National Pollutant Discharge Elimination System Permit
issued to

Permittee:
University of Connecticut
Department of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340

Location Address:
Avery Point Campus, John S. Rankin Laboratory
Department of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340

Permit ID: CT0028631

Issuance Date: Date of Signature

Receiving Water Body: Long Island Sound
EB Inner - Baker Cove, Groton

Effective Date: 1st of the month after Issuance Date

Receiving Water Body ID: CT-E1_013

Permit Expires: 5 years from effective date

SECTION 1: GENERAL PROVISIONS

1.1 This permit is reissued in accordance with Section 22a-430 of Chapter 446k, Connecticut General Statutes ("Conn. Gen. Stat."), and Regulations of Connecticut State Agencies ("Regs. Conn. State Agencies") adopted thereunder, as amended, and Section 402(b) of the Clean Water Act ("CWA"), 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 a National Pollutant Discharge Elimination System ("NPDES") permit program.

1.2 University of Connecticut, Marine Sciences and Technology Center ("Permittee") shall comply with all conditions of this permit including the following sections of the Regs. Conn. State Agencies which have been adopted pursuant to Section 22a-430 of the Conn. Gen. Stat. and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsections (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 to Comply
(f) Proper Operation and Maintenance
(g) Sludge Disposal
(h) Duty to Mitigate
(i) Facility Modifications; Notification
(j) Monitoring, Records and Reporting Requirements
(k) Bypass
(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
(s) Treatment Requirements

1.3 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 Conn. Gen. Stat. and Regs. Conn. State Agencies.

1.4 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 Conn. Gen. Stat. or in accordance with Section 22a-6, under Section 53a-157b of the Conn. Gen. Stat.

1.5 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 thirty (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 Conn. Gen. Stat and Regs. Conn. State Agencies.

1.6 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.

1.7 Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

1.8 An annual fee shall be paid for each year this permit is in effect as set forth in Section 22a-430-7 of the Regs. Conn. State Agencies.

1.9 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).

1.10 The Permittee shall operate and maintain its collection and treatment system in accordance with its Operation and Maintenance Plan and with any approvals issued in accordance with Regs. Conn. State Agencies Section 22a-430-3(i)(3). The Permittee shall revise and maintain the Operation and Maintenance Plan upon the Commissioner's request or to address equipment or operational changes in accordance with Regs. Conn. State Agencies Section 22a-430-3(f)(2).

1.11 The Permittee shall implement its Spill Prevention and Control Plan in accordance with Regs. Conn. State Agencies Section 22a-430-3(p) and 22a-430-4(c)(10). The plan shall include practices, procedures and facilities designed to prevent, minimize and control spills, leaks or such other unplanned releases of all toxic or hazardous substances and any other substances to prevent pollution of the waters of the state. Such requirements shall, unless otherwise allowed by the Commissioner, apply to all facilities used for storing, handling, transferring, loading or unloading such substances, including manufacturing areas. The Permittee shall revise and maintain the Spill Prevention and Control Plan upon the Commissioner's request or to address equipment or operational changes.

SECTION 2: DEFINITIONS

2.1 The definitions of the terms used in this permit shall be the same as the definitions contained in Section 22a-423 of the Conn. Gen. Stat. and Section 22a-430-3(a) and 22a-430-6 of the Regs. Conn. State Agencies.

2.2 In addition to the above, the following definitions shall apply to this permit:

"40 CFR" means Title 40 of the Code of Federal Regulations.

"Annually" when used as a sampling frequency in Tables B and D of this permit, means that sampling is required 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 Regs. Conn. State Agencies when expressed as concentration (e.g., mg/l). Otherwise, it means "Average Monthly Discharge Limitation" as defined in Section 22a-430-3(a) of the Regs. Conn. State Agencies.

Connecticut Water Quality Standards means the regulations adopted under Regs. Conn. State Agencies Sections 22a-426-1 through 22a-426-9, as amended.

"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.

"Dilution Factor" means the inverse of the "Instream Waste Concentration".

"DMR" means Discharge Monitoring Report.

"IC" means "Inhibition Concentration".

"IC_{25}" means a point estimate of the toxicant concentration that would cause a twenty-five (25) percent reduction in a non-lethal biological measurement of the test organism, such as reproduction or growth.

"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 (as a percent) of the effluent in the receiving water.

"LC" means Lethal Concentration

"LC_{50}" means the concentration lethal to fifty (50) percent of the test organisms during a specific period.

"Lowest Observed Effect Concentration" ("LOEC") means the lowest concentration of an effluent or toxicant to which organisms are exposed in a life cycle or partial life-cycle test, which causes adverse effects on the test organisms.

"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 Regs. Conn. State Agencies.

"No Observed Effect Concentration" ("NOEC") means the highest concentration of an effluent or toxicant to which organisms are exposed in a life cycle or partial life-cycle test, that causes no observable adverse effects on the test organisms.

"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.

"Reporting Frequency" means the frequency at which monitoring results must be provided.

"Semiannual" when used as a sampling frequency in this permit, means that sampling is required in the months of July and October.

SECTION 3: COMMISSIONER'S DECISION

3.1 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. 202505184 for permit reissuance received on July 15, 2025, and the administrative record established in the processing of that application.

3.2 Upon the effective date of this permit and continuing 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 information provided in Application No. 202505184, received by the Commissioner on July 15, 2025, the administrative record established in the processing of that application, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent, for the discharge and/or activities authorized by, or associated with this Permit.

3.3 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 Conn. Gen. Stat. 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 the Conn. Gen. Stat. or regulations adopted thereunder which are then applicable.

SECTION 4: GENERAL EFFLUENT LIMITATIONS

4.1 The Permittee shall assure that the surface water affected by the subject discharge shall conform to the *Connecticut Water Quality Standards*.

4.2 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.

4.3 No discharge shall cause acute or chronic toxicity in the receiving waterbody beyond any zone of influence specifically allocated to that discharge in this permit.

4.4 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

5.1 The discharge is restricted by and shall be monitored in accordance with the following tables in this section. The wastewater discharge shall not exceed the effluent limitations in these tables and shall otherwise conform to the specific terms and conditions listed in the tables. The Permittee shall comply with the "Footnotes" and "Remarks" noted in the tables that follow. Such footnotes and remarks are enforceable like any other term or condition of this permit.

5.2 The wastewaters authorized/approved by this permit shall be collected, treated, and discharged in accordance with this permit and with any approvals issued by the Commissioner or his/her authorized agent for the discharges and activities authorized by or associated with this permit. Any wastewater discharges not expressly identified in these tables or otherwise approved to be discharged by this permit shall not be authorized by this permit.

5.3 All samples shall be comprised of only the wastewater described in these tables. Samples shall be collected prior to combination with receiving waters or wastewater of any other type, and after all approved treatment units, if applicable. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Collection of permit-required effluent samples in any location other than the authorized location noted in this permit shall be a violation of this permit.

5.4 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 ("DEEP") personnel, the Permittee, or other parties.

Table A

Discharge Serial Number: DSN 001-1 | **Monitoring Location:** 1 (External outfall)

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: Inside the fiberglass drain immediately before the 15-inch P.V.C drain outside the laboratory | **Allocated Zone of Influence:** 2,970,000 gph

Discharge is to: LIS EB Inner - Baker Cove, Groton | **Instream Waste Concentration:** 1.0% | **Outfall Location:** Latitude 41° 18' 55" & Longitude -72° 03' 47"

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINIMUM LEVEL [2] (µg/l)
			Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [1,3]	Sample Type or Measurement to be Reported [4, 5]	Instantaneous Limit or Required Range	Sample/ Reporting Frequency [1]	Sample Type or Measurement to be Reported	
Ammonia as N, Total	00610	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	
Copper, Total	01042	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	3.0
Flow Rate, Average daily[3]	00056	Gpd	---	NA	Continuous	Daily Flow	NA	NR	NA	
Flow, Maximum during 24-hour period[3]	50047	Gpd	NA	720,000	Continuous	Daily Flow	NA	NR	NA	
Kjeldahl Nitrogen, Total (as N)	00625	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	
Lead, Total	01051	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	1.0
Nitrate (as N)	00620	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	
Nitrite (as N)	00615	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	
Nitrogen, Total [See Remark 5]	00600	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	
pH, Minimum[3,6]	61942	S.U.	NA	NA	NR	NA	6.8	Continuous	Continuous	
pH, Maximum[3,6]	61941	S.U.	NA	NA	NR	NA	8.5	Continuous	Continuous	
Phosphorus, Total	00665	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	100.0
Temperature	00011	°F	NA	NA	NR	NA	---	Continuous	Continuous	
Total Residual Chlorine	50060	mg/L	---	---	Semiannually	Grab Sample Average	NA	NR	NA	20.0
Total Suspended Solids	00530	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	
Zinc, Total	01092	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	20.0

Table A

Discharge Serial Number: DSN 001-1	**Monitoring Location:** 1 (External outfall)
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: Inside the fiberglass drain immediately before the 15-inch P.V.C drain outside the laboratory	**Allocated Zone of Influence:** 2,970,000 gph
Discharge is to: LIS EB Inner - Baker Cove, Groton	**Instream Waste Concentration:** 1.0% — **Outfall Location:** Latitude 41° 18' 55" & Longitude -72° 03' 47"

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINIMUM LEVEL [2] (µg/l)
			Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [1,3]	Sample Type or Measurement to be Reported [4, 5]	Instantaneous Limit or Required Range	Sample/ Reporting Frequency [1]	Sample Type or Measurement to be Reported	

TABLE FOOTNOTES AND REMARKS

Footnotes:

[1] The first entry in this column is the "Sample Frequency: If a "Reporting Frequency" does not follow this entry then the "Reporting Frequency" is monthly.

