the DEM has modified the allowable discharge limit for BOD₅ at Outfall 001A so the mass load remains constant. The constant mass loading is applied at Outfall 001A as this is the final discharge point into the receiving water. A ratio of old design flow to the new design flow was used to adjust the Outfall 001A maximum daily concentration limit of BOD₅. The daily max limit of BOD₅ at Outfall 001A changed from 15 mg/L to 9.2 mg/L due to the increased flow limit.

The narrative effluent limitations for pH are based on the saltwater water quality criteria established in Table 2.8.D (3) of the State's Water Quality Regulations for Saltwater Receiving Waters.

Outfall 001A must also be monitored for Total Suspended Solids (TSS), Fecal Coliform, and

Dissolved Oxygen (DO) twice per quarter, where one sampling event is concurrent with disinfection/rinsing and one sampling event is concurrent with filter backwash (no disinfection occurring). These pollutants were chosen as the DEM has identified these parameters as being present in discharges from facilities with similar operations (indicators used to characterize contamination from the filter disinfection/rinsing, filter backwash, and aquatic organism wet testing processes) and to evaluate the loading of these pollutants from the EPA facility.

In the May 2005 reissuance of the permit the DEM required Settleable Solids, Ammonia, TKN, nitrate, nitrite, and total nitrogen be monitored on a quarterly basis in order to obtain data that would be used to make a determination on the necessity for future nutrient limits for the facility. In the EPA AED's June 1, 2011 response to deficiencies on its reapplication and in other correspondence, the facility requested that settleable solids, Ammonia, and TKN be removed from the monitoring requirements of the permit. Upon evaluation of the Discharge Monitoring Report (DMR) data for the period September 2005 – September 2012 the DEM has removed monitoring requirements for settleable solids, Ammonia, TKN, nitrate, nitrite and total nitrogen. This determination was made based on the fact that the data was either below or slightly above detection limits and that at these low levels the discharge would pose no concern of impacting water quality.

Flow: The flow limitation is based on the facility's maximum pumping capacity. In the previous reapplication process and permit issued on May 18, 2005 it was identified that the average flow intake/outtake was 0.6 MGD. This average design value has been the permitted monthly average flow from the facility for the past two permits issued in 1986 and 2005. The most recent reapplication identified conflicting average flows in the forms and in diagrams and schematics of the seawater intake system. The DEM's April 2011 comment letter required the EPA to amend its application and line drawings to reflect the correct average flows between intakes, operations, treatment units, and outfall. The June 2011 response by EPA noted that for total daily seawater flow that the pumps are rated for 680 gallons per minute, there are two (2) pumps that are alternated on a monthly basis with one pump running at a time, and that based on the rating of the pump it is calculated that 980,000 gallons per day (0.98 MGD) is pumped for intake. Therefore, the monthly average flow limit assigned in the permit is 0.98 MGD.

Total Residual Chlorine: The first step in the process used to calculate an effluent limitation for total residual chlorine is to establish the size of the mixing zone. The procedure used to establish the size of this zone was detailed in the US Environmental Protection Agency's document entitled "Technical Support Document for Water Quality Based Toxics Control" (EPA/505/2-90-001) or the "TSD". The TSD proscribes a procedure to establish the size of a regulatory mixing zone by choosing the most restrictive of the following three cases:

1. 10% of the distance from the edge of the outfall structure to the edge of the regulatory mixing zone in any spatial direction.
2. 50 times the discharge length scale in any spatial direction where the discharge length scale equals the square root of the cross sectional area of the discharge outlet.
3. Five times the local water depth in any horizontal direction from any discharge outlet.

A regulatory mixing zone is not given for this outfall, so criteria 1 is not relevant here. Criteria 2 yields a distance from the outfall of 20.3 meters (66.47 feet). Criteria 3 is 5 times the local water depth of 2m (this number was provided by the USEPA lab) which yields 10 meters (32.81 feet). This third criteria is the most restrictive and so the distance of 10 meters was used as the acute mixing zone.

The next step in the process used to calculate an effluent limitation for total residual chlorine was the use of the Cormix model to calculate the dilution factor at a given distance from the outfall, given a host of input parameters. Cormix is designed to simulate the dilution characteristics of submerged multiport diffuser discharges, submerged single port discharges, or above surface

discharges. The ultimate goal of the use of Cormix is to determine the contaminant concentration and related dilution factor at a given distance from the outfall, which in this case is 10 meters, from the third TSD criteria, above. The input parameters for the Cormix run were as follows: average water depth (2m), depth at discharge (2m), Darcy-Weisbach friction factor for the bottom surface of the channel (calculated value of 0.0561 based on a Manning number of 0.03 [corresponding to a smooth channel with a surface roughness of 500mm]), a wind velocity of 4.52 m/s (median average monthly wind speed in Narragansett, Rhode Island), tidal simulation at time -3.1 hours, water speed/tidal velocity of 0.412 m/s, period of tidal reversal of 12.4 hours, water density of 1025 kg/m³, flush shoreline discharge, distance from bank to outlet of 0 meters (in fact there is an offset between the bank and the outlet, however the discharge was modeled as flowing from a channel into the bay), discharge angle of 90 degrees, depth near discharge outlet of 2 meters, bottom slope at discharge 41 degrees, rectangular pipe length and width of 0.4052 meters (equivalent to the cross sectional area of the 18" pipe diameter), discharge flow rate 0.0429 m³/s, discharge density 1025 kg/m³, discharge concentration 0.434 mg/l. Given an area of interest with a radius of 10 meters, centered at the outfall, Cormix calculated that the corresponding dilution factor is 33.4. This dilution factor of 33.4 is considered to be the acute dilution factor. Cormix was again used to calculate the dilution factor at a distance of 100 meters from the outfall, keeping all other input parameters the same as the 10 meter case. A distance of 100 meters was chosen for the chronic mixing zone based on criteria 1 from the Technical Support Document that proposes that the acute mixing zone radius (10 meters in this case) is 10% of the size of the chronic mixing zone. Cormix calculated that dilution factor at 100 meters from the outfall to be 57.9. Therefore, the dilution factor of 57.9 is considered to be the chronic dilution factor.

The third step in the process used to develop the effluent limitation for total residual chlorine was to calculate the acceptable concentration of chlorine at the edge of the mixing zones. 100% allocation of total residual chlorine (TRC) was used due to the fact that Chlorine is not expected to be found in ambient water and is a non-conservative pollutant.

