

NPDES PERMIT

issued to

University of Connecticut
Avery Point Campus, Department of Marine Science
1080 Shennecossett Road
Groton, CT 06340

Location Address:

Avery Point Campus, John S. Rankin Laboratory
Department of Marine Science
1080 Shennecossett Road
Groton, CT 06340

Permit ID: CT0028631

Receiving Stream: Long Island Sound EB Shore
Thames River Mouth (East)

Stream Segment Number: CT-E2_009-SB

Issuance Date: **DRAFT**

Effective Date: [Renewals: 1st day of next month]

Expiration Date: **TBD**

SECTION 1: GENERAL PROVISIONS

- (A) This permit is reissued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), and Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended, and section 402(b) of the Clean Water Act, as amended, 33 USC 1251, et. seq., and pursuant to an approval dated September 26, 1973, by the Administrator of the United States Environmental Protection Agency for the State of Connecticut to administer an N.P.D.E.S. permit program.
- (B) University of Connecticut, Avery Point Campus, Department of Marine Science, ("Permittee"), shall comply with all conditions of this permit including the following sections of the RCSA which have been adopted pursuant to section 22a-430 of the CGS and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(C), (j)(10)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of section 22a-430-3.

Section 22a-430-3 General Conditions

- (a) Definitions
- (b) General
- (c) Inspection and Entry
- (d) Effect of a Permit
- (e) Duty
- (f) Proper Operation and Maintenance
- (g) Sludge Disposal
- (h) Duty to Mitigate
- (i) Facility Modifications; Notification
- (j) Monitoring, Records and Reporting Requirements
- (k) Bypass
- (l) Conditions Applicable to POTWs
- (m) Effluent Limitation Violations (Upsets)
- (n) Enforcement
- (o) Resource Conservation
- (p) Spill Prevention and Control

- (q) Instrumentation, Alarms, Flow Recorders
- (r) Equalization

Section 22a-430-4 Procedures and Criteria

- (a) Duty to Apply
 - (b) Duty to Reapply
 - (c) Application Requirements
 - (d) Preliminary Review
 - (e) Tentative Determination
 - (f) Draft Permits, Fact Sheets
 - (g) Public Notice, Notice of Hearing
 - (h) Public Comments
 - (i) Final Determination
 - (j) Public Hearings
 - (k) Submission of Plans and Specifications. Approval.
 - (l) Establishing Effluent Limitations and Conditions
 - (m) Case by Case Determinations
 - (n) Permit issuance or renewal
 - (o) Permit Transfer
 - (p) Permit revocation, denial or modification
 - (q) Variances
 - (r) Secondary Treatment Requirements
 - (s) Treatment Requirements for Metals and Cyanide
 - (t) Discharges to POTWs - Prohibitions
- (C) Violations of any of the terms, conditions, or limitations contained in this permit may subject the Permittee to enforcement action including, but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA.
- (D) Any false statement in any information submitted pursuant to this permit may be punishable as a criminal offense under section 22a-438 or 22a-131a of the CGS or in accordance with section 22a-6, under section 53a-157b of the CGS.
- (E) The authorization to discharge under this permit may not be transferred without prior written approval of the Commissioner of Energy and Environmental Protection ("Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner, at least 30 days prior to the transferee becoming legally responsible for creating or maintaining any discharge which is the subject of the permit transfer. Failure, by the transferee, to obtain the Commissioner's approval prior to commencing such discharge(s) may subject the transferee to enforcement action for discharging without a permit pursuant to applicable sections of the CGS and RCSA.
- (F) No provision of this permit and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by the Permittee pursuant to this permit will result in compliance or prevent or abate pollution.
- (G) Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- (H) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the Regulations of Connecticut State Agencies.
- (I) This permitted discharge is consistent with the applicable goals and policies of the Connecticut Coastal Management Act (section 22a-92 of the Connecticut General Statutes).

SECTION 2: DEFINITIONS

- (A) The definitions of the terms used in this permit shall be the same as the definitions contained in section 22a-423 of the CGS and section 22a-430-3(a) and 22a-430-6 of the RCSA, except for "No Observable Acute Effect Level (NOAEL)" which is redefined below.

- (B) In addition to the above, the following definitions shall apply to this permit:

"-----" in the limits column on the monitoring table means a limit is not specified but a value must be reported on the DMR.

"Annual" in the context of any sampling frequency found in Section 5, shall mean the sample must be collected in the month of July.

"Average Monthly Limit"; means the maximum allowable "Average Monthly Concentration" as defined in section 22a-430-3(a) of the RCSA when expressed as a concentration (e.g. mg/l); otherwise, it means "Average Monthly Discharge Limitation" as defined in section 22a-430-3(a) of the RCSA.

"Daily Concentration" means the concentration of a substance as measured in a daily composite sample, or the arithmetic average of all grab sample results defining a grab sample average.

"Daily Quantity" means the quantity of waste discharged during an operating day.

"Instantaneous Limit" means the highest allowable concentration of a substance as measured by a grab sample, or the highest allowable measurement of a parameter as obtained through instantaneous monitoring.

"In stream Waste Concentration (IWC)" means the concentration of a discharge in the receiving water after mixing has occurred in the allocated zone of influence.

"Maximum Daily Limit", means the maximum allowable "Daily Concentration" (defined above) when expressed as a concentration (e.g. mg/l); otherwise, it means the maximum allowable "Daily Quantity" as defined above, unless it is expressed as a flow quantity. If expressed as a flow quantity it means "Maximum Daily Flow" as defined in section 22a-430-3(a) of the RCSA.

"NA" as a Monitoring Table abbreviation means "not applicable".

"NR" as a Monitoring Table abbreviation means "not required".

"No Observable Acute Effect Level (NOAEL)" means any concentration equal to or less than the critical test concentration in a single concentration (pass/fail) toxicity test conducted pursuant to section 22a-430-3(j)(7)(A)(i) RCSA demonstrating greater than 50% survival of test organisms in 100% (undiluted) effluent and 90% or greater survival of test organisms at the CTC.

"Range During Month" ("RDM"), as a sample type, means the lowest and the highest values of all of the monitoring data for the reporting month.

"Range During Sampling" ("RDS"), as a sample type, means the maximum and minimum of all values recorded as a result of analyzing each grab sample of; 1) a Composite Sample, or, 2) a Grab Sample Average. For those Permittees with continuous monitoring and recording pH meters, Range During Sampling means the maximum and minimum readings recorded with the continuous monitoring device during the Composite or Grab Sample Average sample collection.

"Semi-Annual" in the context of a sampling frequency, means the sample must be collected in the months of July and October. If there is no discharge during either of these sampling months, the Permittee shall sample during the next month when discharge exists and submit the results in the monthly DMR. The Permittee shall always indicate, on each monthly DMR, whether this alternative sampling requirement has been triggered. Once the alternative sampling requirement is fulfilled, the Permittee shall indicate on subsequent DMR that monitoring is conditional

for all semi-annual parameters.

"µg/l" means micrograms per liter.

SECTION 3: COMMISSIONER'S DECISION

- (A) The Commissioner, has issued a final determination and found that continuance of the existing discharge will not cause pollution of the waters of the state. The Commissioner's decision is based on Application No. 201600010 for permit reissuance received on December 31, 2015 and the administrative record established in the processing of that application.
- (B) From the effective date of this permit, for a term not to exceed five years and until this permit expires or is modified or revoked, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of this permit, the above referenced application, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharges and/or activities authorized by, or associated with, this permit following the issuance date of this permit.
- (C) The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Federal Clean Water Act or the CGS or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Federal Clean Water Act or CGS or regulations adopted thereunder which are then applicable.

SECTION 4: GENERAL EFFLUENT LIMITATIONS

- (A) No discharge shall contain, or cause in the receiving stream, a visible oil sheen or floating solids; or, cause visible discoloration or foaming in the receiving stream.
- (B) No discharge shall cause acute or chronic toxicity in the receiving water body beyond any zone of influence specifically allocated to that discharge in this permit.
- (C) The temperature of any discharge shall not increase the temperature of the receiving stream above 83°F, or, in any case, raise the temperature of the receiving stream by more than 4°F. The incremental temperature increase in coastal and marine waters is limited to 1.5°F during the period including July, August and September.