[2] Refer to Section 6.3 of this permit. The minimum levels ("MLs") identified in this table represent the highest acceptable MLs that shall be achieved by the Permittee's analytical methods. Actual MLs reported by the laboratory must be reported as a comment on the DMR. Detected concentrations less than the laboratory ML shall be reported on the DMR in accordance with Section 6.5.

[3] For this parameter, the Permittee shall maintain at the facility a record of the Total Daily Flow and pH range for each operating day. The Permittee shall report on its DMR the "Average Daily Flow", the "Maximum Daily Flow", the minimum pH and the maximum pH for each month and shall provide the record of the Total Daily Flow and pH range as an attachment to the DMR.

[4] Daily composite sample shall consist of a minimum of three aliquots of equal volume, collected at the beginning, middle and end of the laboratory work shift hours.

[5] Grab sample average means the arithmetic average of two grab sample analyses. Grab samples shall be collected at the beginning and end of the laboratory work shift hours.

[6] The discharge pH shall be in the range of 6.8 – 8.5 S.U. unless the ambient receiving water is outside of this range and is not altered by the facility's permitted discharge or activities under this permit. If the Permittee's discharge pH is lower than 6.8 S.U., the Permittee may demonstrate compliance by showing that the discharge pH is either higher than, or no more than 0.5 S.U. lower than the intake pH readings. If the Permittee's discharge is higher than 8.5 S.U., the Permittee may demonstrate compliance by showing that the discharge pH is either lower than, or no more than 0.5 S.U of the intake pH reading.

For this demonstration, the intake water must be sampled within 15 minutes from when the effluent pH sample was analyzed from the DSN 001-1 discharge. If the discharge satisfies the paragraph above, the Permittee shall report no data indicator ("NODI") code – "3" (special report attached) and submit the intake and discharge pH data used in the analysis as an attachment to the DMR. If the discharge does not satisfy this provision, then the Permittee is in violation of the effluent limit and shall report and respond to the noncompliance consistent with Section 9 of the permit. The Permittee shall keep a record of the dates of all intake and discharge events on site.

Remarks:

1. Abbreviations used for units are as follows: gpd means gallons per day; mg/L means milligrams per liter; SU means Standard Units; µg/L means micrograms per liter. Other abbreviations are as follows: NA means Not Applicable; NR means Not Reportable (unless sampling is conducted relative to Section 5.4 of this permit); RDS means Range During Sampling.
2. If "---" is noted in the limits' column in the table, this means that a limit is not specified but a value must be reported on the DMR.
3. pH shall be reported to 0.1 SU. All other values shall be reported to the level of precision/accuracy reported by the laboratory.
4. "Continuous", used in this table as a "Sample" or "Sample Type", means monitoring that produces one or more data points in fifteen minutes or less.
5. Total Nitrogen means the sum of the concentrations of: Ammonia Nitrogen + Organic Nitrogen + Nitrate Nitrogen + Nitrite Nitrogen.
6. Refer to Section 8.4 of this permit.

Table B

Discharge Serial Number: DSN 001-AT	**Monitoring Location Code:** **Y –** Acute toxicity effluent results **O –** Acute toxicity chemical analyses **U –** Salinity adjusted effluent chemical analyses
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: Inside the fiberglass drain immediately before the 15-inch P.V.C drain outside the laboratory	**Outfall Location:** Latitude (41° 18' 55") & Longitude (-72° 03' 46")
Discharge is to: Long Island Sound EB Inner - Baker Cove, Groton	**Allocated Zone of Influence:** 2,970,000 gph **Instream Waste Concentration:** 1.0%

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINIMUM LEVEL[5] (µg/L)	MONITORING LOCATION
			Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [1, 2]	Sample Type or Measurement to be reported [3, 4]	Instantaneous limit or required range	Sample/ Reporting Frequency	Sample Type or measurement to be reported		
Whole Effluent Toxicity (WET)											
LC_{50} Static 48 Hour Acute toxicity, *Americamysis bahia* [6]	TAA3E	%	NA	$LC_{50} \geq 100\%$	Annually	Daily Composite	$LC_{50} \geq 100\%$	NR	Grab		Y
LC_{50} Static 48 Hour Acute toxicity, *Menidia beryllina* [6]	TAA6B	%	NA	$LC_{50} \geq 100\%$	Annually	Daily Composite	$LC_{50} \geq 100\%$	NR	Grab		Y
Chemical Analyses Required with Acute Whole Effluent Toxicity Monitoring – See Section 7(A)(6) for Acute Testing [7]											
Date of Acute WET Chemistry Sample Collection[8]	51883	YYYYMMDD	NA	---	Annually	Calculated	NA	NR	NA		O, U
Alkalinity	00410	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Chlorine, Total Residual	50060	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	20.0	O, U
Copper, Dissolved	01040	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	3.0	O, U
Copper, Total	01042	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	3.0	O, U
Dissolved Oxygen	00300	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Hardness, Total	00900	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Lead, Dissolved	01049	µg/L	---	---	Annually	Daily Composite	NA	NR	NA	1.0	O, U
Lead, Total	01051	µg/L	---	---	Annually	Daily Composite	NA	NR	NA	1.0	O, U
Nitrogen, Ammonia (total as N)	00610	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Nitrogen, Kjeldahl (total as N)	00625	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Nitrogen, Nitrate (total as N)	00620	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Nitrogen, Nitrite (total as N)	00615	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U

Table B	
Discharge Serial Number: DSN 001-AT	**Monitoring Location Code:** **Y –** Acute toxicity effluent results **O –** Acute toxicity chemical analyses **U –** Salinity adjusted effluent chemical analyses
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: Inside the fiberglass drain immediately before the 15-inch P.V.C drain outside the laboratory	**Outfall Location:** Latitude (41° 18' 55") & Longitude (-72° 03' 46")
Discharge is to: Long Island Sound EB Inner - Baker Cove, Groton	**Allocated Zone of Influence:** 2,970,000 gph **Instream Waste Concentration:** 1.0%

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINI-MUM LEVEL	MONIT-ORING LOC.
Nitrogen, Total (as N)[9]	00600	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
pH	00400	SU	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Phosphorus	00665	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA	100.0	O, U
Salinity	00480	ppT	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Specific Conductance	51409	uMhos	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Temperature	00011	Deg. F.	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Total Suspended Solids	00530	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Zinc, Dissolved	01090	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	20.0	O, U
Zinc, Total	01092	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	20.0	O, U

Table B	
Discharge Serial Number: DSN 001-AT	**Monitoring Location Code:** **Y –** Acute toxicity effluent results **O –** Acute toxicity chemical analyses **U –** Salinity adjusted effluent chemical analyses
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: Inside the fiberglass drain immediately before the 15-inch P.V.C drain outside the laboratory	**Outfall Location:** Latitude (41° 18' 55") & Longitude (-72° 03' 46")
Discharge is to: Long Island Sound EB Inner - Baker Cove, Groton	**Allocated Zone of Influence:** 2,970,000 gph **Instream Waste Concentration:** 1.0%

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING	INSTANTANEOUS MONITORING	MINI-MUM LEVEL[5]	MONIT-ORING LOCA

TABLE FOOTNOTES AND REMARKS

Footnotes:

[1] WET limits are expressed as a minimum daily limit, meaning the minimum allowable daily discharge over the course of the 24-hour sampling period. Chemical results analyzed in conjunction with WET tests shall be reported as the max value collected during the 24-hour sampling period.

[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 monthly.

[3] If more than one toxicity sample is collected during a single month, report subsequent WET and chemistry results as an attachment to the DMR in accordance with Section 8.2 of this permit.

[4] Daily composite sample shall consist of a minimum of three aliquots of equal volume collected at the beginning, middle and end of the laboratory work shift hours. In addition, daily composite samples shall be collected for acute toxicity tests consistent with the methodology outlined in Section 7.1 of this permit.

[5] "Minimum Level" refers to Section 6.3 of this permit.

[6] Acute toxicity testing shall be conducted in accordance with Section 7.1 of this permit. The LC_{50} (in % effluent) for the acute toxicity test shall be reported on the DMR. The Aquatic Toxicity Monitoring Report ("ATMR") shall be completed for each toxicity testing event and submitted in accordance with Section 8.2 of this permit.

[7] Chemical analyses shall be conducted on samples used in the acute toxicity tests. These analyses shall be conducted on all samples used in the acute toxicity test and reported under Monitoring Location T. Results shall also be included on the ATMR and submitted in accordance with Section 8.2 of this permit.

[8] The Permittee shall report the date of sample collection for the acute toxicity test and associated chemistry data in the format: year month day (YYYYMMDD).

[9] Total Nitrogen means the sum of the concentrations of: Total Kjeldahl Nitrogen + Nitrate Nitrogen + Nitrite Nitrogen.

Remarks:

1. Abbreviations used for units are as follows: mg/L means milligrams per liter; mgd means millions of gallons per day; SU means Standard Units; µg/L means micrograms per liter. Other abbreviations are as follows: NA means Not Applicable; NR means Not Reportable (unless sampling is conducted relative to Section 5.4 of this permit); RDS means Range During Sampling; RDM means Range During Month.
2. If "---" is noted in the limit's column in the table, this means that a limit is not specified but a value must be reported on the DMR.
3. Analyses that indicate that a parameter was not detected or that was detected less than the noted ML shall be reported in accordance with Section 6.5.