Water quality-based limits were calculated for chlorine using the dilution at the edge of the areas of interest (10 meter radius and 100 meter radius) based on the dilution factors from Cormix and the RI Water Quality Criteria. Based on these calculations, the daily maximum limit for chlorine is 434.2 µg/L and the monthly average limit for chlorine is 434.25 µg/L. As the daily maximum limit is more stringent than the monthly average limit both limits are set equal to the daily maximum limit of 434.2 µg/L. The spreadsheet used to calculate water quality based limits is presented in Attachment A-4.

Historic TRC levels in the discharge have been as high as 330 µg/L and frequently approach 300 µg/L, based on historic Discharge Monitoring Report (DMR) data. Therefore, there is reasonable potential for limits being exceeded. As a result, the permit includes the above-mentioned TRC limits.

In accordance with 40 CFR 122.4(d)(1)(iii), it is only necessary to establish water quality-based permit limits for those pollutants in the discharge which have the reasonable potential to cause or contribute to the exceedance of instream criteria. In order to evaluate the need for permit limits, the most stringent calculated acute and chronic limits were compared to the Discharge Monitoring Report (DMR) data for the period September 2005 – September 2012 and the information included in the facility's RIPDES application. Based on the analysis presented above, water quality based permit limits are only required for Total Residual Chlorine.

Boat Bottom Pressure Wash Water: In the EPA AED's June 1, 2011 response to comments on the facility's reapplication it was identified that the facility was planning on washing EPA owned boats using a hot water/detergent mixture after their return from field activities. The mixture would be at approximately 180 degrees Fahrenheit and could range from 5 to 20 gallons of solution per wash down. The number of wash downs per year would be approximately 75. It was noted that there is a nearby storm drain that discharges to Narragansett Bay, and the area

where boats would be washed slopes towards this area. During a June 16, 2011 DEM inspection of the EPA AED, the building where boats are stored and where wash downs would occur was observed. EPA was informed that this wash water discharge is considered to be a “process” discharge, and is not an allowed non-storm water discharge under the Multi-Sector General Permit. In a post-inspection follow-up notification, the DEM noted that the Office of Customer and Technical Assistance has developed a draft Boat Bottom Pressure Washing Guidance document that recommends that facilities with this type of operation install a recycling system, collect and ship wastewater to a treatment facility, or receive permission to discharge to a sewer system. Based on the inspection, multi-sector permit requirements, and guidance the DEM prohibited the discharge of boat bottom wash water to the Narragansett Bay due to the potential pollutants that may be present and the fact that treatment would be needed and requested EPA provide a proposal on which of the above methods would be most suitable for the facility. In following discussions between DEM and EPA’s Office of Research and Development it was determined that EPA would develop a procedure to perform pressure washing of boats and then collect samples of the wash water and analyze for oil and grease, aluminum, and total petroleum hydrocarbons. This procedure and the results are discussed below.

From the above discussion, the EPA AED’s fleet of boats (without anti-fouling paint) were grouped into those with motors and those without motors; boats in each group were washed down with hot water pressure washer or rinse water only without any detergents; wash water from each group was collected and the samples sent off-site for certified laboratory analysis of oil and grease, aluminum, and total petroleum hydrocarbons (TPH); and the sample results/summary forwarded to DEM for review of data. In an April 5, 2012 submittal the results for the above testing procedure was sent to the DEM for review. In this submittal the following was noted: the sampling represent the AED’s normal daily operations except that not all boats would be washed at one time since not all boats are used on a daily basis; at the end of each collection day approximately 20 gallons of water minus the sample volume was collected after the boats and tarp were washed; and the EPA AED understands that boats with anti-fouling paint will continue to be washed off-site at appropriately equipped marinas in the area that have been permitted by the local POTW for the treatment of such wash water. From review of the collection of boat washing effluent for analysis attached to the above submittal, below is a summary of data for the four groups of boats:

Boat Bottom Wash Water Sampling Results (samples taken March 14, 2012)

| | Non-Motorized Fiberglass | Non-Motorized Aluminum | Motorized Fiberglass | Motorized Aluminum |
|-----------------------|-----------------------------|---------------------------|-------------------------|-----------------------|
| Aluminum, mg/L | 0.56 | 4.25 | 1.18 | 1.84 |
| Oil & Grease, mg/L | 3 | 3 | 12 | 12 |
| TPH, mg/L | <2 | <2 | 7 | 7 |

Review of the above data displays elevated levels of oil and grease and Total Petroleum Hydrocarbons (TPH) in those boats that have motors. It should be noted that the DEM Water Quality Regulations for saltwater receiving waters do not have water quality criteria for aluminum. Therefore, this permit only authorizes the discharge of boat bottom wash water from aluminum and fiberglass boats/vessels that do not have anti-fouling paint, provided that detergents are not used. The permit also requires that appropriate Best Management Practices be used to minimize exposure of motors and their components to wash water. This will ensure that the wash water does not contain elevated levels of Oil and Grease or TPH.

Antibacksliding: EPA’s antibacksliding provision at 40 CFR §122.44(l) prohibit the relaxation of permit limits, standards, and conditions unless the circumstances on which previous permit was based have materially and substantially changed since the time the permit was issued.

Although the flow at the facility has substantially increased since the issuance of the last RIPDES

permit, the limits in this permit have been set to keep the mass loads constant. Therefore, since all of the permit limits are at least as stringent as those from the previous permit, this permit satisfies the antibacksliding provisions at 40 CFR §122.44(l).

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

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. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to the Rhode Island Department of Environmental Management. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Director finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Director will respond to all significant comments and make these responses available to the public at DEM's Providence Office.