SECTION 5: SPECIFIC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- (A) The discharges shall not exceed and shall otherwise conform to the specific terms and conditions listed below. The discharges are restricted by, and shall be monitored in accordance with, the tables below:

Table A

Discharge Serial Number: DSN 001-1						Monitoring Location: 1			
Wastewater Description: Aquarium sea water, aquarium experiment brackish water, aquarium maintenance rinse sea water, sand filter backflush, flow through seawater and floor rinse water									
Monitoring Location Description: 15" P.V.C drain outside building									
Allocated Zone of Influence (ZOI): 2,970,000 gph						Instream Waste Concentration: 1.0%			
PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test ³
		Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency ²	Sample Type or measurement to be reported	
LC ₅₀ Static 48Hr Acute Mysid. Bahía ^{4,5}	%	NA	NA	NR	NA	LC ₅₀ = 100%	Annually	Grab	
LC ₅₀ Static 48Hr Acute Menidia ^{4,5}	%	NA	NA	NR	NA	LC ₅₀ = 100%	Annually	Grab	
Biochemical Oxygen Demand	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Flow, Maximum during 24 hr period ¹	Gpd	NA	720,000	Continuous	Daily Flow	NA	NR	NA	
Flow (Day of Sampling)	Gpd	NA	720,000	Monthly	Daily Flow	NA	NR	NA	
Lead, Total	mg/l	mg/l	NA	NR	NA	---	Semi-annual	Grab	
Nitrogen, Ammonia (Total N)	mg/l	mg/l	NA	NR	NA	---	Semi-annual	Grab	
Nitrogen, Nitrate	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Nitrogen, Nitrite	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.8 – 8.5	Monthly	RDS	
pH, Minimum	S.U.	NA	NA	NR	NA	6.8	Continuous	Continuous	
pH, Maximum	S.U.	NA	NA	NR	NA	8.5	Continuous	Continuous	
Phosphorus, Total	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Sulfates	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Temperature	°F	NA	NA	NR	NA	---	Monthly	Grab	
Total Residual Chlorine	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Table Footnotes and Remarks:									
Footnotes:									
¹ For this parameter, the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Maximum Daily Flow for each sampling month.									
² The first entry in this column is the ‘Sample Frequency’. If a ‘Reporting Frequency’ does not follow this entry and the ‘Sample Frequency’ is more frequent than monthly then the ‘Reporting Frequency’ is monthly. If the ‘Sample frequency’ is specified as monthly, or less frequent, then the ‘Reporting Frequency’ is the same as the ‘Sample Frequency’.									
³ Minimum Level Test refers to Section 7(A)(3) of this permit.									
⁴ Analysis shall be conducted on the days that floor rinse water is discharged and all analysis shall be on the same sample.									
⁵ Record the LC ₅₀ value result on the DMR.									
Remarks:									
a) The Permittee shall record and report the maximum and minimum pH values for each month. All daily pH results shall be kept on-site.									

Table B

Discharge Serial Number: DSN 002-1						Monitoring Location: 1			
Wastewater Description: Aquarium sea water, aquarium experiment brackish water, aquarium maintenance rinse sea water, flow through seawater, floor rinse water and occasional incidental stormwater									
Monitoring Location Description: Effluent pipe discharging directly to the Long Island Sound									
Allocated Zone of Influence (ZOI): 268,092 gph						Instream Waste Concentration: 1.0%			
PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test ³
		Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency ²	Sample Type or measurement to be reported	
LC ₅₀ Static 48Hr Acute Mysid. Bahia ^{4,5}	%	NA	NA	NR	NA	LC ₅₀ = 100%	Annually	Grab	
LC ₅₀ Static 48Hr Acute Menidia ^{4,5}	%	NA	NA	NR	NA	LC ₅₀ = 100%	Annually	Grab	
Biochemical Oxygen Demand	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Flow, Maximum during 24 hr period ¹	Gpd	NA	65,000	Continuous	Daily Flow	NA	NR	NA	
Flow (Day of Sampling)	Gpd	NA	65,000	Monthly	Daily Flow	NA	NR	NA	
Lead, Total	mg/l	mg/l	NA	NR	NA	---	Semi-annual	Grab	
Nitrogen, Ammonia (Total N)	mg/l	mg/l	NA	NR	NA	---	Semi-annual	Grab	
Nitrogen, Nitrate	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Nitrogen, Nitrite	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.8 – 8.5	Monthly	RDS	
pH, Minimum	S.U.	NA	NA	NR	NA	6.8	Continuous	Continuous	
pH, Maximum	S.U.	NA	NA	NR	NA	8.5	Continuous	Continuous	
Phosphorus, Total	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Sulfates	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Temperature	°F	NA	NA	NR	NA	---	Monthly	Grab	
Total Residual Chlorine	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	---	Semi-annual	Grab	

Table Footnotes and Remarks:**Footnotes:**

¹ For this parameter, the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Maximum Daily Flow for each sampling month.

² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

³ Minimum Level Test refers to Section 7(A)(3) of this permit.

⁴ Analysis shall be conducted on the days that floor rinse water is discharged and all analysis shall be on the same sample.

⁵ Record the LC₅₀ value result on the DMR.

Remarks:

- a) The Permittee shall record and report the maximum and minimum pH values for each month. All daily pH results shall be kept on-site.

- (1) All samples shall be comprised of only the wastewater described in this table. Samples shall be collected prior to combination with receiving waters or wastewater of any other type, and after all approved treatment units, if applicable. All samples collected shall be representative of the discharge during standard operating conditions.
- (2) In cases where limits and sample type are specified but sampling is not required by this permit, the limits specified shall apply to all samples which may be collected and analyzed by the Department of Energy and Environmental Protection personnel, the Permittee, or other parties.

SECTION 6: SPECIAL CONDITION

- (A) This Permit prohibits the use of cleaners or detergents for floor wash. If cleaners or detergents are used, the wastewaters should be contained, mopped, vacuumed and then discharged to the sanitary sewer.

SECTION 7: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES

(A) Chemical Analysis

- (1) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall be performed using the sufficiently sensitive methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 40 CFR 136.4 or as provided in section 22a-430-3(j)(7) of the RCSA. Chemicals which do not have methods of analysis defined in 40 CFR 136 shall be analyzed in accordance with methods specified in this permit.
- (2) All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR 136 unless otherwise specified.
- (3) The Minimum Levels specified below represent the concentrations at which quantification must be achieved and verified during the chemical analyses for the parameters identified in Section 5 Tables A and B. Analyses for these parameters must include check standards within ten percent of the specified Minimum Level or calibration points equal to or less than the specified Minimum Level.

<u>Parameter</u>	<u>Minimum Level</u>
Chlorine, total residual	20.0 ug/L
Copper	5.0 ug/L
Lead	5.0 ug/L
Zinc	10.0 ug/L

- (4) The value of each parameter for which monitoring is required under this permit shall be reported to the maximum level of accuracy and precision possible consistent with the requirements of this section of the permit.
- (5) Effluent analyses for which quantification was verified during the analysis at or below the minimum levels specified in this section and which indicate that a parameter was not detected shall be reported as "less than x" where 'x' is the numerical value equivalent to the analytical method detection limit for that analysis.
- (6) Results of effluent analyses which indicate that a parameter was not present at a concentration greater than or equal to the Minimum Level specified for that analysis shall be considered equivalent to zero (0.0) for purposes of determining compliance with effluent limitations or conditions specified in this permit.

B) Acute Aquatic Toxicity Test

- (1) Samples for monitoring of Aquatic Toxicity shall be collected and handled as prescribed in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012).

- (a) Composite samples shall be chilled as they are collected. Grab samples shall be chilled immediately following collection. Samples shall be held at 4 degrees Centigrade until Aquatic Toxicity testing is initiated.
- (b) Effluent samples shall not be dechlorinated, filtered, or, modified in any way, prior to testing for Aquatic Toxicity unless specifically approved in writing by the Commissioner for monitoring at this facility.
- (c) Chemical analyses of the parameters identified in Section 6 Tables A and B shall be conducted on an aliquot of the same sample tested for Aquatic Toxicity.
 - (i) At a minimum, pH, specific conductance, salinity, total alkalinity, total hardness, and total residual oxidants shall be measured in the effluent sample and, during Aquatic Toxicity tests, in the highest concentration of test solution and in the dilution (control) water at the beginning of the test and at test termination. If Total Residual oxidant is not detected at test initiation, it does not need to be measured at test termination. Dissolved oxygen, pH, and temperature shall be measured in the control and all test concentrations at the beginning of the test, daily thereafter, and at test termination. Salinity shall be measured in each test concentration at the beginning of the test and at test termination.
 - (ii) For tests with saltwater organisms that require salinity adjustment of the effluent, chemical analyses shall be conducted on an aliquot of the effluent sample collected for Aquatic Toxicity testing and on an aliquot of the effluent following salinity adjustment. Both sets of results shall be reported on the Aquatic Toxicity Monitoring Report (ATMR).
- (d) Tests for Aquatic Toxicity shall be initiated within 36 hours of sample collection
- (2) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (invertebrate) above shall be conducted for 48-hours utilizing neonatal Mysidopsis bahia (1-5 days old with no more than 24-hours range in age)
- (3) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (vertebrate) above shall be conducted for 48-hours utilizing larval Menidia beryllina (9-14 days old with no more than 24-hours range in age).
- (4) Tests for Aquatic Toxicity shall be conducted as prescribed for static non-renewal acute tests in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012), except as specified below.
 - (a) Definitive (multi-concentration) testing, with LC50 as the endpoint, shall be conducted to determine compliance with limits on Aquatic Toxicity and monitoring conditions and shall incorporate, at a minimum, the following effluent concentrations: 100%, 75%, 50%, 25%, 12.5%, and 6.25%.
 - (b) Mysidopsis bahia shall not be fed during the tests.
 - (i) Copper nitrate shall be used as the reference toxicant in tests with freshwater organisms.
- (c) Aquatic toxicity tests with saltwater organisms shall be conducted at a salinity of 25 parts per thousand, plus or minus 2 parts per thousand.
 - (i) Sodium lauryl sulfate or sodium dodecyl sulfate shall be used as the reference toxicant.
 - (ii) Synthetic seawater for use as dilution water or controls shall be prepared with deionized water and artificial sea salts as described in EPA/821-R-02-012.
 - (iii) If the salinity of the source water is more than 5 parts per thousand higher, or lower than the culture water used for rearing the organisms, a second set of controls matching the salinity of the culture water shall be added to the test series. Test validity shall be determined using the controls adjusted to match

the source water salinity.