Table C

Discharge Serial Number: DSN 002-1 | **Monitoring Location:** 1 (External outfall)

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:** 225,225 gph

Discharge is to: LIS EB Inner - Baker Cove, Groton | **Instream Waste Concentration:** 1.0% | **Outfall Location:** Latitude 41° 18' 55" & Longitude -72° 03' 46"

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINIMUM LEVEL [2] (µg/l)
			Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [1,3]	Sample Type or Measurement to be Reported [4,5]	Instantaneous Limit or Required Range	Sample/ Reporting Frequency [1]	Sample Type or Measurement to be Reported	
Ammonia as N, Total	00610	mg/l	---	---	Semiannually	Daily Composite	NA	NR	NA	
Copper, Total	01042	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	3.0
Flow Rate, Average daily[3]	00056	Gpd	---	NA	Continuous	Daily Flow	NA	NR	NA	
Flow, Maximum during 24-hour period[3]	50047	Gpd	NA	54,600	Continuous	Daily Flow	NA	NR	NA	
Kjeldahl Nitrogen, Total (as N)	00625	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	
Lead, Total	01051	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	1.0
Nitrate (as N)	00620	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	
Nitrite (as N)	00615	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	
Nitrogen, Total [See Remark 5]	00600	mg/L	---	---	Semiannually	Semiannually	NA	NR	NA	
pH, Minimum[3,6]	61942	S.U.	NA	NA	NR	NA	6.8	Continuous	Continuous	
pH, Maximum[3,6]	61941	S.U.	NA	NA	NR	NA	8.5	Continuous	Continuous	
Phosphorus, Total	00665	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	100.0
Temperature	00011	ºF	NA	NA	NR	NA	---	Continuous	Continuous	
Total Residual Chlorine	50060	mg/L	---	---	Semiannually	Grab Sample Average	NA	NR	NA	20.0
Total Suspended Solids	00530	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	
Zinc, Total	01092	mg/L	---	---	Semiannually	Daily Composite	NA	NR	NA	20.0

Table C

Discharge Serial Number: DSN 002-1	**Monitoring Location:** 1 (External outfall)
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:** 225,225 gph
Discharge is to: LIS EB Inner - Baker Cove, Groton — **Instream Waste Concentration:** 1.0%	**Outfall Location:** Latitude 41° 18' 55" & Longitude -72° 03' 46"

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINIMUM LEVEL [2] (µg/l)
			Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [1,3]	Sample Type or Measurement to be Reported [4,5]	Instantaneous Limit or Required Range	Sample/ Reporting Frequency [1]	Sample Type or Measurement to be Reported	

TABLE FOOTNOTES AND REMARKS

Footnotes:

[1] The first entry in this column is the "Sample Frequency: If a "Reporting Frequency" does not follow this entry then the "Reporting Frequency" is monthly.

[2] Refer to Section 6.3 of this permit. The minimum levels ("MLs") identified in this table represent the highest acceptable MLs that shall be achieved by the Permittee's analytical methods. Actual MLs reported by the laboratory must be reported as a comment on the DMR. Detected concentrations less than the laboratory ML shall be reported on the DMR in accordance with Section 6.5.

[3] For this parameter, the Permittee shall maintain at the facility a record of the Total Daily Flow and pH range for each operating day. The Permittee shall report on its DMR the "Average Daily Flow", the "Maximum Daily Flow", the minimum pH and the maximum pH for each month and shall provide the record of the Total Daily Flow and pH range as an attachment to the DMR.

[4] Daily composite sample shall consist of a minimum of three aliquots of equal volume collected at the beginning, middle and end of the laboratory work shift hours.

[5] Grab sample average means the arithmetic average of two grab sample analyses. Grab samples shall be collected at the beginning and end of the laboratory work shift hours.

[6] The discharge pH shall be in the range of 6.8 – 8.5 S.U. unless the ambient receiving water is outside of this range and is not altered by the facility's permitted discharge or activities under this permit. If the Permittee's discharge pH is lower than 6.8 S.U., the Permittee may demonstrate compliance by showing that the discharge pH is either higher than, or no more than 0.5 S.U. lower than the intake pH readings. If the Permittee's discharge is higher than 8.5 S.U., the Permittee may demonstrate compliance by showing that the discharge pH is either lower than, or no more than 0.5 S.U of the intake pH reading.

For this demonstration, the intake water must be sampled within 15 minutes from when the effluent pH sample was analyzed from the DSN 002-1 discharge. If the discharge satisfies the paragraph above, the Permittee shall report no data indicator ("NODI") code – "3" (special report attached) and submit the intake and discharge pH data used in the analysis as an attachment to the DMR. If the discharge does not satisfy this provision, then the Permittee is in violation of the effluent limit and shall report and respond to the noncompliance consistent with Section 9 of the permit. The Permittee shall keep a record of the dates of all intake and discharge events on site.

Remarks:

1. Abbreviations used for units are as follows: gpd means gallons per day; mg/L means milligrams per liter; SU means Standard Units; µg/L means micrograms per liter. Other abbreviations are as follows: NA means Not Applicable; NR means Not Reportable (unless sampling is conducted relative to Section 5.4 of this permit); RDS means Range During Sampling.
2. If "---" is noted in the limits' column in the table, this means that a limit is not specified but a value must be reported on the DMR.
3. pH shall be reported to 0.1 SU. All other values shall be reported to the level of precision/accuracy reported by the laboratory.
4. "Continuous", used in this table as a "Sample" or "Sample Type", means monitoring that produces one or more data points in fifteen minutes or less.
5. Total Nitrogen means the sum of the concentrations of: Ammonia Nitrogen + Organic Nitrogen + Nitrate Nitrogen + Nitrite Nitrogen.
6. "#/100 mL ass a monitoring table abbreviation means "number per 100 milliliters.
7. Refer to Section 8.4 of this permit.

Table D

Discharge Serial Number: DSN 002-AT

Monitoring Location Code:
Y – Acute toxicity effluent results
O – Acute toxicity chemical analyses
U – Salinity adjusted effluent chemical analyses

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

Outfall Location: Latitude (41° 18' 55") & Longitude (-72° 03' 46")

Discharge is to: Long Island Sound EB Inner - Baker Cove, Groton

PARAMETER	NET DMR CODE	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			MINIMUM LEVEL[5] (µg/L)	MONITORING LOCATION
			Average Monthly Limit	Maximum Daily Limit	Sample/ Reporting Frequency [1, 2]	Sample Type or Measurement to be reported [3,4]	Instantaneous limit or required range	Sample/ Reporting Frequency	Sample Type or measurement to be reported		
Whole Effluent Toxicity (WET)											
LC_{50} Static 48 Hour Acute toxicity, *Americamysis bahia* [6]	TAA3E	%	NA	$LC_{50} \geq 100\%$	Annually	Daily Composite	$LC_{50} \geq 100\%$	NR	Grab		Y
LC_{50} Static 48 Hour Acute toxicity, *Menidia beryllina* [6]	TAA6B	%	NA	$LC_{50} \geq 100\%$	Annually	Daily Composite	$LC_{50} \geq 100\%$	NR	Grab		Y
Chemical Analyses Required with Acute Whole Effluent Toxicity Monitoring – See Section 7(A)(6) for Acute Testing [7]											
Date of Acute WET Chemistry Sample Collection[8]	51883	YYYYMMDD	NA	---	Annually	Calculated	NA	NR	NA		O, U
Alkalinity	00410	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Chlorine, Total Residual	50060	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	20.0	O, U
Copper, Dissolved	01040	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	3.0	O, U
Copper, Total	01042	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	3.0	O, U
Dissolved Oxygen	00300	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Hardness, Total	00900	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Lead, Dissolved	01049	µg/L	---	---	Annually	Daily Composite	NA	NR	NA	1.0	O, U
Lead, Total	01051	µg/L	---	---	Annually	Daily Composite	NA	NR	NA	1.0	O, U
Nitrogen, Ammonia (total as N)	00610	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Nitrogen, Kjeldahl (total as N)	00625	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Nitrogen, Nitrate (total as N)	00620	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Nitrogen, Nitrite (total as N)	00615	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U

Nitrogen, Total (as N)[9]	00600	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
pH	00400	SU	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Phosphorus	00665	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA	100.0	O, U
Salinity	00480	ppT	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Specific Conductance	51409	uMhos	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Temperature	00011	Deg. F.	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Total Suspended Solids	00530	mg/L	NA	---	Annually	Daily Composite	NA	NR	NA		O, U
Zinc, Dissolved	01090	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	20.0	O, U
Zinc, Total	01092	µg/L	NA	---	Annually	Daily Composite	NA	NR	NA	20.0	O, U

TABLE FOOTNOTES AND REMARKS

Footnotes:

[1] WET limits are expressed as a minimum daily limit, meaning the minimum allowable daily discharge over the course of the 24-hour sampling period. Chemical results analyzed in conjunction with WET tests shall be reported as the max value collected during the 24-hour sampling period.

[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 monthly.

[3] If more than one toxicity sample is collected during a single month, report subsequent WET and chemistry results as an attachment to the DMR in accordance with Section 8.2 of this permit.

[4] Daily composite sample shall consist of a minimum of three aliquots of equal volume collected at the beginning, middle and end of the laboratory work shift hours. In addition, daily composite samples shall be collected for acute toxicity tests consistent with the methodology outlined in Section 7.1 of this permit.

[5] "Minimum Level" refers to Section 6.3 of this permit.

[6] Acute toxicity testing shall be conducted in accordance with Section 7.1 of this permit. The LC_{50} (in % effluent) for the acute toxicity test shall be reported on the DMR. The Aquatic Toxicity Monitoring Report ("ATMR") shall be completed for each toxicity testing event and submitted in accordance with Section 8.2 of this permit.

[7] Chemical analyses shall be conducted on samples used in the acute toxicity tests. These analyses shall be conducted on all samples used in the acute toxicity test and reported under Monitoring Location T. Results shall also be included on the ATMR and submitted in accordance with Section 8.2 of this permit.

[8] The Permittee shall report the date of sample collection for the acute toxicity test and associated chemistry data in the format: year month day (YYYYMMDD).

[9] Total Nitrogen means the sum of the concentrations of: Total Kjeldahl Nitrogen + Nitrate Nitrogen + Nitrite Nitrogen.