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

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:

Aaron Mello
RIPDES Program
Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-6820 Ext.7405
Email: aaron.mello@dem.ri.gov

Date

Joseph B. Haberek, P.E.
Principal Sanitary Engineer
RIPDES Permitting Section
Office of Water Resources
Department of Environmental Management

ATTACHMENT A-1

DESCRIPTION OF DISCHARGES: 001A – Effluent from the facility that includes filtered seawater used in the wet labs, bypassed unfiltered seawater, and intermittent discharges of filter backwash and filter chlorination rinsate

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE:

| PARAMETER | AVERAGE¹ | MAXIMUM² |
|-------------------------|----------------------------|----------------------------|
| FLOW (MGD) | | <u>0.4296</u> MGD |
| BOD ₅ | | < <u>3.8148</u> mg/l |
| TSS | | < <u>21.70</u> mg/l |
| pH | <u>7.57</u> S.U. (Minimum) | <u>7.81</u> S.U. (Maximum) |
| Settleable Solids | | < <u>0.2143</u> ml/l |
| Ammonia (as N) | | < <u>0.1536</u> mg/l |
| TKN (as N) | | < <u>1.126</u> mg/l |
| Total Nitrate (as N) | | < <u>0.1058</u> mg/l |
| Total Nitrite (as N) | | < <u>0.0153</u> mg/l |
| Total Nitrogen | | < <u>0.8904</u> mg/l |
| Fecal Coliform | | < <u>11.69</u> MPN/100 ml |
| Dissolved Oxygen | | <u>11.34</u> mg/l |
| Total Residual Chlorine | < <u>0.0695</u> mg/l | < <u>0.1049</u> mg/l |

¹Data represents the mean of the monthly average data from September 2005 through September 2012.

²Data represents the mean of the daily maximum data from September 2005 through September 2012.

BDL = Below Detection Limit

ATTACHMENT A-2

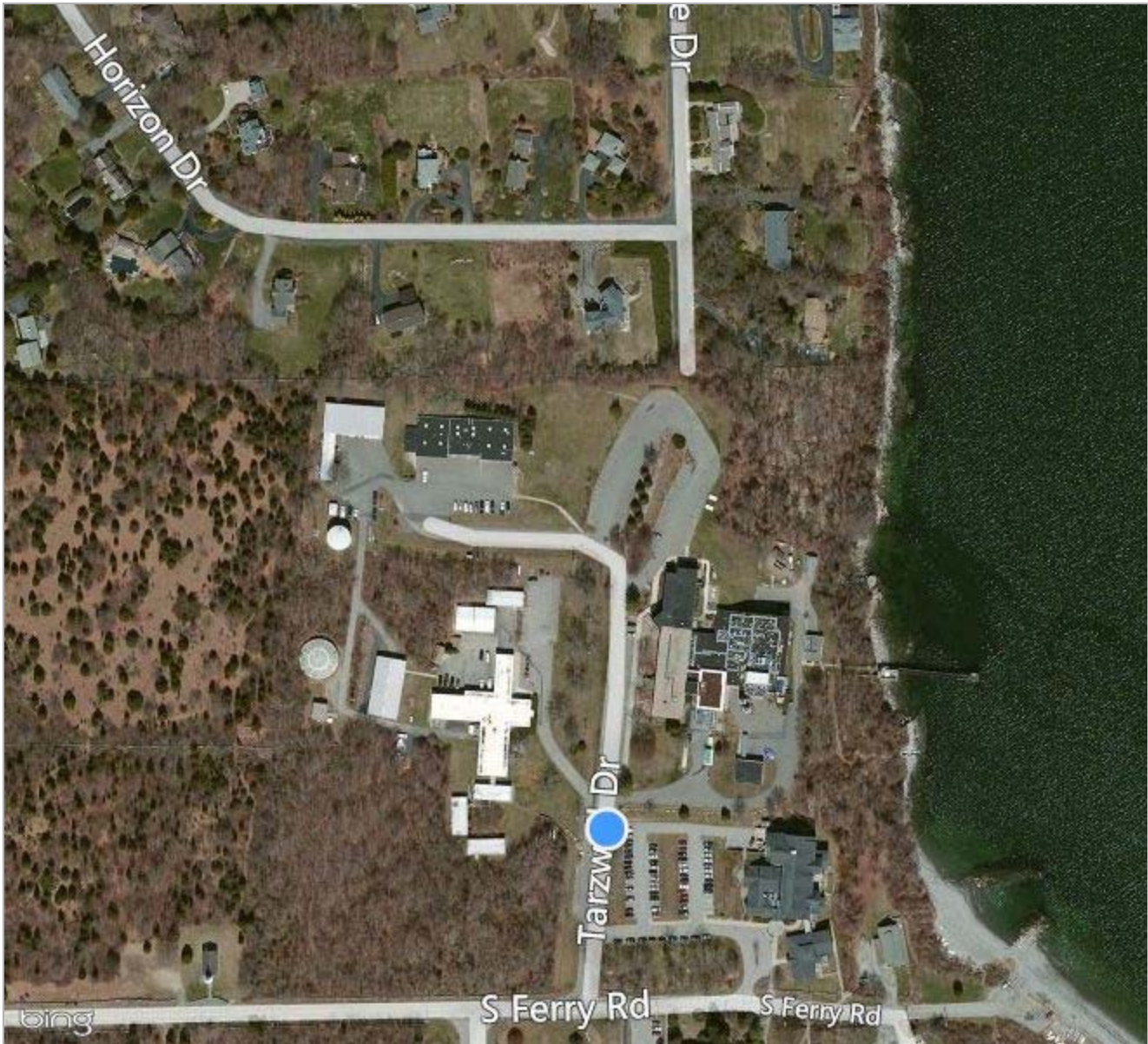
**US E.P.A. – Atlantic Ecology Division
SITE LOCATION MAP**