(iv) Salinity adjustment that may be required in tests with saltwater organisms shall utilize the minimum amount of synthetic hypersaline brine (not to exceed 100 parts per thousand) or dilute (2 parts per thousand) synthetic seawater necessary to achieve the required salinity.

(v) The actual effluent concentrations in definitive tests with saltwater organisms shall be used in calculating test results.

(5) Compliance with limits on Aquatic Toxicity shall be determined as follows:

(a) For limits expressed as a minimum LC50 value, compliance shall be demonstrated when the results of a valid definitive Aquatic Toxicity test indicates that the LC50 value for the test is greater than the Aquatic Toxicity Limit.

SECTION 8: REPORTING REQUIREMENTS

(A) The results of chemical analyses and any aquatic toxicity test required above shall be entered on the Discharge Monitoring Report (DMR), provided by this office, and reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing) at the following address. Except for continuous monitoring, any monitoring required more frequently than monthly shall be reported on an attachment to the DMR, and any additional monitoring conducted in accordance with 40 CFR 136 or other methods approved by the Commissioner shall also be included on the DMR, or as an attachment, if necessary. The report shall also include a detailed explanation of any violations of the limitations specified. The DMR shall be received at this address by the last day of the month following the month in which samples are collected.

Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division (Attn: DMR Processing)
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

(B) Complete and accurate aquatic toxicity test data, including percent survival of test organisms in each replicate test chamber, LC50 values and 95% confidence intervals for definitive test protocols, and all supporting chemical/physical measurements performed in association with any aquatic toxicity test, including measured daily flow and hours of operation for the 30 consecutive operating days prior to sample collection if compliance with a limit on Aquatic Toxicity is based on toxicity limits based on actual flows described in Section 7, shall be entered on the Aquatic Toxicity Monitoring Report form (ATMR) and sent to the Bureau of Water Protection and Land Reuse at the following address. The ATMR shall be received at this address by the last day of the month following the month in which samples are collected.

Bureau of Water Protection and Land Reuse (Attn: Aquatic Toxicity)
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

(C) If this permit requires monitoring of a discharge on a calendar basis (e.g. Monthly, quarterly, etc.), but a discharge has not occurred within the frequency of sampling specified in the permit, the Permittee must submit the DMR and ATMR, as scheduled, indicating "NO DISCHARGE". For those Permittees whose required monitoring is discharge dependent (e.g. per batch), the minimum reporting frequency is monthly. Therefore, if there is no discharge during a calendar month for a batch discharge, a DMR must be submitted indicating such by the end of the following month.

(D) NetDMR Reporting Requirements

(1) Prior to one-hundred and eighty (180) days after the issuance of this permit, the Permittee may either submit monitoring data and other reports to the Department in hard copy form or electronically using NetDMR, a web-

based tool that allows Permittees to electronically submit discharge monitoring reports (DMRs) and other required reports through a secure internet connection. Unless otherwise approved in writing by the Commissioner, no later than one-hundred and eighty (180) days after the issuance of this permit the Permittee shall begin reporting electronically using NetDMR. Specific requirements regarding subscription to NetDMR and submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

(a) Submittal of *NetDMR Subscriber Agreement*

On or before fifteen (15) days after the issuance of this permit, the Permittee and/or the person authorized to sign the Permittee's discharge monitoring reports ("Signatory Authority") as described in RCSA Section 22a-430-3(b)(2) shall contact the Department at deep.netdmr@ct.gov and initiate the NetDMR subscription process for electronic submission of Discharge Monitoring Report (DMR) information. Information on NetDMR is available on the Department's website at www.ct.gov/deep/netdmr. On or before ninety (90) days after issuance of this permit the Permittee shall submit a signed copy of the **Connecticut DEEP NetDMR Subscriber Agreement** to the Department.

(b) Submittal of Reports Using NetDMR

Unless otherwise approved by the Commissioner, on or before one-hundred and eighty (180) days after issuance of this permit, the Permittee and/or the Signatory Authority shall electronically submit DMRs and reports required under this permit to the Department using NetDMR in satisfaction of the DMR submission requirement in paragraph (A) of this Section of this permit.

DMRs shall be submitted electronically to the Department no later than the 30th day of the month following the completed reporting period. All reports required under the permit, including any monitoring conducted more frequently than monthly or any additional monitoring conducted in accordance with 40 CFR 136, shall be submitted to the Department as an electronic attachment to the DMR in NetDMR. Once a Permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to the Department. Permittee shall also electronically file any written report of non-compliance described in paragraph (A) of this Section and in the following Section of this Permit as an attachment in NetDMR. NetDMR is accessed from: <http://www.epa.gov/netdmr>.

(c) Submittal of NetDMR Opt-Out Requests

If the Permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for electronically submitting DMRs and reports, the Commissioner may approve the submission of DMRs and other required reports in hard copy form ("opt-out request"). Opt-out requests must be submitted in writing to the Department for written approval on or before fifteen (15) days prior to the date a Permittee would be required under this permit to begin filing DMRs and other reports using NetDMR. This demonstration shall be valid for twelve (12) months from the date of the Department's approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to the Department using NetDMR unless the Permittee submits a renewed opt-out request and such request is approved by the Department.

All opt-out requests and requests for the NetDMR subscriber form should be sent to the following address or by email at deep.netdmr@ct.gov:

Attn: NetDMR Coordinator
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

SECTION 9: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

- (A) If any sample analysis indicates Toxicity, or that the test was invalid, another sample of the effluent shall be collected and tested for the required chemical parameters, as described above in Section 5 and Section 6, and the results reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing), at the address listed above, within 30 days of the exceedance or invalid test. Results of all tests, whether valid or invalid, shall be reported.
- (B) The Permittee shall notify the Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement Division, within 72 hours and in writing within thirty days of the discharge of any substance listed in the application but not listed in the permit if the concentration or quantity of that substance exceeds two times the level listed in the application.

This permit is hereby issued on

Yvonne Bolton
Chief
Bureau of Materials Management and
Compliance Assurance
Department of Energy and Environmental Protection

YB/OF

DATA TRACKING AND TECHNICAL FACT SHEET
WPED NPDES PERMIT REISSUANCE

PERMITTEE	University of Connecticut, Avery Point Regional Campus, Department of Marine Science
PERMIT NO.	CT0028631
APPLICATION NO.	201600010
DATE APPLICATION RECEIVED	December 31, 2015
LOCATION ADDRESS	1080 Shennecossett Road Groton, CT 06340
FACILITY CONTACT	Turner Cabaniss
MAILING ADDRESS	1080 Shennecossett Road Groton, CT 06340
DMR CONTACT	Turner Cabaniss, 1080 Shennecossett Road Groton, CT 06340 turner.cabaniss@uconn.edu Phone No.: (860) 405-9178
PERMIT TERM	5 Years
PERMIT TYPE	Reissuance
PERMIT CATEGORY	NPDES MINOR (MI)
PRIMARY STANDARD INDUSTRIAL CLASSIFICATION ("SIC") CODE	8221
OWNERSHIP	State
RECEIVING WATERBODY	Long Island Sound
WATERBODY SEGMENT ID	CT-E2_009SB
WATER QUALITY STANDARD	SB
DISCHARGE LOCATIONS	DSN 001: Latitude (41° 18' 55") Longitude (73° 3' 47") DSN 002: Latitude (41° 18' 55") Longitude (72° 3' 46")
DEEP STAFF ENGINEER	Oluwatoyin Fakilede (860-418-5986) oluwatoyin.fakilede@ct.gov

PERMIT FEES

Application Filing Fee: \$ 1,300 (Paid on December 31, 2015)

Application Processing Fee: \$262.00 (Paid on February 17, 2016)

Annual Fee:

DISCHARGE CODE	WASTEWATER CATEGORY (per 22a-430-7)	MAXIMUM FLOW (GALLONS PER DAY, "GPD")	DSN	ANNUAL FEE (per 22a-430-7)
102000b	NA	720,000	001-1	\$1,717.50
102000b	NA	65,000	002-1	0
TOTAL				\$1,717.50

University of Connecticut, Department of Marine Sciences, a research and teaching facility, conducts biological oceanography research. The discharge does not fall under any specific category for billing purpose. Therefore, the non-contact cooling water annual fee was applied. A 25% reduction was also applied because the annual fee amount for

non-contact cooling water is excessive in relation to the cost of the permitted activity in accordance with RCSA Section 22a-430-7(g)(Schedule B).

I. APPLICANT

University of Connecticut, Department of Marine Sciences also known as John S. Rankin laboratory is seeking reissuance of its NPDES permit (CT0028631) for the discharge of research aquariums and related activities wastewaters to the Long Island Sound Shore. The notice of permit application was published in The Day on December 29, 2015. On February 22, 2016, the permit application was determined to be sufficient.