Remarks:

1. Abbreviations used for units are as follows: mg/L means milligrams per liter; mgd means millions of gallons per day; SU means Standard Units; µg/L means micrograms per liter. Other abbreviations are as follows: NA means Not Applicable; NR means Not Reportable (unless sampling is conducted relative to Section 5.4 of this permit); RDS means Range During Sampling; RDM means Range During Month.
2. If "---" is noted in the limit's column in the table, this means that a limit is not specified but a value must be reported on the DMR.
3. Analyses that indicate that a parameter was not detected or that was detected less than the noted ML shall be reported in accordance with Section 6.5.

SECTION 6: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES

6.1 All samples shall be collected, handled, and analyzed in accordance with the methods approved under 40 CFR 136, unless another method is required under 40 CFR subchapter N or unless an alternative method has been approved in writing pursuant to 40 CFR 136.5. To determine compliance with limits and conditions established in this permit, monitoring must be performed using sufficiently-sensitive methods approved pursuant to 40 CFR 136 for the analysis of pollutants having approved methods under that part, unless a method is required under 40 CFR subchapter N or unless an alternative method has been approved in writing pursuant to 40 CFR 136.5.

6.2 All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR 136, unless otherwise specified.

6.3 The term Minimum Level ("ML") refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit ("MDL"). MLs may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by the laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor of 3. The MLs specified in Section 5 Tables A - D represent the minimum concentrations at which quantification must be achieved and verified during the chemical analyses for the parameters identified in Section 5 Tables A - D. Analyses for these parameters must include check standards within ten percent of the specified ML or calibration points equal to or less than the specified ML.

6.4 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.

6.5 Analyses for which quantification was verified to be below a ML, including non-detect, shall be reported as zero on the DMR for purposes of determining compliance with effluent limitations or conditions specified in this permit. The Permittee shall attach documentation demonstrating the ML of the analysis as an attachment to the DMR and identify the ML as a comment on the DMR.

6.6 It is a violation of this permit for a Permittee or his/her designated agent, to manipulate test samples in any manner, to delay sample shipment, or to terminate or cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed.

6.7 Analyses required under this permit shall be performed in accordance with Conn. Gen. Stat. Section 19a-29a. An "environmental laboratory", as that term is defined in the referenced section, that is performing analyses required by this permit, shall be registered and have certification acceptable to the Commissioner, as such registration and certification is necessary.

SECTION 7: AQUATIC TOXICITY TESTING

7.1 **ACUTE TESTING REQUIREMENTS.** The Permittee shall conduct acute aquatic toxicity testing for DSN 001-1 and DSN 002-1 as follows:

7.1.1 **TEST METHOD**: Acute aquatic toxicity shall be performed as prescribed in the reference document *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA-821-R-02-012), or the most current version, with any exceptions or clarifications noted below.

7.1.2 **SAMPLE COLLECTION AND HANDLING:**

7.1.2.1 Composite samples shall be chilled as they are collected. Grab samples shall be chilled immediately following collection. Samples shall be held at 0-6 °C until aquatic toxicity testing is initiated.

7.1.2.2 Effluent samples shall not be dechlorinated, filtered, or modified in any way prior to testing for acute aquatic toxicity unless specifically approved in writing by the Commissioner for monitoring at this facility.

7.1.2.3 Tests for acute aquatic toxicity shall be initiated within 36 hours of sample collection.

7.1.3 **TEST SPECIES AND TEST DURATION:** Monitoring for aquatic toxicity to determine compliance with the acute toxicity limits in this permit shall be conducted as follows:

7.1.3.1 For 48-hours utilizing neonatal *Americamysis bahia* (1-5 days old with no more than 24-hours range in age).

7.1.3.2 For 48-hours utilizing larval *Menidia beryllina* (9-14 days old with no more than 24-hours range in age).

7.1.4 **ACUTE ENDPOINT:** Survival at 48-hours measured by LC_{50}.

7.1.5 **TEST CONDITIONS:**

7.1.5.1 Tests for acute aquatic toxicity shall be conducted as prescribed for static non-renewal tests.

7.1.5.2 Definitive (multi-concentration) testing, with LC50 as the endpoint, shall be conducted to determine compliance with limits on acute aquatic toxicity and monitoring conditions and shall incorporate, at a minimum, the following effluent concentrations:
100%, 75%, 50%, 25%, 12.5% and 6.25%.

7.1.5.3 Aquatic toxicity tests with saltwater organisms shall be conducted at a salinity of 28 parts per thousand (±2 parts per thousand).

7.1.5.3.1 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.

7.1.5.3.2 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.

7.1.5.3.3 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.

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

7.1.5.4 All effluent concentrations and the control(s) used in the test shall have the same salinity. If the effluent requires salinity adjustment to a standard salinity, this shall be accomplished by adding a minimum amount of commercial sea salts as described in EPA-821-R-02-012.

7.1.5.5 Organisms shall not be fed during the tests.

7.1.5.6 Sodium lauryl sulfate or sodium dodecyl sulfate shall be used as the reference toxicant.

7.1.5.7 Dissolved oxygen, pH, and temperature shall be measured in the control and in all test concentrations at the beginning of the test, daily thereafter, and at test termination.

7.1.5.8 Specific conductance, pH, salinity, alkalinity, hardness, and total residual chlorine shall be measured in the undiluted effluent sample and in the dilution (control) water at the beginning of the test and at test termination. If total residual chlorine is not detected at test initiation, it does not need to be measured at test termination.

7.1.6 **CHEMICAL ANALYSIS:** All effluent samples used in the acute toxicity test, including salinity adjusted effluent samples, if salinity adjustment is required, shall at a minimum, be analyzed and results reported in accordance with the provisions listed in Section 5 Tables B and D and Section 6.1 for the parameters identified on Section 5 Tables B and D of the permit.

7.1.7 **TEST ACCEPTABILITY CRITERIA:** For the test results to be acceptable, survival control must equal or exceed 90%. If the laboratory control fails to meet test acceptability criteria for either of the test organisms at the end of the respective test period, then the test is considered invalid and the test must be repeated with a newly collected sample in accordance with Section 9.4.

7.1.8 **TEST COMPLIANCE:** Compliance with limits on Acute Toxicity shall be determined as follows:

7.1.8.1 For limits expressed as a minimum LC50 value, compliance shall be demonstrated when the results of a valid definitive acute aquatic toxicity test indicates that the LC50 value for the test is greater than the acute toxicity limit.

7.1.9 **REPORTING:** Results of acute toxicity monitoring shall be documented on an ATMR and reported to the Commissioner by the last day of the month following the month in which samples are collected in accordance with Section 8.2 of this permit. The report shall include the items identified in Section 8.2 of this permit. Endpoints to be reported are: 48-hour LC50 and NOAEL.

SECTION 8: REPORTING REQUIREMENTS

8.1 The results of chemical analyses and any aquatic toxicity test required by this permit shall be submitted electronically using NetDMR. Monitoring results shall be reported at the monitoring frequency specified in this permit. 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 another method required for an industry-specific waste stream under 40 CFR subchapter N, or other methods approved by the Commissioner, shall also be included on the DMR, or as an attachment, if necessary, and the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Commissioner in the permit. All aquatic toxicity reports shall also be included as an attachment to the DMR. A report shall also be included with the DMR which includes a detailed explanation of any violations of the limitations specified. DMRs, attachments, and reports, shall continue to be submitted electronically in accordance with Section 8.4 below. However, if the DMRs, attachments, and reports are required to be submitted in hard copy form, they 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

8.2 The ATMR associated with aquatic toxicity monitoring shall include all applicable items identified in Section 12 of EPA-821-R-02-012 and in Section 10 of EPA-821-R-02-014 (Saltwater), including complete and accurate aquatic toxicity test data, including percent survival of test organisms in each replicate test chamber, LC_{50} 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. The ATMR shall be submitted electronically as an attachment to the DMR and via email to: DEEP.IndustrialWETReports@ct.gov. The ATMR required by Sections 5 and 7 shall be received at this address by the last day of the month following the month in which the samples are collected.

8.3 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 has occurred using NODI code "C", 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.

8.4 NetDMR Reporting Requirements:

The Permittee shall report electronically using NetDMR, a web-based tool that allows permittees to electronically submit DMRs and other required reports through a secure internet connection. The Permittee and/or the signatory authority shall electronically submit DMRs required under this permit to the Commissioner using NetDMR in satisfaction of the DMR submission requirements of Sections 5, 6, and 9 of this permit. All sampling and monitoring records 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 Commissioner as an electronic attachment to the DMR in NetDMR. The Permittee shall also electronically file any written report of noncompliance described in Section 9 of this permit as an attachment in NetDMR. DMRs shall be submitted electronically to the Commissioner no later than the last day of the month following the completed reporting period. NetDMR is accessed from: http://www.epa.gov/netdmr.

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

9.1 *Noncompliance Notifications:*

9.1.1 In accordance with Section 22a-430-3(j)(8), 22a-430-3(j)(11)(D), 22a-430-3(k)(4), and 22a-430-3(i)(3) of the Reg. SCA, the Permittee shall notify the Commissioner of the following actual or anticipated noncompliance with the terms or conditions of this permit within two hours of becoming aware of the circumstances. All other actual or anticipated violations of the permit shall be reported to the Commissioner within 24 hours of becoming aware of the circumstances:

9.1.1.1 A noncompliance that is greater than two times an effluent limitation;

9.1.1.2 A noncompliance of any minimum or maximum daily limitation or excursion beyond a minimum or maximum daily range;

9.1.1.3 Any condition that may endanger human health or the environment, including but not limited to noncompliance with whole effluent toxicity WET limitations;

9.1.1.4 Any condition that may endanger the operation of a POTW, including sludge handling and disposal;

9.1.1.5 A failure or malfunction of monitoring equipment used to comply with the monitoring requirements of this permit;

9.1.1.6 Any actual or potential bypass of the Permittee's collection system or treatment facilities; or

9.1.1.7 Expansions or significant alterations of any wastewater collection, treatment facility, or its method of operation for the purpose of correcting or avoiding a permit violation.