bing Maps

27 Tarzwell Dr, Narragansett Pier, RI 02882

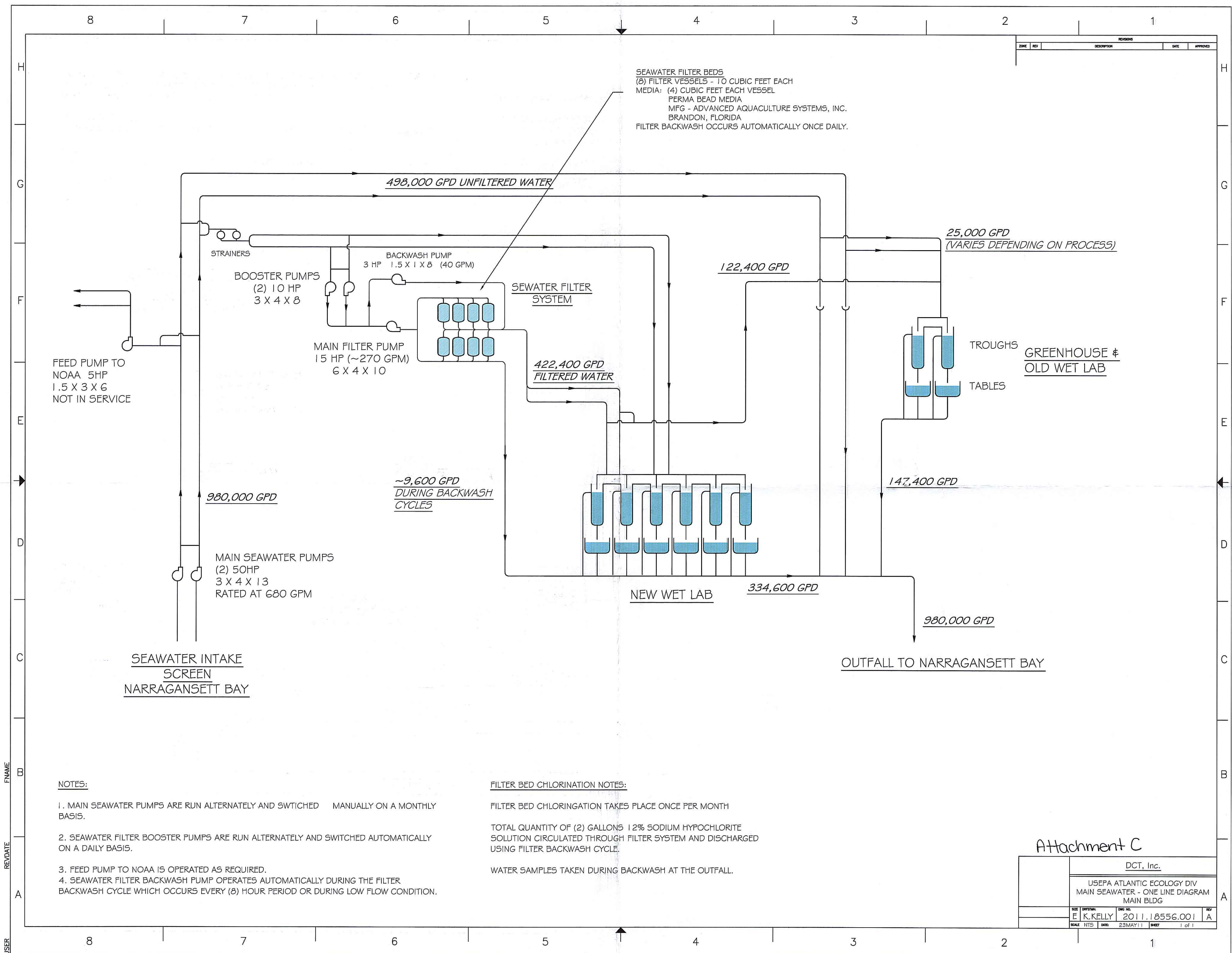
My Notes

On the go? Use m.bing.com to find maps, directions, businesses, and more



ATTACHMENT A-3

**US E.P.A. – Atlantic Ecology Division
LINE FLOW DIAGRAM**



| REVISIONS | | | DATE | APPROVED |
|-----------|-----|-------------|------|----------|
| ZONE | REV | DESCRIPTION | | |

SEAWATER FILTER BEDS
 (8) FILTER VESSELS - 10 CUBIC FEET EACH
 MEDIA: (4) CUBIC FEET EACH VESSEL
 PERMA BEAD MEDIA
 MFG - ADVANCED AQUACULTURE SYSTEMS, INC.
 BRANDON, FLORIDA
 FILTER BACKWASH OCCURS AUTOMATICALLY ONCE DAILY.

FEED PUMP TO NOAA 5HP
 1.5 X 3 X 6
 NOT IN SERVICE

SEAWATER INTAKE
 SCREEN
 NARRAGANSETT BAY

MAIN SEAWATER PUMPS
 (2) 50HP
 3 X 4 X 13
 RATED AT 680 GPM

BOOSTER PUMPS
 (2) 10 HP
 3 X 4 X 8

MAIN FILTER PUMP
 15 HP (~270 GPM)
 6 X 4 X 10

BACKWASH PUMP
 3 HP 1.5 X 1 X 8 (40 GPM)

SEAWATER FILTER SYSTEM

422,400 GPD
 FILTERED WATER

~9,600 GPD
 DURING BACKWASH
 CYCLES

NEW WET LAB 334,600 GPD

TROUGHS GREENHOUSE &
 TABLES OLD WET LAB

147,400 GPD

980,000 GPD

OUTFALL TO NARRAGANSETT BAY

NOTES:

1. MAIN SEAWATER PUMPS ARE RUN ALTERNATELY AND SWITCHED MANUALLY ON A MONTHLY BASIS.
2. SEAWATER FILTER BOOSTER PUMPS ARE RUN ALTERNATELY AND SWITCHED AUTOMATICALLY ON A DAILY BASIS.
3. FEED PUMP TO NOAA IS OPERATED AS REQUIRED.
4. SEAWATER FILTER BACKWASH PUMP OPERATES AUTOMATICALLY DURING THE FILTER BACKWASH CYCLE WHICH OCCURS EVERY (8) HOUR PERIOD OR DURING LOW FLOW CONDITION.

FILTER BED CHLORINATION NOTES:

FILTER BED CHLORINATION TAKES PLACE ONCE PER MONTH
 TOTAL QUANTITY OF (2) GALLONS 12% SODIUM HYPOCHLORITE SOLUTION CIRCULATED THROUGH FILTER SYSTEM AND DISCHARGED USING FILTER BACKWASH CYCLE.
 WATER SAMPLES TAKEN DURING BACKWASH AT THE OUTFALL.

Attachment C

| | | | |
|---|----------|----------------|--------------|
| DCT, Inc. | | | |
| USEPA ATLANTIC ECOLOGY DIV MAIN SEAWATER - ONE LINE DIAGRAM MAIN BLDG | | | |
| SIZE | DRAWN BY | DATE | REV |
| E | K. KELLY | 2011.18556.001 | A |
| SCALE | NTS | DATE: 23MAY11 | SHEET 1 of 1 |

ATTACHMENT A-4

**US E.P.A. – Atlantic Ecology Division
CALCULATION OF ALLOWABLE ACUTE AND CHRONIC TRC DISCHARGE LIMITATIONS
BASED ON SALTWATER AQUATIC LIFE 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: **USEPA Lab - Atlantic Ecology Division**