II. NATURE OF THE BUSINESS GENERATING THE DISCHARGE

The applicant seeks authorization for the following:

DSN	PROPOSED AVERAGE MONTHLY FLOW (gpd)	PROPOSED MAXIMUM DAILY FLOW (gpd)	PROPOSED WASTESTREAMS	TREATMENT TYPE	DISCHARGE TO
001-1	---	720,000	This discharge consists of aquarium seawater used for biological oceanography research, aquarium experiment brackish water, aquarium maintenance rinse sea water/ potable water, sand filter back flush, floor rinse water and flow through seawater (this seawater is pumped into the system basically to maintain the desired flow velocity, it is not used for any process).	Treatment is not necessary.	Long Island Sound
002-1	---	65,000	This discharge consists of aquarium seawater used for biological oceanography research, aquarium maintenance rinse water, floor rinse water and occasional incidental stormwater.	Treatment is not necessary.	Long Island Sound

The applicant requested to include floor rinse wastewater in its discharge. To determine the quality of the floor rinse wastewater, a chemical analysis of the floor rinse water was conducted. The analytical result was submitted to the Department. The Department evaluated the data and determined that the rinse water will not significantly impact the receiving stream adversely (see Appendix (A)). The evaluation was for rinse water with no chemical added, therefore, Section 6(A) of this permit prohibits the use of cleaners or detergents for floor wash. In the event that cleaners or detergents are used, the wastewater must be contained, kept out of the floor drain system, collected by using mops and vacuums, and discharged to the sanitary sewer in accordance with the General permit for Discharges of Miscellaneous Sewer Compatible Wastewater.

III. BACKGROUND/PERMIT HISTORY

John S. Rankin laboratory has maintained a NPDES permit with the State of Connecticut since June 1992 but the discharge began in March 1995. The Permit issued in June 2006 was noted as a new permit and not a renewal because John S. Rankin laboratory submitted an untimely permit application in 2003.

IV. ISSUES RELATED TO THE APPLICATION

A. FEDERALLY-RECOGNIZED INDIAN LAND

As provided in the permit application, the site is not located on federally-recognized Indian land.

B. COASTAL AREA/COASTAL BOUNDARY

The activity is located within a coastal boundary as defined in CGS 22a-94(b) but this application does not propose any new exterior construction at the facility. Therefore, the activity is considered to be consistent with the Coastal Area Management Act.

C. ENDANGERED SPECIES

The subject permit involves the re-issuance of a discharge of wastewater to the Long Island sound Shore. The discharge will not impact any endangered species.

D. AQUIFER PROTECTION AREAS

The project site is not located within a town required to establish Aquifer Protection Areas.

E. CONSERVATION OR PRESERVATION RESTRICTION

As provided in the permit application, the property is not subject to a conservation or preservation restriction.

F. PUBLIC WATER SUPPLY WATERSHED

The project site is not located within a public water supply watershed.

V. THE ON-SITE WASTEWATER TREATMENT SYSTEM

There is no treatment system for this wastewater

VI. EFFLUENT QUALITY DATA

Based on DMR data for DSN 001 (November 2014 – October 2019)

Maximum Flow: 200,941 gpd

pH range: 7.7 – 8.3

MONTH /YEAR	BOD (mg/l)	Chlorine, total residual (mg/l)	Copper (mg/l)	Nitrogen, ammonia total (mg/l)	Nitrogen, nitrite total (mg/l)	Nitrogen, nitrate total (mg/l)	Phosph orus (mg/l)	Lead (mg/l)	Sulfate (mg/l)	Tempe rature (°F)	TSS (mg/l)	Zinc (mg/l)
11/30/2014		0.03	0									
12/31/2014												
1/31/2015												
2/28/2015										36		
3/31/2015										36		
4/30/2015										44		
5/31/2015										53		
6/30/2015										63		
7/31/2015	0	0.02	0	0.07	0	0	0.06	0	2290	68.9	32	0
8/31/2015										71.6		
9/30/2015										72		
10/31/2015	0	0.02	0	0	0	0	0.09	0.038	2440	67.1	27	0
11/30/2015										60		
12/31/2015										53.4		
1/31/2016										48		
2/28/2016										43.2		
3/31/2016										45		
4/30/2016										48		
5/31/2016										55		
6/30/2016										63.5		
7/31/2016	0	0.01	0	0	0	0	0.05	0.003	2370	69	36	0.002
8/31/2016										72		
9/30/2016										71		
10/31/2016	0	0	0	0	0	0	0.077	0	2570	66.5	0	0
11/30/2016										60.4		
12/31/2016										53		
1/31/2017										44.8		
2/28/2017										41		
3/31/2017										42		
4/30/2017										47		
5/31/2017										54.7		

6/30/2017										63.5		
7/31/2017	4	0.01	0.025	0.07	0.4	0.5	0.032	0.01	2510	65.8	24	0.01
8/31/2017										69		
9/30/2017	45									68.5		
10/31/2017	448	0.01	0.004	0.11	0	0.02	0.052	0.001	2410	67	50	0.004
11/30/2017										62.6		
12/31/2017										53		
1/31/2018										38.8		
2/28/2018										40		
3/31/2018										41.5		
4/30/2018										45		
5/31/2018										54.1		
6/30/2018										63.1		
7/31/2018	0	0	0	0.1	0	0	0.028	0	1800	70.5	0	0
8/31/2018										72.7		
9/30/2018										71.4		
10/31/2018	0	0	0	0	0.016	0.05	0.033	0	2320	67.8	11	0
11/30/2018										57.7		
12/31/2018										48.6		
1/31/2019										44.6		
2/28/2019										39.4		
3/31/2019										41.7		
4/30/2019										48		
5/31/2019										54.5		
6/30/2019										62.6		
7/31/2019	0	0	0	0.12	0	0	0.031	0	2210	68	15	0
8/31/2019										69.26		
9/30/2019										68.7		
10/31/2019	0	0	0	0	0	0	0.049	0	2230	66.4	0	0
11/30/2019										59.7		
12/31/2019												
1/31/2020												

Based on DMR data for DSN 002 (February 2015 – January 2020)

There was no discharge for DSN 002 based on DMR data of February 2015 – January 2020.

VII. EFFLUENT VIOLATIONS

There was no effluent violation during the permit cycle.

VIII. OUTSTANDING ENFORCEMENT (RELATED TO WASTEWATER DISCHARGES):

None

IX. SPILL HISTORY

None

X. EFFLUENT GUIDELINES

BASIS FOR LIMITS, STANDARDS OR CONDITIONS		DISCHARGE POINT(S)
<input type="checkbox"/>	Best Available Technology (BAT)	
<input type="checkbox"/>	Best Practicable Technology (BPT)	
<input type="checkbox"/>	Best Conventional Technology (BCT)	
<input checked="" type="checkbox"/>	Case by Case Determination using Best Professional Judgement	
<input checked="" type="checkbox"/>	In order to meet in-stream water quality	
<input checked="" type="checkbox"/>	Anti-degradation policy	

XI. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

RESOURCES USED TO DRAFT PERMIT		DISCHARGE POINT(S)
<input type="checkbox"/>	Federal Effluent Limitation Guideline (ELG)	
<input type="checkbox"/>	Performance Standards	
<input type="checkbox"/>	Federal Development Document	
<input type="checkbox"/>	Treatability Manual	
<input checked="" type="checkbox"/>	Department File Information	
<input checked="" type="checkbox"/>	Connecticut Water Quality Standards	
<input checked="" type="checkbox"/>	Anti-degradation Policy	
<input type="checkbox"/>	Coastal Management Consistency Review Form	
<input type="checkbox"/>	Other	

A. MONITORING PARAMETERS & LIMITS:

PARAMETER	Case by Case Determination Based on Best Professional Judgement	REASON
	Monitoring only	
BOD	✓	Pollutant believed present
Copper	✓	Pollutant believed present
Lead	✓	Pollutant believed present
Nitrogen, ammonia	✓	Pollutant believed present
Nitrogen, nitrate	✓	Pollutant believed present
Nitrogen, nitrite	✓	Pollutant believed present
Phosphorus	✓	Pollutant believed present
Sulfates	✓	Pollutant believed present
Temperature	✓	Pollutant believed present
Total residual chlorine	✓	Pollutant believed present
Total Suspended solids	✓	Pollutant believed present
Zinc	✓	Pollutant believed present
PARAMETER	Connecticut Water Quality Standards	REASON
	Maximum Instantaneous (mg/L)	
pH	✓	In order to meet water quality criteria
Aquatic toxicity	✓	Minimal potable water will be included in the discharge.

DSN 001-1

The UConn, Rankin Laboratory, is a research and education facility that emphasizes biological oceanography and habitat related work. The discharge consists of aquarium seawater used solely for the holding of live marine organisms such as microalgae, plankton, vertebrate and invertebrates for marine biology research. The nature of the work is non-polluting and non-invasive, which does not involve chemical input or chemical manipulation of the discharge water stream. However, in this permit cycle, potable water will be used for floor rinsing and discharged with other wastewaters. Since potable water contains some pollutants such as copper and chlorine, at higher levels than the intake water, the need for inclusion of water quality based discharge limitations in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Copper and chlorine were evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate. The reasonable potential statistical procedures outlined in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) were employed to calculate the need for such limits for DSN 001-1 discharge. Comparison of monitoring data and its inherent variability with the calculated water quality based limits indicates a low statistical probability of exceedance of such limits (see Appendix A). Therefore, no water quality based limits are included in the permit at this time.

DSN 002-1

For DSN 002-1, there has been no discharge. The need for inclusion of water quality based discharge limitations in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Relevant discharge data were not available for evaluation of consistency with the available aquatic life criteria (acute

and chronic) and human health (fish consumption only) criteria. Analyses of monitoring data for similar facilities with considerable available dilution generally do not warrant water quality based limitations. However, a monitoring requirement is included in this permit to develop the data necessary for such an evaluation.