9.1.2 Notifications shall be submitted via the Commissioner's online Noncompliance Notification Form: https://portal.ct.gov/deep/water-regulating-and-discharges/industrial-wastewater/compliance-assistance/notification-requirements.

9.1.3 Within five days of any notification of noncompliance in accordance with Sections 9.1.1.1 through 9.1.1.7 of this permit, the Permittee shall submit a follow-up report using the Commissioner's online Noncompliance Follow-up Report Form: https://portal.ct.gov/deep/water-regulating-and-discharges/industrial-wastewater/compliance-assistance/notification-requirements.

The follow-up report shall contain, at a minimum, the following information: (i) A description of the noncompliance and its cause; (ii) the period of noncompliance, including exact dates and times; (iii) if the noncompliance has not been corrected, the anticipated time it is expected to continue; and (iv) steps taken or planned to correct the noncompliance and reduce, eliminate and prevent recurrence of the noncompliance.

9.1.4 Within 30 days of any notification of facility modifications reported in accordance with Section 9.1.1.7 of this permit, the Permittee shall submit a written follow-up report by submitting a "Facility and Wastewater Treatment System Modification Request for Determination" for the review and approval of the Commissioner. The report shall fully describe the changes made to the facility and reasons therefor.

9.1.5 Notification of an actual or anticipated noncompliance or facility modification does not stay any term or condition of this permit.

9.2 In accordance with Section 22a-430-3(j)(11)(E) of the Regs. Conn. State Agencies, the Permittee shall notify the Commissioner within 72 hours and in writing within 30 days when he or she knows or has reason to believe that the concentration in the discharge of any substance listed in the application, or any toxic substance as listed in Appendix B or D of Regs. Conn. State Agencies Section 22a-430-4, has exceeded or will exceed the highest of the following levels: (1) One hundred micrograms per liter; (2) Two hundred micrograms per liter for acrolein and acrylonitrile, five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter for antimony; (3) An alternative level specified by the Commissioner, provided such level shall not exceed the level which can be achieved by the Permittee's treatment system; or (4) A level two times the level specified in the Permittee's application.

72 hour initial notifications shall be submitted via the Commissioner's online Noncompliance Notification Form. 30 day follow-up reports shall be submitted via the Commissioner's online Noncompliance Follow-up Report Form. The Forms are available at the Commissioner's website, here: https://portal.ct.gov/deep/water-regulating-and-discharges/industrial-wastewater/compliance-assistance/notification-requirements.

9.3 In addition to any other written reporting requirements, the Permittee shall report any instances of noncompliance with this permit with its DMR. Such reporting shall be due no later than the last day of the month following the reporting period in which the noncompliant event occurred. The information provided in the DMR shall include, at a minimum: the type of violation, the duration of the violation, the cause of the violation, and any corrective action(s) or preventative measure(s) taken to address the violation.

9.4 If any sample analysis indicates that an aquatic toxicity effluent limitation in Section 5 of this permit has been exceeded, or that the test was invalid, another sample of the effluent shall be collected and tested for aquatic toxicity and associated chemical parameters, as described above in Sections 5 and 7. The exceedance or invalid test shall be reported to Commissioner in accordance with Section 9.1. The results shall be submitted to the Commissioner within 30 days of the exceedance or invalid test. The results and the associated ATMR shall be reported in accordance with Sections 5 and 8.2 of the permit. Results of all tests, whether valid or invalid, shall be reported. If more than one toxicity sample is collected during a single month, report subsequent WET and chemistry results as an attachment to the month's DMR.

9.5 If any two consecutive test results or any three test results in a twelve-month period indicate that an aquatic toxicity limit has been exceeded, the Permittee shall immediately take all reasonable steps to eliminate toxicity wherever possible and shall also submit a report, for the review and written approval of the Commissioner, which describes in detail the steps taken or that shall be taken to eliminate the toxic impacts of the discharge on the receiving water and it shall also include a proposed schedule for implementation. Such report shall be submitted in accordance with the timeframe set forth in Section 22a-430-3(j)(10)(C) of the Regs. Conn. State Agencies. The Permittee shall implement all actions in accordance with the approved report and schedule.

SECTION 10: SPECIAL CONDITION

10.1 This Permit prohibits the use of cleaners or detergents for floor washing. If cleaners or detergents are used, the wastewater should be contained, mopped, vacuumed and then discharged to the sanitary sewer.

This permit is hereby issued on

_____

JENNIFER PERRY, P.E.
Bureau Chief

JP/OF

Connecticut
Department of Energy &
Environmental Protection

National Pollutant Discharge Elimination System Permit Factsheet

NPDES Permit Summary	
Applicant	University of Connecticut, Department of Marine Sciences
Permit No.	CT0028631
Application No.	202505184
Date Application Received	July 15, 2025
Location Address	1080 Shennecossett Road Groton, CT 06340
Facility Contact	Jennifer Williams, Environmental Health and Safety Specialist Office Phone: (860) 486-8148 Email: Jennifer.m.williams@uconn.edu
Mailing Address	1080 Shennecossett Road Groton, CT 06340
DMR Contact	Christopher Mills, Marine Sciences Equipment Technician Office Phone: (860) 405-9142 Email: christopher.mills@uconn.edu
Secretary of State Business ID	Not applicable
Permit Term	5 Years
Permit Category	National Pollutant Discharge Elimination System Minor
SIC & NAICS Code(S)	8221 & 611310
Applicable Effluent Guidelines	None
Permit Type	Reissuance
Ownership	State
Receiving Water	Long Island Sound EB Inner - Baker Cove, Groton
Waterbody Segment ID	CT-E1_013
Waterbody Classification	SA
Discharge Locations (Latitude, Longitude)	DSN 001-1: 41° 18’ 55”, 72° 03’ 47” DSN 001-2: 41° 18’ 55”, 72° 03’ 46”
Intake Location (Latitude, Longitude)	Intake: 41° 18’ 54”, 72° 03’ 45”
Compliance Schedule/Actions	None
Staff Engineer	Oluwatoyin Fakilede, Environmental Engineer 3 Phone: (860) 418-5986 E-Mail: Oluwatoyin.fakilede@ct.gov

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Section 1.0 Facility Summary

1.1 Permit Fees

1.1.1 Application Fee:

Filing Fee:	Invoice No.: DEP 434266	Amount: $1,300.00	Date Paid: 7/15/2025
Processing Fee:	Invoice No.: DEP 439203	Amount: $2,625.00	Date Paid: 9/9/2025

1.1.2 Annual Fee:

Wastewater Category (per Regulations of Connecticut State Agencies ("Regs. Conn. State Agencies") Section 22a-430-7)	**Flow Category** Gallons per day ("gpd")	**DSN**	**Annual Fee** (per Regs. Conn. State Agencies Section 22a-430-7 and Connecticut General Statutes ("Conn. Gen. Stat.") Section 22a-6f)
See comments below*	> 50,000 (720,000)	001-1	$ 2,290.00
	> 50,000 (54,600)	002-1	
TOTAL AMOUNT			$ 2,290.00
* University of Connecticut, Department of Marine Sciences is a research and teaching facility that conducts biological oceanography research. The discharges do not fall under any wastewater category specified in Regs. Conn. State Agencies Section 22a-430-7. A large portion of the wastewater is flow-through seawater that does not come in contact with the facility operations and is withdrawn to maintain a flow velocity that prevents mussel build-up within the facility's piping system. The non-contact cooling water annual fee was applied because it is the closest fee category in terms of water quality.			

1.2 Application Submittal Information

On July 5, 2025, the Department of Energy and Environmental Protection ("DEEP") received an application (Application No. 202505184) from University of Connecticut, Department of Marine Sciences ("the Permittee", "the Applicant", "the facility") in Groton, for the renewal of its NPDES Permit No. CT0028631, expiring on December 31, 2025 ("the previous permit").

Consistent with the requirements of Section 22a-6g of the Conn. Gen. Stat., the Permittee published a Notice of Permit Application in the New London Day on June 21, 2025. On September 24, 2025, the application was determined to be timely and administratively sufficient.

The Permittee seeks authorization for the following in Application No. 202505184:

DSN	**Proposed Maximum Daily Flow**	**Proposed Wastestreams**	**Treatment Type**	**Discharge to**
001-1	720,000 gpd	Aquarium water, aquarium maintenance rinse water, sand filter back flush, floor rinse water and flow through seawater.	No treatment	Long Island Sound
002-1	54,600 gpd	Aquarium maintenance rinse water, floor rinse water and occasional incidental stormwater.	No treatment	Long Island Sound

Intake	Design Intake Flow	Intake Water Description	Source Water
001M	774,600 gpd	Intake cooling water	Long Island Sound

1.3 Other Permits

The Permittee has permit coverage for other wastewater discharges under the following permitting mechanism:

- Non-contact cooling water (2,000 gallons per year) and miscellaneous laboratory wastewater (1,000 gallons per week) discharged to the City of Groton Water Pollution Control Facility. This low volume discharge gets automatic coverage (registration is not required) under the "*General Permit for Discharges from Miscellaneous Industrial Users*".

- The Permittee also had a diversion permit (DIV-200300460) that expired on June 30, 2023, that authorized the withdrawal of 1.3 million gallons of water per day from Long Island Sound. The withdrawal is now covered under the "*General Permit for the Diversion of Water for Consumptive Use: Non-filing Categories*".

1.4 Facility Description

The Permittee has maintained an NPDES permit with DEEP since June 1992, but the discharge began in March 1995. The permitted activities occur at the John S. Rankin Laboratory ("lab") at the University of Connecticut, Avery Point Campus. The lab is a research and teaching facility that is located at the end of the Eastern Point Road on Avery Point in Groton. The campus sits on a peninsula bordered by the Thames River and the Long Island Sound. The campus is about 46 acres, and the lab is about 7,400 square feet.