RIPDES PERMIT #: **RI0000949**

| | DISSOLVED BACKGROUND DATA (ug/L) | ACUTE METAL TRANSLATOR | CHRONIC METAL TRANSLATOR |
|--------------|--|------------------------------|--------------------------------|
| ALUMINUM | NA | NA | NA |
| ARSENIC | 1.13 | 1 | 1 |
| CADMIUM | 0.0368 | 0.994 | 0.994 |
| CHROMIUM III | NA | NA | NA |
| CHROMIUM VI | 0.234 | 0.993 | 0.993 |
| COPPER | 0.601 | 0.83 | 0.83 |
| LEAD | 0.08 | 0.951 | 0.951 |
| MERCURY | 0.000669 | 0.85 | NA |
| NICKEL | 0.87 | 0.99 | 0.99 |
| SELENIUM | 0.0406 | 0.998 | 0.998 |
| SILVER | 0.0147 | 0.85 | 0.85 |
| ZINC | 1.394 | 0.946 | 0.946 |

USE NA WHEN NO DATA IS AVAILABLE

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

NOTE 2: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

| DILUTION FACTORS | |
|------------------|--------|
| ACUTE = | 33.4 x |
| CHRONIC = | 57.9 x |
| HUMAN HEALTH = | 57.9 x |

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

| TOTAL AMMONIA CRITERIA (ug/L) | |
|-------------------------------|------|
| WINTER ACUTE = | 6000 |
| CHRONIC = | 900 |
| SUMMER ACUTE = | 4600 |
| CHRONIC = | 690 |

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

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: USEPA Lab - Atlantic Ecology ~~RIPDES~~ PERMIT #: RI0000949

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 | 29644.8 |
| ARSENIC (limits are total recoverable) | 7440382 | 1.13 | 69 | 2037.528 | 36 | 1.4 | 8.657 |
| ASBESTOS | 1332214 | | | No Criteria | | | No Criteria |
| BERYLLIUM | 7440417 | | | No Criteria | | | No Criteria |
| CADMIUM (limits are total recoverable) | 7440439 | 0.0368 | 40 | 1208.458431 | 8.8 | | 459.2294567 |
| CHROMIUM III (limits are total recoverable) | 16065831 | NA | | No Criteria | | | No Criteria |
| CHROMIUM VI (limits are total recoverable) | 18540299 | 0.234 | 1100 | 33291.45861 | 50 | | 2610.45861 |
| COPPER (limits are total recoverable) | 7440508 | 0.601 | 4.8 | 150.380241 | 3.1 | | 153.4266265 |
| CYANIDE | 57125 | | 1 | 26.72 | 1 | 140 | 46.32 |
| LEAD (limits are total recoverable) | 7439921 | 0.08 | 210 | 6635.129338 | 8.1 | | 439.0525762 |
| MERCURY (limits are total recoverable) | 7439976 | 0.000669 | 1.8 | 63.63096988 | 0.94 | 0.15 | 7.7784339 |
| NICKEL (limits are total recoverable) | 7440020 | 0.87 | 74 | 2218.436364 | 8.2 | 4600 | 381.6151515 |
| SELENIUM (limits are total recoverable) | 7782492 | 0.0406 | 290 | 8733.551663 | 71 | 4200 | 3704.909679 |
| SILVER (limits are total recoverable) | 7440224 | 0.0147 | 1.9 | 66.63261176 | | | No Criteria |
| THALLIUM | 7440280 | | | No Criteria | | 0.47 | 21.7704 |
| ZINC (limits are total recoverable) | 7440666 | 1.394 | 90 | 2812.087104 | 81 | 26000 | 4378.003594 |
| VOLATILE ORGANIC COMPOUNDS | | | | | | | |
| ACROLEIN | 107028 | | | No Criteria | | 290 | 13432.8 |
| ACRYLONITRILE | 107131 | | | No Criteria | | 2.5 | 115.8 |
| BENZENE | 71432 | | | No Criteria | | 510 | 23623.2 |
| BROMOFORM | 75252 | | | No Criteria | | 1400 | 64848 |
| CARBON TETRACHLORIDE | 56235 | | | No Criteria | | 16 | 741.12 |
| CHLOROBENZENE | 108907 | | | No Criteria | | 1600 | 74112 |
| CHLORODIBROMOMETHANE | 124481 | | | No Criteria | | 130 | 6021.6 |
| CHLOROFORM | 67663 | | | No Criteria | | 4700 | 217704 |
| DICHLOROBROMOMETHANE | 75274 | | | No Criteria | | 170 | 7874.4 |
| 1,2DICHLOROETHANE | 107062 | | | No Criteria | | 370 | 17138.4 |
| 1,1DICHLOROETHYLENE | 75354 | | | No Criteria | | 7100 | 328872 |
| 1,2DICHLOROPROPANE | 78875 | | | No Criteria | | 150 | 6948 |
| 1,3DICHLOROPROPYLENE | 542756 | | | No Criteria | | 21 | 972.72 |
| ETHYLBENZENE | 100414 | | | No Criteria | | 2100 | 97272 |
| BROMOMETHANE (methyl bromide) | 74839 | | | No Criteria | | 1500 | 69480 |
| CHLOROMETHANE (methyl chloride) | 74873 | | | No Criteria | | | No Criteria |
| METHYLENE CHLORIDE | 75092 | | | No Criteria | | 5900 | 273288 |

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: USEPA Lab - Atlantic Ecology ~~RIPDES~~ PERMIT #: RI0000949