Comments on Other monitoring Parameters for the discharges

Based on best professional judgment a monitoring requirement is included in this permit for ammonia, Biochemical Oxygen Demand 5 (BOD5), lead, sulfates, nitrates, nitrites, total phosphorus, total suspended solids and zinc because these pollutants are present in the discharge.

This permit contains pH limitations of 6.0 – 9.0 S.U. based on the Connecticut Water quality criteria.

Review of previous DMR data showed the presence of phosphorus at low levels; the highest being 77 µg/l. The Department is working to determine nutrient impacts on coastal waters and is evaluating both nitrogen and phosphorus as part of that project. It is uncertain at this time that solely focusing on nitrogen will allow us to achieve water quality goals for dissolved oxygen, water clarity and chlorophyll-a within coastal embayments. Understanding the behavior of both nitrogen and phosphorus in coastal waters and the source of those nutrients is critical to this effort. As such, monitoring only for Phosphorus, Total as P, is included in Tables A and B of this permit (see Appendix D)

Flow monitoring for DSN 002-1 will be conducted using a flow meter. An instantaneous flow rate, with a flow meter, will be taken once per day and every time the flow rate is physically changed. The total flow will be calculated using the instantaneous flow rate over each duration of unaltered flow.

Since minimal potable water will be added to the discharge, aquatic toxicity limit was included in the permit.

The wastewater should be homogeneous since no chemical will be added to the intake water. Therefore, grab sample shall remain as the sampling type.

Section 316(a) of the Federal Water Pollution Control Act, U.S.C. § 1326(a) provides that the thermal component of any discharge will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving water body. The facility does not use the water it withdraws for cooling purposes. Therefore, a temperature limit is not necessary in this permit but temperature monitoring is included.

Intake Water Structure Description

The intake structure consists of an 18" diameter PVC conduit containing two 4" diameter flexible PVC intake lines supported by 13 one-cubic yard concrete pedestals or stone pipe supports pinned to the bedrock. The conduit extends approximately 90+/- linear feet waterward of the high tide line and the intake lines extend another 45+/- linear feet waterward beyond the terminus of the conduit. Approximately 100 cubic yards of armor stones pinned to ledge riprap, traprock and gravel provide pipe protection. Two 25 sq.ft. inverted drywells provide protection for the termini of the intake lines.

Since the water withdrawn is not used for cooling purposes, Section 316(b) of the Federal Water Pollution Control Act, U.S.C. § 1326(b) is not applicable. Section 316(b) of the Federal Water Pollution Control Act, U.S.C. § 1326(b) states that "any standard established pursuant to section 301 or 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures (CWIS) reflect the best technology available for minimizing adverse environmental impact".

Anti-Backsliding

The proposed permit is consistent with the anti-backsliding rule since the permit is not less stringent than the previous permit.

Anti-degradation Evaluation

Implementation of the Anti-degradation Policy follows a tiered approach pursuant to the federal regulations (40 CFR 131.12) and consistent with the Connecticut Anti-degradation Policy included in the Connecticut Water Quality Standards. Tier 1 Anti-degradation review applies to all permitted discharge activities to all waters of the state. Tiers 1

and 2 Anti-degradation reviews apply to all new or increased discharges to high quality waters and wetlands, while Tiers 1 and 3 Anti-degradation reviews apply to all new or increased discharges to outstanding national resource waters.

This discharge is an existing discharge and the Permittee proposes only a minimal increase in volume or concentration of constituents. Therefore, only the Tier 1 Anti-degradation Evaluation and Implementation Review was conducted to ensure that existing and designated uses of surface waters and the water quality necessary for their protection are maintained and preserved, consistent with Connecticut Water Quality Standard, Sec.22a-426-8(a)(1). All narrative and numeric water quality standards, criteria and associated policies contained in the Connecticut Water Quality Standards are the basis for the evaluation considering the discharge or activity both independently and in the context of other discharges and activities in the affected water body and considering any impairment listed pursuant to Section 303d for the federal Clean Water Act or any TMDL established for the water body. The Department has determined that the discharges or activities are consistent with the maintenance, restoration, and protection of existing and designated uses assigned to the receiving water body by considering all relevant available data.

The receiving stream, Long Island Sound Shore, has been assessed and is listed as being impaired for its designated uses of habitat for marine fish, other aquatic life and wildlife. The causes of impairment include dissolved oxygen saturation and estuarine bioassessments. It is believed that potential sources may include industrial point source discharges, remediation sites or groundwater impacts and stormwater. At this time, no monitoring requirement to monitor organic loading in the discharge for dissolved oxygen was included in the permit since biochemical oxygen demand has been included in the permit.

The designated uses for the receiving stream includes recreation and commercial harvesting of shellfish. There are numeric water quality criteria for fecal coliform and enterococci for the receiving stream (see Appendix E). The applicant stated that in its NPDES application that fecal coliform are believed absent. Therefore, monitoring for fecal coliform and enterococci are not included in this permit.

XII. MISCELLANEOUS

Permittee also generates and discharges wastewaters regulated under the following permits:

Type of Wastewater	Quantity	Discharge to	Permit
Non-contact cooling water	2000 gallons per year	City of Groton WPCF via the sanitary system	Miscellaneous General Permit (By virtue of low volume, wastewater gets automatic coverage. Registration is not required.)
Miscellaneous wastewater	1000 gallons per week	City of Groton WPCF via the sanitary system	Miscellaneous General Permit (By virtue of low volume, wastewater gets automatic coverage. Registration is not required.)

XIII. COMMENTS RELATED TO THE PUBLIC NOTICE

APPENDIX A: WATER QUALITY BASED LIMITS CALCULATION

University of Connecticut, Avery Point Campus, Department of Marine Science discharges to Long island sound which is tidal. A zone of influence was allocated to this discharge based on a 100:1 dilution.

Permitted flow for DSN 101-1 = 720,000 gpd = 30,000 gph and

Permitted flow for DSN 102-1 = 65,000 gpd = 2708 gph

Dilution factor (DF) for both discharges = $\frac{AML + ZOI}{AML}$

ZOI for DSN 101-1 = 30000 (Dilution factor – 1) = 2,970,000 gph

ZOI for DSN 102-1 = 2708 (Dilution factor – 1) = 268,092 gph

IWC for both discharges = $\frac{1}{DF} \times 100\% = \frac{1}{100} \times 100\% = 1.0\%$

TABLE A: DMR data for DSN 001-1 (October 2014 – October 2017)

Date	Chlorine (µg/l)	Copper (µg/l)
10/31/2014	30	0
7/31/2015	20	0
10/31/2015	20	0
7/31/2016	10	0
10/31/2016	0	0
7/31/2017	10	25
10/31/2017	10	4
7/31/2018	0	0
10/31/2018	0	0
7/31/2019	0	0
10/31/2019	0	0
Average	9.1	2.64
$C_v = \frac{SD}{Mean}$	$\frac{10.44}{9.1} = 1.1$	$\frac{7.51}{2.64} = 2.8$

Average chlorine concentration = 9.1µg/l and average copper concentration = 2.64µg/l

As stated in the fact sheet, the applicant requested to include floor rinse wastewater in its discharge. The applicant submitted the result of the analysis of floor rinse water conducted on 5/23/2017, chlorine concentration was 860µg/l and copper concentration was 11µg/l. Since this wastewater was not previously included in the discharge, a mass balance was done in order to determine if the addition of the floor rinse water to the discharge would make the discharge quality worse than the highest concentration on the existing DMR data. It was determined that the DMR highest concentrations of copper and chlorine are higher than the calculated volume if the floor rinse was added. See calculation below.

$$Q_a C_a + Q_b C_b = Q_c C_c$$

Based on flow information from the Line diagram in Attachment M of the permit renewal application,

Average floor rinse water volume = 160 gpd, Maximum floor rinse water volume = 320 gpd

Average Fall/Winter/Spring discharge volume = 183,420 gpd, Average Summer discharge volume = 287,020 gpd

In order to be conservative, the maximum floor rinse water and the average Fall/Winter/Spring discharge volumes are used for the mass balance calculation.

Chlorine concentration $C_c = \frac{Q_a C_a + Q_b C_b}{Q_c} = \frac{(183260 \times 9.1) + (320 \times 860)}{183580} = 10.58\mu\text{g/l}$. Since 10.58µg/l is lower than the maximum concentration of 30 µg/l on the DMR data for DSN 001-1, the DMR data will be used for the reasonable potential analysis.

Copper concentration $C_c = \frac{Q_a C_a + Q_b C_b}{Q_c} = \frac{(183260 \times 2.64) + (320 \times 11)}{183580} = 2.65\mu\text{g/l}$. Since 2.65µg/l is lower than the maximum concentration of 25 µg/l on the DMR data for DSN 001-1, the DMR data will be used for the reasonable potential analysis.

TABLE B: REASONABLE POTENTIAL EVALUATION (DSN 001-1)

(This analysis compares the projected concentration in the receiving stream after discharge with the applicable water quality criteria. When the projected maximum concentration is lower than the water quality criteria, there is no potential for the discharge to exceed the water quality criteria. When the projected maximum concentration is higher than the water quality criteria, there is a potential for the discharge to exceed the water quality criteria and therefore limits are needed in the permit.)