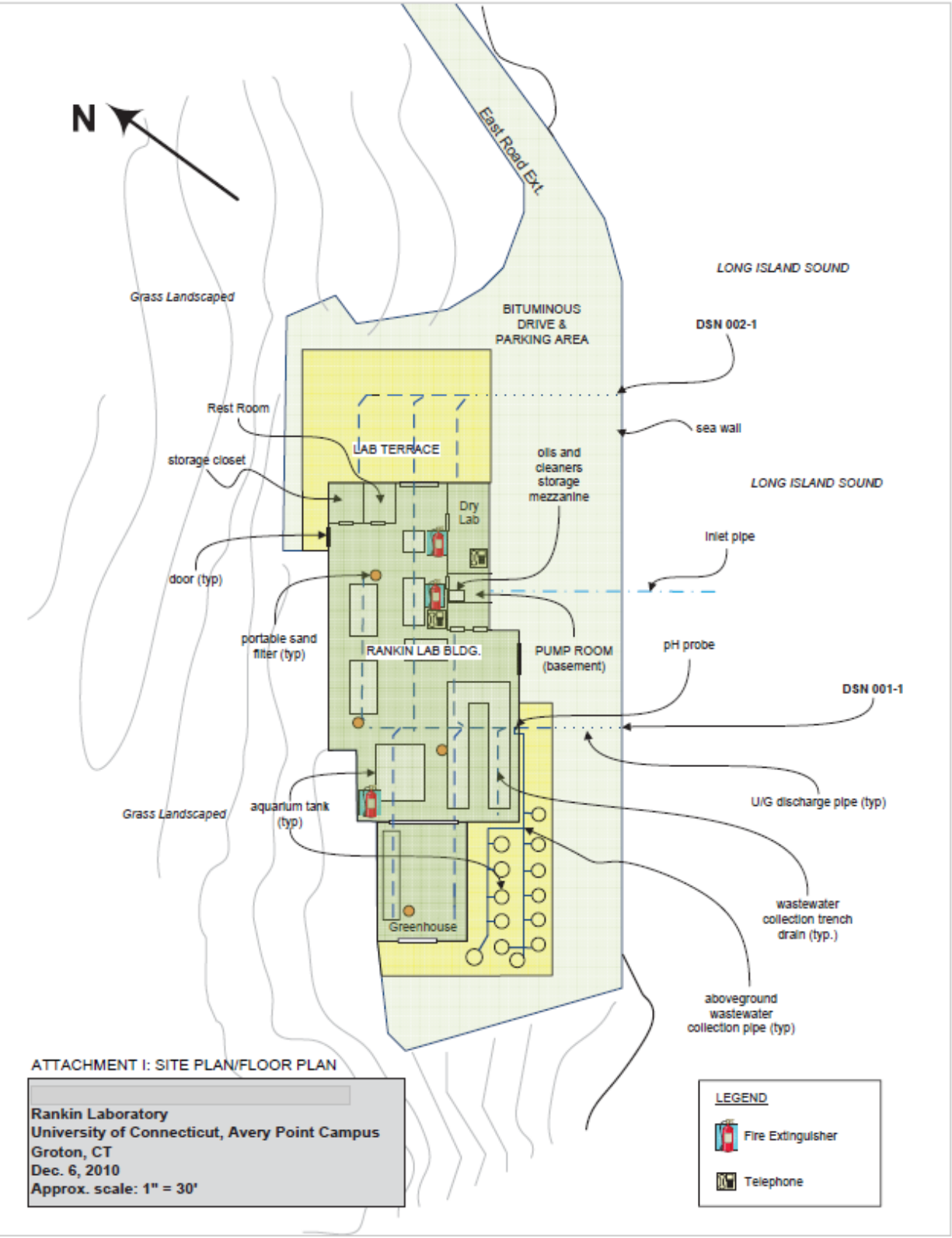
The discharge consists of aquarium seawater used solely for holding live marine organisms such as microalgae, plankton, vertebrates, and invertebrates for marine biology research. Lab studies conducted within the facility focus on biological oceanography and growth, recruitment, competition, and behavioral observation in marine organisms.

1.4.1 Intake Water

The Permittee has an intake structure that withdraws water from the Long Island Sound. 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 square foot inverted drywells provide protection for the termini of the intake lines.

During this permit term, the Permittee is proposing a new eelgrass mesocosm experiment. The proposed change may result in the addition of two intake lines and an increase in the number of pumps in the pump room from four to six, to allow the supply of additional water needed for the experiment. This addition will not result in intake water that exceeds the NPDES permitted flow.

Figure 1.4. Image of Site Plan



1.5 Description of Industrial Process

The Permittee proposes to discharge aquarium wastewater via outfalls DSN-001-1 and DSN-002-1 to the Long Island Sound. The wastewater consists of sand-filter back flush water, aquarium water used in tanks to maintain various aquatic organisms, either as cultures or for experiments, and equipment maintenance wash water and seawater bypass. Below is a more detailed description of the wastewater. Wastewater flow rates are presented in Figure 1.5.

1.5.1 DSN 001-1

The wastewater primarily consists of seawater diverted from the Long Island Sound and used in flow-through research aquariums. Aquarium wastewater is collected via a network of floor trenches throughout the laboratory. In addition to aquarium seawater, the lab discharges the following related wastewaters:

Sand-filter back flush water - The lab operates four small sand filters to filter solids from incoming seawater. The filters are occasionally backflushed for proper operation.

Aquarium maintenance rinse water - Aquariums require maintenance to remove accumulated sediment and algae. The lab uses seawater to wash the aquariums and implements best management practices ("BMPs") to minimize the pollutants within the discharge. The BMPs are listed in Section 1.6 of this fact sheet.

Seawater bypass - Seawater that is diverted from the Long Island Sound, but is not used in any research application, is discharged back to the Long Island Sound. The flow velocity through the seawater intake and distribution piping must be high enough to prevent buildup of mussels and other organisms that would cause blockage. To maintain the required scouring velocity, more seawater is withdrawn than what is typically demanded for use in the aquariums. As such, a portion of the intake water bypasses the aquariums and combines with the final effluent.

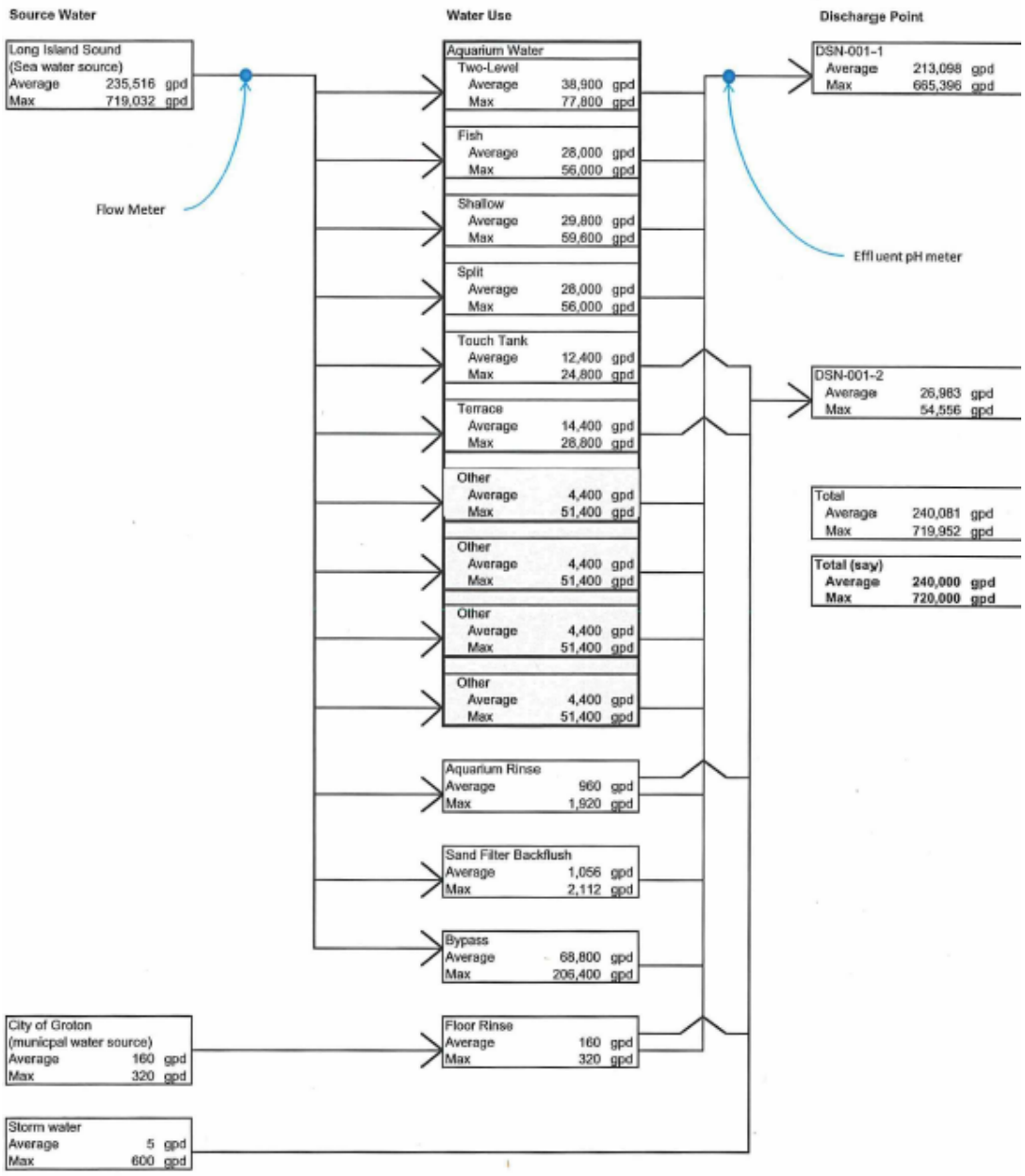
All wastewater is collected in a network of floor trenches. Aquariums are positioned above these trenches such that flow-through seawater and aquarium tank rinse water can be discharged directly to the collection system. The trenches are 6-inches wide and are lined with PVC.