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

| CHEMICAL NAME | CAS # | BACKGROUND CONCENTRATION (ug/L) | SALTWATER CRITERIA ACUTE (ug/L) | DAILY MAX LIMIT (ug/L) | SALTWATER CRITERIA CHRONIC (ug/L) | HUMAN HEALTH NON-CLASS A CRITERIA (ug/L) | MONTHLY AVE LIMIT (ug/L) |
|----------------------------------|--------|---------------------------------|---------------------------------|------------------------|-----------------------------------|--|--------------------------|
| 1,1,2,2TETRACHLOROETHANE | 79345 | | | No Criteria | | 40 | 1852.8 |
| TETRACHLOROETHYLENE | 127184 | | | No Criteria | | 33 | 1528.56 |
| TOLUENE | 108883 | | | No Criteria | | 15000 | 694800 |
| 1,2TRANS-DICHLOROETHYLENE | 156605 | | | No Criteria | | 10000 | 463200 |
| 1,1,1TRICHLOROETHANE | 71556 | | | No Criteria | | | No Criteria |
| 1,1,2TRICHLOROETHANE | 79005 | | | No Criteria | | 160 | 7411.2 |
| TRICHLOROETHYLENE | 79016 | | | No Criteria | | 300 | 13896 |
| VINYL CHLORIDE | 75014 | | | No Criteria | | 2.4 | 111.168 |
| ACID ORGANIC COMPOUNDS | | | | | | | |
| 2CHLOROPHENOL | 95578 | | | No Criteria | | 150 | 6948 |
| 2,4DICHLOROPHENOL | 120832 | | | No Criteria | | 290 | 13432.8 |
| 2,4DIMETHYLPHENOL | 105679 | | | No Criteria | | 850 | 39372 |
| 4,6DINITRO-2-METHYL PHENOL | 534521 | | | No Criteria | | 280 | 12969.6 |
| 2,4DINITROPHENOL | 51285 | | | No Criteria | | 5300 | 245496 |
| 4-NITROPHENOL | 88755 | | | No Criteria | | | No Criteria |
| PENTACHLOROPHENOL | 87865 | | 13 | 347.36 | 7.9 | 30 | 365.928 |
| PHENOL | 108952 | | | No Criteria | | 1700000 | 78744000 |
| 2,4,6-TRICHLOROPHENOL | 88062 | | | No Criteria | | 24 | 1111.68 |
| BASE NEUTRAL COMPOUNDS | | | | | | | |
| ACENAPHTHENE | 83329 | | | No Criteria | | 990 | 45856.8 |
| ANTHRACENE | 120127 | | | No Criteria | | 40000 | 1852800 |
| BENZIDINE | 92875 | | | No Criteria | | 0.002 | 0.09264 |
| POLYCYCLIC AROMATIC HYDROCARBONS | | | | No Criteria | | 0.18 | 8.3376 |
| BIS(2-CHLOROETHYL)ETHER | 111444 | | | No Criteria | | 5.3 | 245.496 |
| BIS(2-CHLOROISOPROPYL)ETHER | 108601 | | | No Criteria | | 65000 | 3010800 |
| BIS(2-ETHYLHEXYL)PHTHALATE | 117817 | | | No Criteria | | 22 | 1019.04 |
| BUTYL BENZYL PHTHALATE | 85687 | | | No Criteria | | 1900 | 88008 |
| 2-CHLORONAPHTHALENE | 91587 | | | No Criteria | | 1600 | 74112 |
| 1,2-DICHLOROBENZENE | 95501 | | | No Criteria | | 1300 | 60216 |
| 1,3-DICHLOROBENZENE | 541731 | | | No Criteria | | 960 | 44467.2 |
| 1,4-DICHLOROBENZENE | 106467 | | | No Criteria | | 190 | 8800.8 |
| 3,3-DICHLOROBENZIDENE | 91941 | | | No Criteria | | 0.28 | 12.9696 |
| DIETHYL PHTHALATE | 84662 | | | No Criteria | | 44000 | 2038080 |
| DIMETHYL PHTHALATE | 131113 | | | No Criteria | | 1100000 | 50952000 |
| Di-n-BUTYL PHTHALATE | 84742 | | | No Criteria | | 4500 | 208440 |
| 2,4-DINITROTOLUENE | 121142 | | | No Criteria | | 34 | 1574.88 |

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: USEPA Lab - Atlantic Ecology ~~RIPDES~~ PERMIT #: RI0000949

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

| CHEMICAL NAME | CAS # | BACKGROUND CONCENTRATION (ug/L) | SALTWATER CRITERIA ACUTE (ug/L) | DAILY MAX LIMIT (ug/L) | SALTWATER CRITERIA CHRONIC (ug/L) | HUMAN HEALTH NON-CLASS A CRITERIA (ug/L) | MONTHLY AVE LIMIT (ug/L) |
|----------------------------|----------|---------------------------------|---------------------------------|------------------------|-----------------------------------|--|--------------------------|
| 1,2DIPHENYLHYDRAZINE | 122667 | | | No Criteria | | 2 | 92.64 |
| FLUORANTHENE | 206440 | | | No Criteria | | 140 | 6484.8 |
| FLUORENE | 86737 | | | No Criteria | | 5300 | 245496 |
| HEXACHLOROBENZENE | 118741 | | | No Criteria | | 0.0029 | 0.134328 |
| HEXACHLOROBUTADIENE | 87683 | | | No Criteria | | 180 | 8337.6 |
| HEXACHLOROCYCLOPENTADIENE | 77474 | | | No Criteria | | 1100 | 50952 |
| HEXACHLOROETHANE | 67721 | | | No Criteria | | 33 | 1528.56 |
| ISOPHORONE | 78591 | | | No Criteria | | 9600 | 444672 |
| NAPHTHALENE | 91203 | | | No Criteria | | | No Criteria |
| NITROBENZENE | 98953 | | | No Criteria | | 690 | 31960.8 |
| NNITROSODIMETHYLAMINE | 62759 | | | No Criteria | | 30 | 1389.6 |
| NNITROSODINPROPYLAMINE | 621647 | | | No Criteria | | 5.1 | 236.232 |
| NNITROSODIPHENYLAMINE | 86306 | | | No Criteria | | 60 | 2779.2 |
| PYRENE | 129000 | | | No Criteria | | 4000 | 185280 |
| 1,2,4trichlorobenzene | 120821 | | | No Criteria | | 70 | 3242.4 |
| PESTICIDES/PCBs | | | | | | | |
| ALDRIN | 309002 | | 1.3 | 34.736 | | 0.0005 | 0.02316 |
| Alpha BHC | 319846 | | | No Criteria | | 0.049 | 2.26968 |
| Beta BHC | 319857 | | | No Criteria | | 0.17 | 7.8744 |
| Gamma BHC (Lindane) | 58899 | | 0.16 | 4.2752 | | 1.8 | 83.376 |
| CHLORDANE | 57749 | | 0.09 | 2.4048 | 0.004 | 0.0081 | 0.18528 |
| 4,4DDT | 50293 | | 0.13 | 3.4736 | 0.001 | 0.0022 | 0.04632 |
| 4,4DDE | 72559 | | | No Criteria | | 0.0022 | 0.101904 |
| 4,4DDD | 72548 | | | No Criteria | | 0.0031 | 0.143592 |
| DIELDRIN | 60571 | | 0.71 | 18.9712 | 0.0019 | 0.00054 | 0.0250128 |
| ENDOSULFAN (alpha) | 959988 | | 0.034 | 0.90848 | 0.0087 | 89 | 0.402984 |
| ENDOSULFAN (beta) | 33213659 | | 0.034 | 0.90848 | 0.0087 | 89 | 0.402984 |
| ENDOSULFAN (sulfate) | 1031078 | | | No Criteria | | 89 | 4122.48 |
| ENDRIN | 72208 | | 0.037 | 0.98864 | 0.0023 | 0.06 | 0.106536 |
| ENDRIN ALDEHYDE | 7421934 | | | No Criteria | | 0.3 | 13.896 |
| HEPTACHLOR | 76448 | | 0.053 | 1.41616 | 0.0036 | 0.00079 | 0.0365928 |
| HEPTACHLOR EPOXIDE | 1024573 | | 0.053 | 1.41616 | 0.0036 | 0.00039 | 0.0180648 |
| POLYCHLORINATED BIPHENYLS3 | 1336363 | | | No Criteria | 0.03 | 0.00064 | 0.0296448 |
| 2,3,7,8TCDD (Dioxin) | 1746016 | | | No Criteria | | 0.000000051 | 2.36232E-06 |
| TOXAPHENE | 8001352 | | 0.21 | 5.6112 | 0.0002 | 0.0028 | 0.009264 |
| TRIBUTYL TIN | | | 0.42 | 11.2224 | 0.0074 | | 0.342768 |