C_d = Downstream concentration, $(QC)_d$ = Downstream data, $(QC)_e$ = Effluent data, $Q_e = 0.72$ MGD, $Q_u = 71.28$ MGD and $Q_d = 72$ MGD

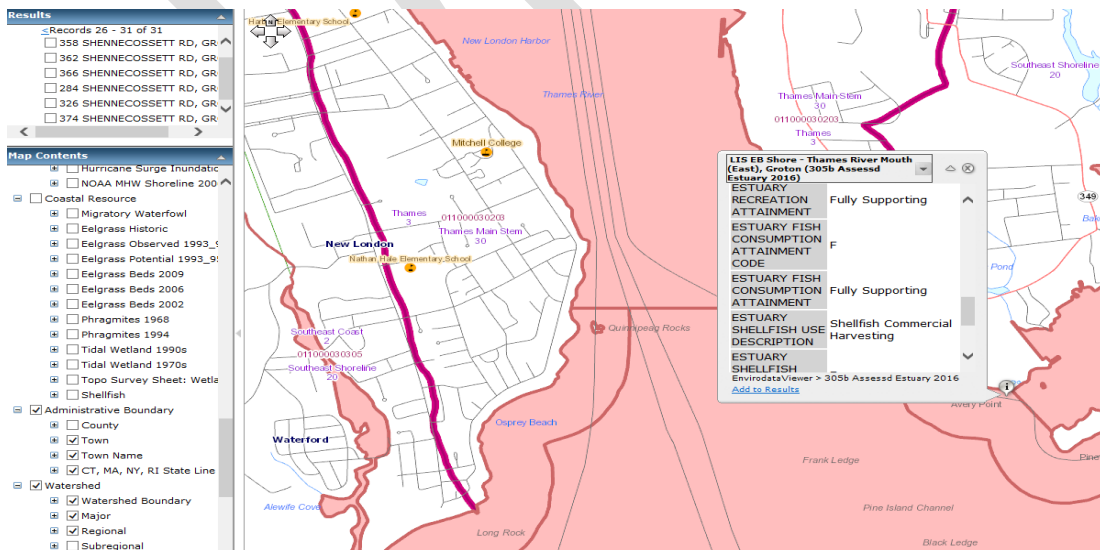
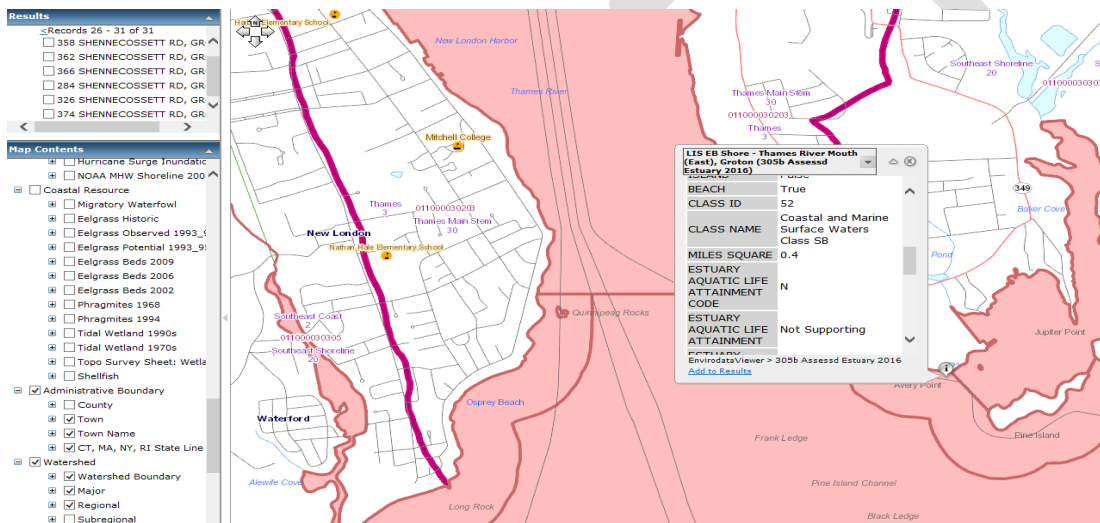
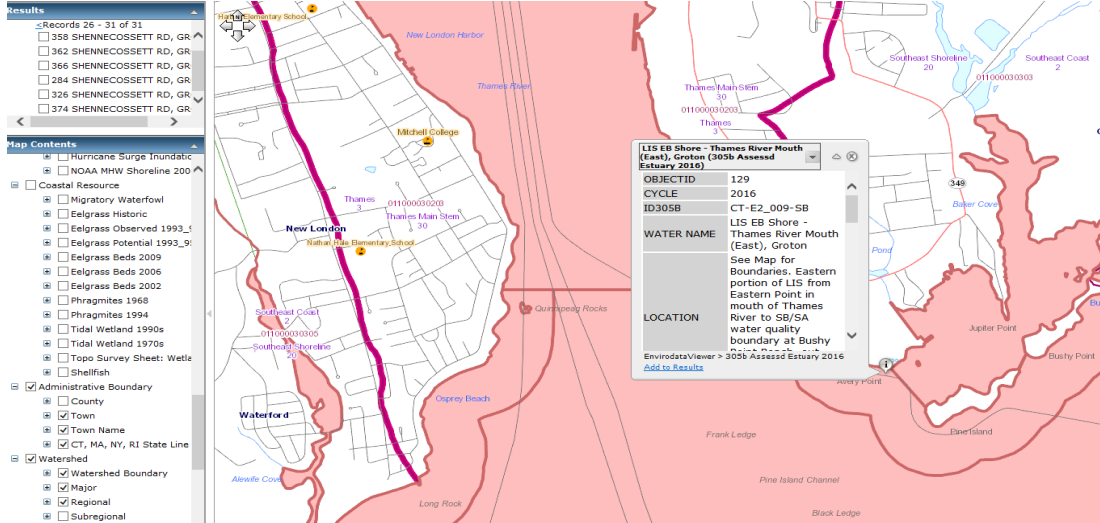
	Maximum projected concentration in effluent = Maximum measured concentration in effluent X multiplier in Table 3 – 1 below	$C_d = \frac{(QC)_u + (QC)_e}{Q_d}$	CONNECTICUT WATER QUALITY CRITERIA (WQC) (SALTWATER)			Is there reasonable potential to exceed WQC?
			Aquatic Life (Acute) (µg/l)	Aquatic Life (Chronic) (µg/l)	Human Health (µg/l)	
Chlorine	30 X 5.6 = 168	1.68	13	7.5	---	No
Copper	25 X 11.5 = 288	2.88	4.8	3.1	---	No

- Based on intake water chemistry of Year 2006, copper and chlorine background concentrations are assumed to 0 µg/l.

Table 3-1. Reasonable Potential Multiplying Factors: 99% Confidence Level and 99% Probability Basis

Number of Samples	Coefficient of Variation																			
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1	1.6	2.5	3.9	6.0	9.0	13.2	18.9	26.5	36.2	48.3	63.3	81.4	102.8	128.0	157.1	190.3	227.8	269.9	316.7	368.3
2	1.4	2.0	2.9	4.0	5.5	7.4	9.8	12.7	16.1	20.2	24.9	30.3	36.3	43.0	50.4	58.4	67.2	76.6	86.7	97.5
3	1.4	1.9	2.5	3.3	4.4	5.6	7.2	8.9	11.0	13.4	16.0	19.0	22.2	25.7	29.4	33.5	37.7	42.3	47.0	52.0
4	1.3	1.7	2.3	2.9	3.8	4.7	5.9	7.2	8.7	10.3	12.2	14.2	16.3	18.6	21.0	23.6	26.3	29.1	32.1	35.1
5	1.3	1.7	2.1	2.7	3.4	4.2	5.1	6.2	7.3	8.6	10.0	11.5	13.1	14.8	16.6	18.4	20.4	22.4	24.5	26.6
6	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.8	11.1	12.4	13.8	15.3	16.8	18.3	19.9	21.5
7	1.3	1.6	2.0	2.4	2.9	3.6	4.2	5.0	5.8	6.7	7.7	8.7	9.7	10.8	12.0	13.1	14.4	15.6	16.9	18.2
8	1.2	1.5	1.9	2.3	2.8	3.3	3.9	4.6	5.3	6.1	6.9	7.8	8.7	9.6	10.6	11.6	12.6	13.6	14.7	15.8
9	1.2	1.5	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.7	6.4	7.1	7.9	8.7	9.6	10.4	11.3	12.2	13.1	14.0
10	1.2	1.5	1.8	2.2	2.6	3.0	3.5	4.1	4.7	5.3	5.9	6.6	7.3	8.0	8.8	9.5	10.3	11.0	11.8	12.6
11	1.2	1.5	1.8	2.1	2.5	2.9	3.4	3.9	4.4	5.0	5.6	6.2	6.8	7.4	8.1	8.8	9.4	10.1	10.8	11.5
12	1.2	1.4	1.7	2.0	2.4	2.8	3.2	3.7	4.2	4.7	5.2	5.8	6.4	7.0	7.5	8.1	8.8	9.4	10.0	10.6
13	1.2	1.4	1.7	2.0	2.3	2.7	3.1	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.1	7.6	8.2	8.7	9.3	9.9
14	1.2	1.4	1.7	2.0	2.3	2.6	3.0	3.4	3.9	4.3	4.8	5.2	5.7	6.2	6.7	7.2	7.7	8.2	8.7	9.2
15	1.2	1.4	1.6	1.9	2.2	2.6	2.9	3.3	3.7	4.1	4.6	5.0	5.4	5.9	6.4	6.8	7.3	7.7	8.2	8.7
16	1.2	1.4	1.6	1.9	2.2	2.5	2.9	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.1	6.5	6.9	7.3	7.8	8.2
17	1.2	1.4	1.6	1.9	2.1	2.5	2.8	3.1	3.5	3.8	4.2	4.6	5.0	5.4	5.8	6.2	6.6	7.0	7.4	7.8
18	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.4	3.7	4.1	4.4	4.8	5.2	5.6	5.9	6.3	6.7	7.0	7.4
19	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.0	4.3	4.6	5.0	5.3	5.7	6.0	6.4	6.7	7.1
20	1.2	1.3	1.6	1.8	2.0	2.3	2.6	2.9	3.2	3.5	3.8	4.2	4.5	4.8	5.2	5.5	5.8	6.1	6.5	6.8