During this permit term, the Permittee is proposing a new eelgrass mesocosm experiment. This activity doesn't involve feeding, new chemical additions, or increased discharge flow rates beyond existing permitted flow limits.

1.5.2 DSN 002-1

The wastewater discharge consists of untreated flow-through aquarium seawater. Other ancillary discharges include floor rinse water, aquarium tank rinse water, sand filter back flush water, and bypass water (seawater not used in any aquariums) and incidental stormwater because one aquarium for this outfall is on the terrace. The sources of wastewater in DSN 002 are similar in nature and quality to DSN 001 except for the incidental stormwater. This discharge outfall is not used frequently, and there has been no discharge from the DSN 002-1 outfall in the last five years.

Figure 1.5 Process flow diagram



1.6 Treatment System Description

The wastewater is not treated. However, the lab maintains the following BMPs for the purpose of minimizing pollutants.

1) Floor rinsing is performed using city water from a typical garden hose. No soaps, detergents or other cleaners are used to wash the floor. In the event that cleaners or detergents are used, the wastewater is 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 from Miscellaneous Industrial Users"*.
2) Aquarium tank and equipment rinsing is performed by manually siphoning sea water (mixed with sediment that accumulated at the bottom of the tank) from the aquarium tank with a ¼"-inner diameter plastic hose. The small diameter tube restricts instantaneous flow to approximately 8 gallons per minute. No soaps, detergents or other cleaners are used to wash the aquariums.

3) The sand filters are back-flushed once per day by reversing the flow of seawater through the sand filter(s). The flow of back-flushing sea water is manually controlled with a ball valve. During back flushes, the valve is never opened more than halfway; this allows for an instantaneous flow rate of no more than 27 gallons per minute which results in turbidity control.

1.7 Facility Changes

The Regs. Conn. State Agencies require that permittees notify DEEP and obtain written approval of any facility expansion or process change that may result in an increased or new discharge or constitute a new source, and of any expansion or significant changes made to a wastewater collection system, treatment system, or its method of operation in accordance with Regs. Conn. State Agencies Section 22a-430-3(i). These regulatory provisions are commonly referred to as "3(i) determinations". DEEP will review the notification and determine if the change can be implemented under the current permit or if the requested change requires a permit modification to protect waters of the State in accordance with Regs. Conn. State Agencies Section 22a-430-4(p).

There were no changes to the facility since the previous permit was issued.

1.8 Compliance History

There were no effluent violations in the last five years.

Is the Permittee subject to an ongoing enforcement action?	☐ Yes	☒ No
Did the previous permit have a compliance schedule?	☐ Yes	☒ No

1.8.1 Spill History

There were no reported spills at the facility in the last five years.

1.9 General Issues Related to the Application

1.9.1 Federally Recognized Indian Land

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

1.9.2 Coastal Area/Coastal Boundary

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

1.9.3 Endangered Species

Based on the letter dated June 24, 2025, from the DEEP's Bureau of Natural Resources, the following extant populations of federal or state Endangered, Threatened or Special-Concern Species were identified in the vicinity:

1) Shortnose sturgeon *(Acipenser brevirostrum)*
2) Atlantic sturgeon *(Acipenser oxyrinchus oxyrinchus)*
3) Sand tiger shark *(Carcharias taurus)*
4) Atlantic seasnail *(Liparis atlanticus)*
5) Radiated shanny (*Ulvaria subbifurcata)*

DEEP's Fisheries Division determined that the permitted discharge will not significantly impact any fisheries and/or habitat of the species listed above.

1.9.4 Aquifer Protection Areas

As provided in the permit application, the site is not located within a protected area identified on a Level A or B map.

1.9.5 Conservation or Preservation Restriction

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

1.9.6 Public Water Supply Watershed

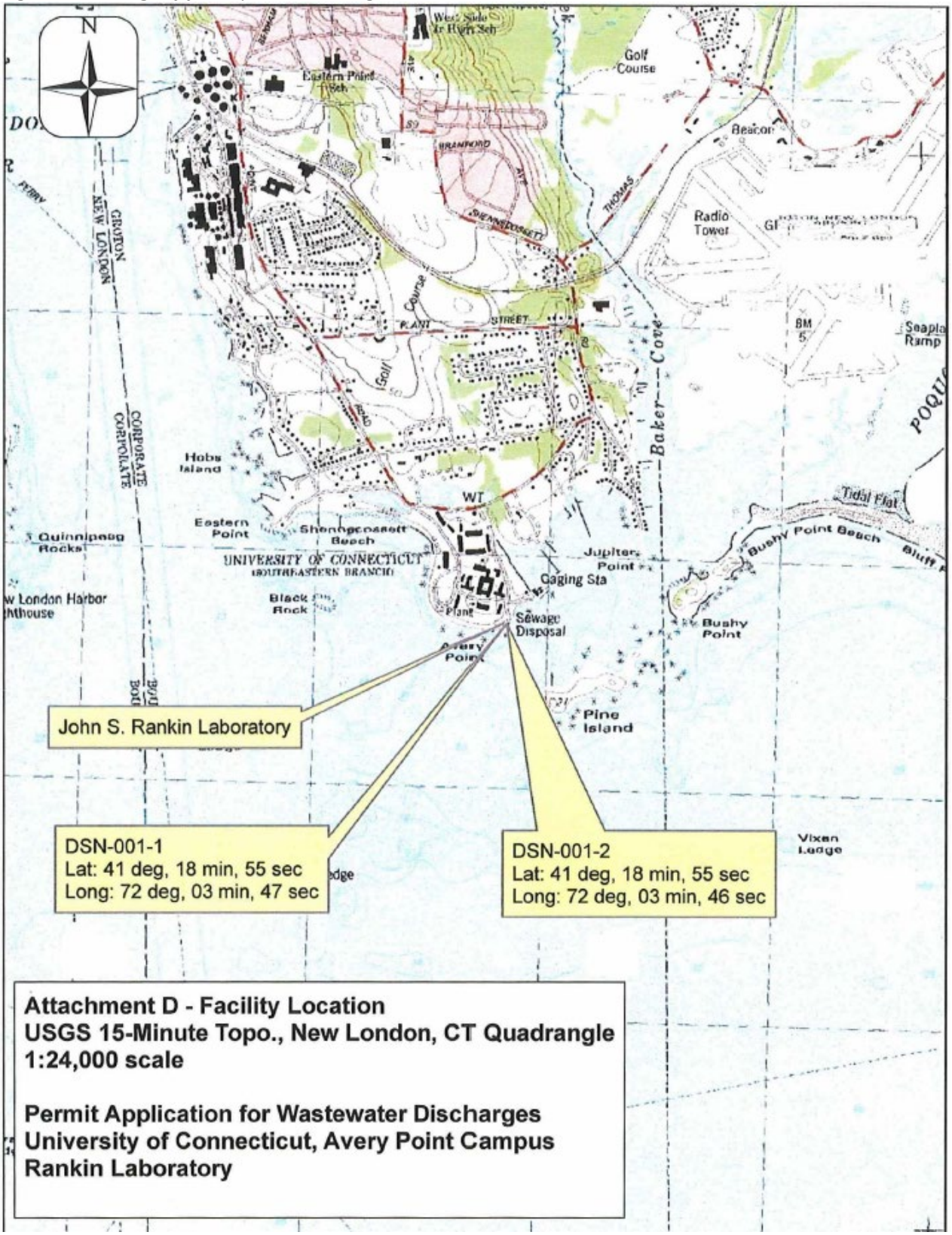
As provided in the permit application, the site is located within a public water supply watershed.

Section 2.0 Receiving Water Body Information

The receiving waterbody, Long Island Sound EB Inner - Baker Cove, Groton is identified as CT-E1_013. This segment of the Long Island Sound is classified as a Class SA surface water. The size of the water segment is 0.314 square miles, and it spans from Avery Point and the tip of Pine Island to the mouth of Poquonuck River (South of Groton-New London Airport), Groton.

Figure 2.1. Image of discharge locations

Figure 2.2. Image of facility and discharge locations



2.1 Designated Uses

Surface waters classified as Class SA are identified on the map titled Water Quality Classifications on file with the DEEP. The classifications may be amended in accordance with subsections (d) through (g) of Section 22a-426 of the Conn. Gen. Stat. The designated uses for Class SA waters in Reg. Conn. State Agencies 22a-426-4(f) are: (1) Habitat for marine fish, other aquatic life and wildlife; (2) shellfish harvesting for direct human consumption; (3) recreation; (4) industrial water supply; and (5) navigation.

In accordance with 22a-426-4 of Regs. Conn. State Agencies, discharges to Class SA surface waters may be permitted by the Commissioner from public or private drinking water treatment systems, dredging activity and dredge material dewatering operations, including the discharge of dredged or fill material and clean water discharges. As defined in Regs. Conn. State Agencies, "clean water" means water which in the judgment of the Commissioner is of a quality substantially similar to that occurring naturally in the receiving stream under consideration. Clean water may include minor cooling waters, residential swimming pool water, and stormwater.

The facility discharges flow-through water from the Long Island Sound, incidental stormwater and research water, which is used for research on organisms that are found in the Long Island Sound. This water is substantially similar in quality to that which occurs naturally in the receiving stream, hence the discharge is considered a "clean water" and is authorized to a Class SA surface water.

2.2 Impairments and Total Maximum Daily Loads

"A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound" (December 2000), based on control of nitrogen applies to the Long Island Sound. However, the Permittee's discharge has not been assigned a waste load allocation for nitrogen as part of this TMDL. Therefore, nitrogen monitoring requirements without numeric limitations have been included in the permit.