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: USEPA Lab - Atlantic Ecology ~~RIPDES~~ PERMIT #: RI0000949

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

| CHEMICAL NAME | CAS # | BACKGROUND CONCENTRATION (ug/L) | SALTWATER CRITERIA ACUTE (ug/L) | DAILY MAX LIMIT (ug/L) | SALTWATER CRITERIA CHRONIC (ug/L) | HUMAN HEALTH NON-CLASS A CRITERIA (ug/L) | MONTHLY AVE LIMIT (ug/L) | |
|---|----------|---------------------------------|---------------------------------|------------------------|-----------------------------------|--|--------------------------|-------|
| NON PRIORITY POLLUTANTS: | | | | | | | | |
| OTHER SUBSTANCES | | | | | | | | |
| ALUMINUM (limits are total recoverable) | 7429905 | NA | | No Criteria | | | No Criteria | |
| AMMONIA as N (winter/summer) | 7664417 | | 4932 | 3781.2 | 131783 | 101034 | 739.8 | 567.2 |
| 4BROMOPHENYL PHENYL ETHER CHLORIDE | 16887006 | | | No Criteria | | | No Criteria | |
| CHLORINE | 7782505 | | 13 | 434.2 | 7.5 | | 434.25 | |
| 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: USEPA Lab - Atlantic Ecology DivisionRIPDES PERMIT #: RI0000949

| CHEMICAL NAME | CAS# | DAILY MAX LIMIT (ug/L) | MONTHLY AVE LIMIT (ug/L) |
|-----------------------------------|----------|------------------------|--------------------------|
| PRIORITY POLLUTANTS: | | | |
| TOXIC METALS AND CYANIDE | | | |
| ANTIMONY | 7440360 | No Criteria | 29644.80 |
| ARSENIC, TOTAL | 7440382 | 2037.53 | 8.66 |
| ASBESTOS | 1332214 | No Criteria | No Criteria |
| BERYLLIUM | 7440417 | No Criteria | No Criteria |
| CADMIUM, TOTAL | 7440439 | 1208.46 | 459.23 |
| CHROMIUM III, TOTAL | 16065831 | No Criteria | No Criteria |
| CHROMIUM VI, TOTAL | 18540299 | 33291.46 | 2610.46 |
| COPPER, TOTAL | 7440508 | 150.38 | 150.38 |
| CYANIDE | 57125 | 26.72 | 26.72 |
| LEAD, TOTAL | 7439921 | 6635.13 | 439.05 |
| MERCURY, TOTAL | 7439976 | 63.63 | 7.78 |
| NICKEL, TOTAL | 7440020 | 2218.44 | 381.62 |
| SELENIUM, TOTAL | 7782492 | 8733.55 | 3704.91 |
| SILVER, TOTAL | 7440224 | 66.63 | No Criteria |
| THALLIUM | 7440280 | No Criteria | 21.77 |
| ZINC, TOTAL | 7440666 | 2812.09 | 2812.09 |
| VOLATILE ORGANIC COMPOUNDS | | | |
| ACROLEIN | 107028 | No Criteria | 13432.80 |
| ACRYLONITRILE | 107131 | No Criteria | 115.80 |
| BENZENE | 71432 | No Criteria | 23623.20 |
| BROMOFORM | 75252 | No Criteria | 64848.00 |
| CARBON TETRACHLORIDE | 56235 | No Criteria | 741.12 |
| CHLOROBENZENE | 108907 | No Criteria | 74112.00 |
| CHLORODIBROMOMETHANE | 124481 | No Criteria | 6021.60 |
| CHLOROFORM | 67663 | No Criteria | 217704.00 |
| DICHLOROBROMOMETHANE | 75274 | No Criteria | 7874.40 |
| 1,2DICHLOROETHANE | 107062 | No Criteria | 17138.40 |
| 1,1DICHLOROETHYLENE | 75354 | No Criteria | 328872.00 |
| 1,2DICHLOROPROPANE | 78875 | No Criteria | 6948.00 |
| 1,3DICHLOROPROPYLENE | 542756 | No Criteria | 972.72 |
| ETHYLBENZENE | 100414 | No Criteria | 97272.00 |
| BROMOMETHANE (methyl bromide) | 74839 | No Criteria | 69480.00 |
| CHLOROMETHANE (methyl chloride) | 74873 | No Criteria | No Criteria |
| METHYLENE CHLORIDE | 75092 | No Criteria | 273288.00 |
| 1,1,2,2TETRACHLOROETHANE | 79345 | No Criteria | 1852.80 |