APPENDIX B: MAP OF THE DISCHARGE LOCATION



APPENDIX C: CONNECTICUT 2018 305b ASSESSMENT RESULTS AND 303d IMPAIRED WATER LIST

Connecticut 2018 305b Assessment Results

Estuaries

Appendix A-3

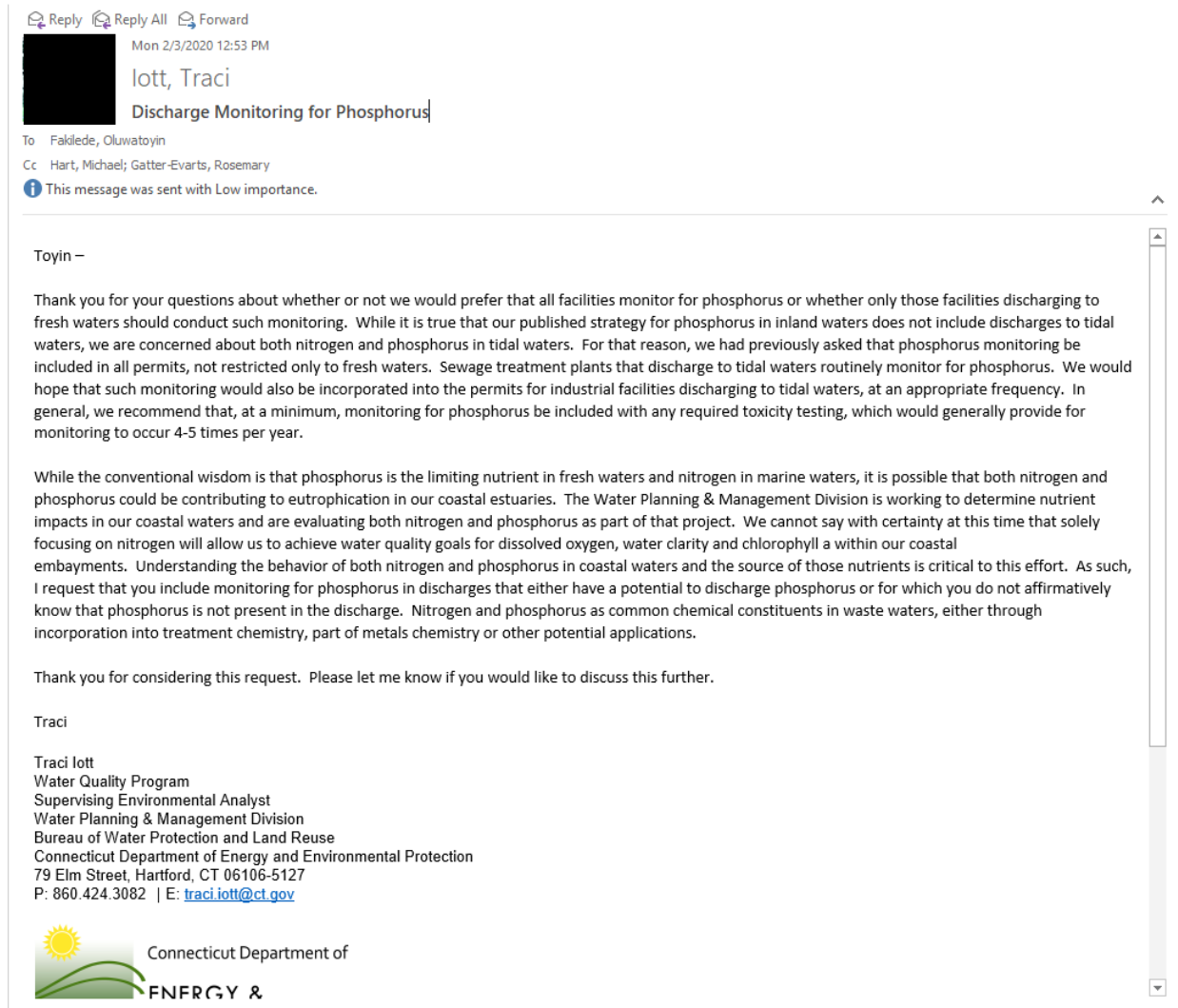
Waterbody Segment ID	Waterbody Name	Location	Square Miles	Aquatic Life	Recreation	Shellfish	Shellfish Class
CT-E2_007	LIS EB Shore - Outer Mumford Cove, Groton	See Map for Boundaries. Eastern portion of LIS from Mumford Point to eastern most tip of Groton Long Point (includes outer Mumford cove and all of Venetian Harbor), out approximately 1000 ft offshore.	0.555	UNASSESSED	UNASSESSED	NOT SUPPORTING	Direct Consumption
CT-E2_008	LIS EB Shore - Bluff Point, Groton	See Map for Boundaries. Eastern portion of LIS from SB/SA water quality boundary at Bushy Point Beach to Mumford Point, out approximately 1000 ft offshore.	0.235	UNASSESSED	UNASSESSED	NOT SUPPORTING	Direct Consumption
CT-E2_009-SB	LIS EB Shore - Thames River Mouth (East), Groton	See Map for Boundaries. Eastern portion of LIS from Eastern Point in mouth of Thames River to SB/SA water quality boundary at Bushy Point Beach, out approximately 1000 ft offshore.	0.4	NOT SUPPORTING	FULLY SUPPORTING	FULLY SUPPORTING	Commercial Harvesting
CT-E2_010-SB	LIS EB Shore - Thames Rvr Mouth (West), New London	See Map for Boundaries. Eastern portion of LIS from mouth of Alewife Cove to Quinnipeag Rocks along western shore of Thames River mouth, out approximately 1000 ft offshore (SB Water Quality).	0.299	NOT SUPPORTING	FULLY SUPPORTING	NOT SUPPORTING	Commercial Harvesting
CT-E2_011-SB	LIS EB Shore - Thames Rvr Mouth (West), Waterford	See Map for Boundaries. Eastern portion of LIS from Magonk Point to mouth of Alewife Cove, out approximately 1000 ft offshore (SB Water Quality).	0.486	NOT SUPPORTING	FULLY SUPPORTING	FULLY SUPPORTING	Commercial Harvesting
CT-E2_012	LIS EB Shore - Outer Jordan Cove, Waterford	See Map for Boundaries. Eastern portion of LIS from Millstone Point to SB/SA water quality boundary at Magonk Point, out approximately 1000 ft offshore. Waters adjacent to Millstone Power Plant.	0.465	FULLY SUPPORTING	FULLY SUPPORTING	NOT SUPPORTING	Direct Consumption
CT-E2_013	LIS EB Shore - Niantic Bay (East), Waterford	See Map for Boundaries. Eastern portion of LIS from Smith Avenue at junction with Route 156 to Millstone Point, out approximately 1000 ft offshore. Waters adjacent to Millstone Power Plant.	0.444	NOT SUPPORTING	UNASSESSED	NOT SUPPORTING	Direct Consumption
CT-E2_014	LIS EB Shore - Niantic Bay (West), East Lyme	See Map for Boundaries. Eastern portion of LIS from Pond Point to Smith Avenue at junction with Route 156, out approximately 1000 ft offshore. Waters adjacent to Millstone Power Plant.	0.302	NOT SUPPORTING	FULLY SUPPORTING	NOT SUPPORTING	Direct Consumption

2018 IWQR Connecticut Impaired Waters List (EPA Category 5)

See Table 3-3 (IWQR Chapter 3) for common sources of Impaired Designated Uses.