| CHEMICAL NAME | CAS# | DAILY MAX LIMIT (ug/L) | MONTHLY AVE LIMIT (ug/L) |
|-------------------------------|--------|------------------------|--------------------------|
| TETRACHLOROETHYLENE | 127184 | No Criteria | 1528.56 |
| TOLUENE | 108883 | No Criteria | 694800.00 |
| 1,2TRANS-DICHLOROETHYLENE | 156605 | No Criteria | 463200.00 |
| 1,1,1TRICHLOROETHANE | 71556 | No Criteria | No Criteria |
| 1,1,2TRICHLOROETHANE | 79005 | No Criteria | 7411.20 |
| TRICHLOROETHYLENE | 79016 | No Criteria | 13896.00 |
| VINYL CHLORIDE | 75014 | No Criteria | 111.17 |
| ACID ORGANIC COMPOUNDS | | | |
| 2CHLOROPHENOL | 95578 | No Criteria | 6948.00 |
| 2,4DICHLOROPHENOL | 120832 | No Criteria | 13432.80 |
| 2,4DIMETHYLPHENOL | 105679 | No Criteria | 39372.00 |
| 4,6DINITRO-2METHYL PHENOL | 534521 | No Criteria | 12969.60 |
| 2,4DINITROPHENOL | 51285 | No Criteria | 245496.00 |
| 4NITROPHENOL | 88755 | No Criteria | No Criteria |
| PENTACHLOROPHENOL | 87865 | 347.36 | 347.36 |
| PHENOL | 108952 | No Criteria | 78744000.00 |
| 2,4,6TRICHLOROPHENOL | 88062 | No Criteria | 1111.68 |
| BASE NEUTRAL COMPOUNDS | | | |
| ACENAPHTHENE | 83329 | No Criteria | 45856.80 |
| ANTHRACENE | 120127 | No Criteria | 1852800.00 |
| BENZIDINE | 92875 | No Criteria | 0.09 |
| PAHs | | No Criteria | 8.34 |
| BIS(2CHLOROETHYL)ETHER | 111444 | No Criteria | 245.50 |
| BIS(2CHLOROISOPROPYL)ETHER | 108601 | No Criteria | 3010800.00 |
| BIS(2ETHYLHEXYL)PHTHALATE | 117817 | No Criteria | 1019.04 |
| BUTYL BENZYL PHTHALATE | 85687 | No Criteria | 88008.00 |
| 2CHLORONAPHTHALENE | 91587 | No Criteria | 74112.00 |
| 1,2DICHLOROBENZENE | 95501 | No Criteria | 60216.00 |
| 1,3DICHLOROBENZENE | 541731 | No Criteria | 44467.20 |
| 1,4DICHLOROBENZENE | 106467 | No Criteria | 8800.80 |
| 3,3DICHLOROBENZIDENE | 91941 | No Criteria | 12.97 |
| DIETHYL PHTHALATE | 84662 | No Criteria | 2038080.00 |
| DIMETHYL PHTHALATE | 131113 | No Criteria | 50952000.00 |
| DI-n-BUTYL PHTHALATE | 84742 | No Criteria | 208440.00 |
| 2,4DINITROTOLUENE | 121142 | No Criteria | 1574.88 |
| 1,2DIPHENYLHYDRAZINE | 122667 | No Criteria | 92.64 |
| FLUORANTHENE | 206440 | No Criteria | 6484.80 |

CALCULATION OF WATER QUALITY BASED SALTWATER DISCHARGE LIMITS

FACILITY NAME: USEPA Lab - Atlantic Ecology Division

RIPDES PERMIT #: RI0000949

| CHEMICAL NAME | CAS# | DAILY MAX LIMIT (ug/L) | MONTHLY AVE LIMIT (ug/L) |
|----------------------------|----------|------------------------|--------------------------|
| FLUORENE | 86737 | No Criteria | 245496.00 |
| HEXACHLORO BENZENE | 118741 | No Criteria | 0.13 |
| HEXACHLORO BUTADIENE | 87683 | No Criteria | 8337.60 |
| HEXACHLORO CYCLOPENTADIENE | 77474 | No Criteria | 50952.00 |
| HEXACHLORO ETHANE | 67721 | No Criteria | 1528.56 |
| ISOPHORONE | 78591 | No Criteria | 444672.00 |
| NAPHTHALENE | 91203 | No Criteria | No Criteria |
| NITROBENZENE | 98953 | No Criteria | 31960.80 |
| N-NITROSODIMETHYLAMINE | 62759 | No Criteria | 1389.60 |
| N-NITROSODI-N-PROPYLAMINE | 621647 | No Criteria | 236.23 |
| N-NITROSODIPHENYLAMINE | 86306 | No Criteria | 2779.20 |
| PYRENE | 129000 | No Criteria | 185280.00 |
| 1,2,4trichlorobenzene | 120821 | No Criteria | 3242.40 |
| PESTICIDES/PCBs | | | |
| ALDRIN | 309002 | 34.74 | 0.02 |
| Alpha BHC | 319846 | No Criteria | 2.27 |
| Beta BHC | 319857 | No Criteria | 7.87 |
| Gamma BHC (Lindane) | 58899 | 4.28 | 4.28 |
| CHLORDANE | 57749 | 2.40 | 0.19 |
| 4,4DDT | 50293 | 3.47 | 0.05 |
| 4,4DDE | 72559 | No Criteria | 0.10 |
| 4,4DDD | 72548 | No Criteria | 0.14 |
| DIELDRIN | 60571 | 18.97 | 0.03 |
| ENDOSULFAN (alpha) | 959988 | 0.91 | 0.40 |
| ENDOSULFAN (beta) | 33213659 | 0.91 | 0.40 |
| ENDOSULFAN (sulfate) | 1031078 | No Criteria | 4122.48 |
| ENDRIN | 72208 | 0.99 | 0.11 |
| ENDRIN ALDEHYDE | 7421934 | No Criteria | 13.90 |
| HEPTACHLOR | 76448 | 1.42 | 0.04 |
| HEPTACHLOR EPOXIDE | 1024573 | 1.42 | 0.02 |
| POLYCHLORINATED BIPHENYLS3 | 1336363 | No Criteria | 0.03 |
| 2,3,7,8TCDD (Dioxin) | 1746016 | No Criteria | 0.00 |
| TOXAPHENE | 8001352 | 5.61 | 0.01 |
| TRIBUTYLTIN | | 11.22 | 0.34 |

| CHEMICAL NAME | CAS# | DAILY MAX LIMIT (ug/L) | MONTHLY AVE LIMIT (ug/L) |
|----------------------------------|----------|------------------------|--------------------------|
| NON PRIORITY POLLUTANTS: | | | |
| OTHER SUBSTANCES | | | |
| ALUMINUM, TOTAL | 7429905 | No Criteria | No Criteria |
| AMMONIA (as N), WINTER (NOV-APR) | 7664417 | 131783.04 | 34267.54 |
| AMMONIA (as N), SUMMER (MAY-OC) | 7664417 | 101033.66 | 26271.78 |
| 4BROMOPHENYL PHENYL ETHER | | No Criteria | No Criteria |
| CHLORIDE | 16887006 | No Criteria | No Criteria |
| CHLORINE | 7782505 | 434.20 | 434.20 |
| 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 |