Waterbody Segment ID	Waterbody Name	Impaired Designated Use	Cause
CT-E1_033	LIS EB Inner - Pequotsepos Cove, Stonington	Habitat for Marine Fish, Other Aquatic Life and Wildlife	DISSOLVED OXYGEN
CT-E1_033	LIS EB Inner - Pequotsepos Cove, Stonington	Shellfish Harvesting for Direct Consumption Where Authorized	FECAL COLIFORM
CT-E2_001	LIS EB Shore - Wequetequock Cove, Stonington	Habitat for Marine Fish, Other Aquatic Life and Wildlife	ALGAE
CT-E2_001	LIS EB Shore - Wequetequock Cove, Stonington	Habitat for Marine Fish, Other Aquatic Life and Wildlife	ESTUARINE BIOASSESSMENTS
CT-E2_001	LIS EB Shore - Wequetequock Cove, Stonington	Recreation	ALGAE
CT-E2_001	LIS EB Shore - Wequetequock Cove, Stonington	Recreation	ESTUARINE BIOASSESSMENTS
CT-E2_002	LIS EB Shore - Stonington Point, Stonington	Habitat for Marine Fish, Other Aquatic Life and Wildlife	ALGAE
CT-E2_002	LIS EB Shore - Stonington Point, Stonington	Habitat for Marine Fish, Other Aquatic Life and Wildlife	ESTUARINE BIOASSESSMENTS
CT-E2_002	LIS EB Shore - Stonington Point, Stonington	Recreation	ALGAE
CT-E2_002	LIS EB Shore - Stonington Point, Stonington	Recreation	ESTUARINE BIOASSESSMENTS
CT-E2_009-SB	LIS EB Shore - Thames River Mouth (East), Groton	Habitat for Marine Fish, Other Aquatic Life and Wildlife	DISSOLVED OXYGEN
CT-E2_009-SB	LIS EB Shore - Thames River Mouth (East), Groton	Habitat for Marine Fish, Other Aquatic Life and Wildlife	ESTUARINE BIOASSESSMENTS

APPENDIX D: PHOSPHORUS MONITORING REQUEST



APPENDIX E: CONNECTICUT WATER QUALITY STANDARDS

Subtitle 22a-426

[Help ?](#)

Title 22a - Environmental Protection
 Department of Energy and Environmental Protection
[Printer Friendly Version](#) 

Table 2B – Indicator Bacteria - Saltwater

Designated Use	Indicator	Criteria by classification				
		AA	A	B	SA	SB
Shell fishing ⁽⁶⁾ – Direct Consumption	Fecal coliform				Geometric mean less than 14/100 ml	
					90% of samples less than 31/100 ml	
Shell fishing ⁽⁶⁾ – Indirect consumption	Fecal coliform					Geometric mean less than 88/100 ml
						90% of samples less than 260/100 ml
Recreation – Designated swimming ⁽⁴⁾	Enterococci				Geometric mean less than 35/100ml Single sample maximum 104/100 ml	
Recreation – All other uses	Enterococci				Geometric mean less than 35/100 ml Single sample maximum 500/100 ml	

Notes for Tables 2A and 2B

- (1) Criteria applies only at the drinking water supply intake structure.
- (2) Criteria for the protection of recreational uses in Class B waters do not apply when disinfection of sewage treatment plant effluents is not required consistent with section 22a-426-4(a)(9)(E) of the Regulations of Connecticut State Agencies.
- (3) See section 22a-426-9(a)(2) of the Regulations of Connecticut State Agencies.
- (4) Procedures for monitoring and closure of bathing areas by state and local health authorities are specified in: *Guidelines for Monitoring Bathing Waters and Closure Protocol*, adopted jointly by the Department of Environmental Protection and the Department of Public Health, May 1989, revised April 2003 and updated December 2008.

Section 22a-426-9

[help ?](#)

Title 22a - Environmental Protection
 Department of Energy and Environmental Protection
[Printer-Friendly](#) 

[Previous Search Result](#)
[Next Search Result](#)
[Previous Section](#)

					necessary to protect and maintain all designated uses.
Indicator bacteria	See Table 2A of this section.	See Table 2A of this section.	See Table 2A of this section.	See Table 2B of this section.	See Table 2B of this section.
Taste and Odor	None other than of natural origin.	None other than of natural origin.	None that would impair any uses specifically assigned to this Class.	As naturally occurs.	As naturally occurs. None that would impair any uses specifically assigned to this Class.
pH	As naturally occurs.	As naturally occurs.	6.5 – 8.0	6.8 – 8.5	6.8 – 8.5

**NOTICE OF TENTATIVE DECISION
INTENT TO RENEW A NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM PERMIT FOR THE FOLLOWING DISCHARGES INTO THE
WATERS OF THE STATE OF CONNECTICUT**

TENTATIVE DECISION

The Commissioner of Energy and Environmental Protection hereby gives notice of a tentative decision to renew a permit based on an application submitted by **University of Connecticut, Avery Point Campus, Department of Marine Science** ("the applicant") under section 22a-430 of the Connecticut General Statutes ("C.G.S") for a permit to discharge into the waters of the state.

In accordance with applicable federal and state law, the Commissioner has made a tentative decision that continuance of the existing discharge would not cause pollution of the waters of the state and the Commissioner proposes to renew a permit for the discharge to Long Island Sound Shore.

The proposed permit, if issued by the Commissioner, will require periodic monitoring to demonstrate that the discharge will not cause pollution.

APPLICANT'S PROPOSAL

University of Connecticut, John S. Rankin Laboratory proposes to discharge a maximum of 785,000 gallons per day of aquarium sea water, aquarium experiment brackish water, aquarium maintenance rinse sea water, sand filter backflush, flow through seawater and floor rinse water wastewaters to the Long Island Sound Shore from operations at a biological oceanography research laboratory.

The name and mailing address of the permit applicant are: University of Connecticut, John S. Rankin Laboratory, 1080 Shennecossett Road, Groton, CT 06340.

The activity takes place at: 1080 Shennecossett Road, Groton, CT 06340.

The proposed activity is within the coastal area as defined in C.G.S. Section 22a-94. Pursuant to C.G.S. Section 22a-98, the applicant must demonstrate that the activities are consistent with all applicable goals and policies in C.G.S. Section 22a-92, and that such activities incorporate all reasonable measures mitigating any adverse impacts on coastal resources and future water-dependent development activities.

REGULATORY CONDITIONS

Type of Treatment

No treatment is necessary.

Effluent Limitations

This permit contains effluent limitations consistent with Best Available Technology (BAT) and a Case-by-Case Determination using the criteria of Best Professional Judgement and which will meet Water Quality Standards when the permittee complies with all permit requirements.

COMMISSIONER'S AUTHORITY

The Commissioner of Energy and Environmental Protection is authorized to approve or deny such permits pursuant to section 402(b) of the Federal Water Pollution Control Act, as amended, 33 USC 1251, et. seq. and section 22a-430 of the Connecticut General Statutes and the Water Discharge Permit Regulations (section 22a-430-3 and 4 of the Regulations of Connecticut State Agencies).

INFORMATION REQUESTS

The application has been assigned the following numbers by the Department of Energy and Environmental Protection. Please use these numbers when corresponding with this office regarding this application.

APPLICATION NO. 201600010

PERMIT ID NO. CT0028631

Interested persons may obtain copies of the application from Turner Cabaniss, University of Connecticut, John S. Rankin Laboratory, 1080 Shennecossett Road Groton, CT 06340, (860) 405-9178.

The application is available for inspection by contacting Oluwatoyin Fakilede at Oluwatoyin.Fakilede@ct.gov, at the Department of Energy and Environmental Protection, Bureau of Materials Management and Compliance Assurance, 79 Elm Street, Hartford, CT 06106-5127 from 8:30 - 4:30, Monday through Friday.

Any interested person may request in writing that his or her name be put on a mailing list to receive notice of intent to issue any permit to discharge to the surface waters of the state. Such request may be for the entire state or any geographic area of the state and shall clearly state in writing the name and mailing address of the interested person and the area for which notices are requested.

PUBLIC COMMENT

Prior to making a final decision to approve or deny any application, the Commissioner shall consider written comments on the application from interested persons that are received within 30 days of this public notice. Written comments should be directed to Oluwatoyin Fakilede, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127. The Commissioner may hold a public hearing prior to approving or denying an application if in the Commissioner's discretion the public interest will be best served thereby, and shall hold a hearing upon receipt of a petition signed by at least twenty-five persons. Notice of any public hearing shall be published at least 30 days prior to the hearing.

Petitions for a hearing should include the application number noted above and also identify a contact person to receive notifications. Petitions should also identify a person who is authorized to engage in discussions regarding the application and, if resolution is reached, withdraw the petition. In order to facilitate the filing of requests for hearing during the COVID-19 emergency and consistent with the Department's Temporary Directive, the Office of Adjudications will accept electronically-filed petitions in addition to petitions submitted by mail. Petitions with required signatures may be filed by email to deep.adjudications@ct.gov or mailed to the DEEP Office of Adjudications, 79 Elm Street, Hartford, CT 06106. Within thirty (30) days of filing the petition, original petitions that were filed electronically must be also be mailed to the Office at the above-noted address. If the original petition exists only in electronic format or signatures were produced using a computer or typewriter, the petition must be submitted with a statement bearing the wet-ink signature of the petitioner that the petition is only available in that format and has been submitted to satisfy the requirement that an original petition be filed. If a hearing is held, timely notice of such hearing will be published in a newspaper of general circulation and posted on the DEEP website at <https://www.ct.gov/deep>. Additional information can be found at <https://www.ct.gov/deep/adjudications>.

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action and Equal Opportunity Employer that is committed to complying with the Americans with Disabilities Act. To request an accommodation contact us at (860) 418-5910 or deep.accommodations@ct.gov.

A handwritten signature in black ink, appearing to read 'Oswald Inglesse, Jr.', with a stylized flourish at the end.

Oswald Inglesse, Jr.
Director
Water Permitting and Enforcement Division
Bureau of Materials Management and Compliance Assurance

Dated: August 14, 2020