2.2.1 Fecal coliform

The 2022 Integrated Water Quality Report ("IWQR") (*Appendix A-3. Connecticut 305b Assessment Results for Estuaries*) identified the waterbody as impaired for the designated use of shellfish harvesting and the cause is fecal coliform. DEEP has adopted TMDL for fecal coliform. Although feces from fish may have fecal matter, fish populations are considered natural background sources. An analysis was conducted on the wastewater on October 6, 2025, which showed that fecal coliform was below 10 MPN/100 ml, which is below the water quality criteria. Therefore, monitoring requirements are not included in the permit.

Figure 2.3 Results of Applicable 2022 IWQR Waterbodies with Adopted TMDLs

Results of the 2022 IWQR with Adopted TMDLs					
Waterbody Segment ID	**TMDL**	**Waterbody Name**	**Impaired Designated Use**	**Cause**	**EPA Approved**
CT-E1_013	CT Statewide Bacteria TMDL Estuary 11	LIS EB Inner-Baker Cove	Shellfish harvesting	Fecal coliform	2013

Section 3.0 Permit Conditions and Effluent Limitations

3.1 Pollutants of Concern

3.1.1 DSNs 001-1 and 002-1

The following pollutants have monitoring requirements in the permit for the reasons noted below:

Pollutant	Reason for Inclusion			
	Pollutant with an Applicable Technology-based Limit	**Pollutant with a Waste Load Allocation from a TMDL**	**Pollutant Identified as Present in the Effluent through Sampling**	**Pollutant Otherwise Expected to be Present in the Effluent**
Ammonia			•	
Copper			•	
Lead			•	
Nitrates		•		•
Nitrites		•		•
Phosphorus			•	
Temperature				•
Total Kjeldahl Nitrogen		•		•
Total Nitrogen		•		
Total Residual Chlorine				•
Total Suspended Solids			•	
Zinc			•	
Acute toxicity monitoring requirements, consistent with Section 22a-430-3(j)(3) of the Regs. Conn. State Agencies, and pH monitoring, consistent with Section 22a-426-9(a)(1), are also included in the permit.				

3.1.2 Nitrates, Nitrites and Total Kjeldahl Nitrogen

In order to calculate total nitrogen as discussed in Section 2.2 of this fact sheet, nitrates, nitrites and total kjeldahl nitrogen need to be monitored. Total nitrogen is a summation of nitrates, nitrites and total Kjeldahl nitrogen.

3.1.3 Total Residual Chlorine

Chlorine monitoring is proposed because about 320 gpd of chlorinated city water may be used for floor rinsing. Therefore, some chlorine may be present in the wastewater.

3.1.4 Temperature

The Permittee uses portable heaters to warm up the water in the aquarium when necessary. A review of the discharge monitoring report showed that the discharge temperature is consistently below the water quality criteria. Therefore, temperature limits are not included, but monitoring is maintained in the permit.

3.2 Basis for Limits

Technology and water-quality based requirements are considered when developing permit limits. Technology-based effluent limits ("TBELs") represent the minimum level of control imposed under the Clean Water Act ("CWA"). Industry-specific technology-based limits are set forth in 40 CFR Sections 405 – 471 (EPA's Effluent Limitation Guidelines) and in Regs. Conn. State Agencies Section 22a-430-4(s)(2). Water quality-based limits are designed to protect water quality and are determined using the procedures set forth in EPA's *Technical Support Document for Water Quality-Based Toxics Control*, 1991 ("TSD"). When both technology and water quality-based limits apply to a particular pollutant, the more stringent limit would apply. In addition, water quality-based limits are required when any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) is or may be discharged at a level that causes, has reasonable potential to cause, or contributes to an excursion above any water quality criteria. Numeric water quality criteria are found in Regs. Conn. State Agencies Section 22a-429-9 of the *Connecticut Water Quality Standards* ("WQS").

3.3 Technology Based Effluent Guidelines

Technology-based treatment requirements represent the minimum level of control that must be imposed under CWA Section 301(b) and 402 to meet best practicable control technology currently available ("BPT") for conventional pollutants and some metals, best conventional control technology ("BCT") for conventional pollutants, and best available technology economically achievable ("BAT") for toxic and non-conventional pollutants. See 40 CFR Section 125 Subpart A and Regs. Conn. State Agencies Section 22a-430-4(l)(4)(A).

Subpart A of 40 CFR Section 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated Effluent Limitation Guidelines ("ELGs") and case-by-case determinations of effluent limitations under CWA Section 402(a)(1). EPA promulgates New Source Performance Standards ("NSPS") under CWA Section 306 and 40 CFR Section 401.12. See also 40 CFR Section 122.2 (definition of "new source") and 122.29.

In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA Section 402(a)(1)(B) and Regs. Conn. State Agencies Section 22a-430-4(m) to establish effluent limitations on a case-by-case basis using best professional judgment ("BPJ").

The concentrated aquatic animal production point source category at 40 CFR Section 451 was reviewed to determine its applicability to the permitted discharge. This Section applies to the discharges of pollutants from facilities that produce 100,000 pounds or more of aquatic animals per year in a flow-through, recirculating, net pen or submerged cage system.

A concentrated aquatic animal production facility is defined at 40 CFR Section 122.24 as follows:
1) Facilities that contain, grow or hold cold water fish species or other cold water aquatic animals (which include, but are not limited to, the *Salmonidae* family of fish; e.g., trout and salmon), in ponds, raceways, or other similar structures which discharge at least 30 days per year but does not include:

a) Facilities which produce less than 9,090 harvest weight kilograms ("kg") (approximately 20,000 pounds) of aquatic animals per year; and
b) Facilities which feed less than 2,272 kg (approximately 5,000 pounds) of food during the calendar month of maximum feeding.

2) Facilities that contain, grow or hold warm water fish species or other warm water aquatic animals (which include, but are not limited to, the *Ameiuride, Centrarchidae* and *Cyprinidae* families of fish; e.g., respectively, catfish, sunfish and minnows), in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:

a) Closed ponds which discharge only during periods of excess runoff; or
b) Facilities which produce less than 45,454 harvest weight kg (approximately 100,000 pounds) of aquatic animals per year.

The Permittee contains, grows or holds 30 kg per year of cold or warm water fish species or other aquatic animals and uses about 120 kg of food per year to feed the aquatic organisms. The organisms held and food used are lower than the specified quantities in the concentrated aquatic animal production point source category at 40 CFR Section 451. Therefore, the activities performed by the Permittee do not fall under the definition of a concentrated aquatic animal production facility as found in 40 CFR Section 122.24 and TBELs are not applicable.

3.4 Zone of Influence

Section 22a-426-4(l) of the Regs. Conn. State Agencies states that "The Commissioner may, on a case-by-case basis, establish zones of influence ("ZOI") when authorizing discharges to surface waters under Sections 22a-430 and 22a-133(k) of the Conn. Gen. Stat. in order to allocate a portion of the receiving surface waters for mixing and assimilation of the discharge."

100:1 dilution was granted during the last permitting cycle. The dilution is retained in this permit renewal. Based on the permitted discharge flow of 720,000 gpd for DSN 001-1, the calculated ZOI is 2,970,000 gallons per hour ("gph") and the instream waste concentration ("IWC") is 1.0 %. In the case of DSN 002-1, the previous ZOI of 268,092 gph is being revised to 225,225 gph to maintain 100:1 dilution at the reduced effluent flow of 54,600 gpd.

3.5 Waterbody Ambient Conditions

The following data represents the upstream ambient water quality conditions.

Table B3.5: Ambient data for pH, Salinity and Temperature	
pH (S.U.)	8.0 S.U
Salinity	23 ppt
Temperature	25°C

3.6 Reasonable Potential Analysis

Pursuant to CWA Section 301(b)(1)(C) and 40 CFR Section 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs that are necessary to achieve water quality standards established under Section 303 of the CWA. See also 33 United States Code (USC) Section 1311(b)(1)(C). In addition, limitations "must control any pollutant or pollutant parameter (conventional, non-conventional, or toxic) which the permitting authority determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality." 40 CFR Section 122.44(d)(1)(i). To determine if the discharge causes, or has the reasonable potential to cause, or contribute to an excursion above any WQS, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) the variability of the pollutant or pollutant parameter in the effluent; 3) the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity); and 4) where appropriate, the dilution of the effluent by the receiving water. See 40 CFR Section 122.44(d)(1)(ii).

If the permitting authority determines that the discharge of a pollutant will cause, has the reasonable potential to cause, or contribute to an excursion above WQSs, the permit must contain Water Quality Based Effluent Limits ("WQBELs") or require additional monitoring if there is insufficient data to develop a WQBEL, for that pollutant. See 40 CFR Section 122.44(d)(1)(i).

The reasonable potential analysis ("RPA") was conducted for DSN 001 using procedures consistent with EPA's Technical Support Document for Water Quality-based Toxics Control" ("TSD"). An RPA was not conducted on DSN 002 because the Permittee has not discharged from the outfall during the last five years. However, the sources of wastewater in DSN 002 are similar in nature and quality to DSN 001; therefore, consistent monitoring requirements have been imposed.

To conduct the RPA, DEEP determines the project maximum concentration ("PMC") for each pollutant of concern in the receiving stream and compares it to the applicable flow adjusted water quality criteria ("WQC"). When the PMC is lower than the flow adjusted WQC, there is no potential for the discharge to exceed the WQC. When the PMC is higher than the flow adjusted WQC, there is a potential for the discharge to exceed the WQC (and permit limits are needed).

In the RPA, the PMC is calculated by multiplying maximum reported concentration with a statistical multiplier. The statistical multiplier is determined using the equation $C_{99} = \exp(2.326\sigma - 0.5\sigma^2)$, where $\sigma^2 = \ln(Cv^2 + 1)$ or from Table 3-1 of the TSD for 20 data set or less.

The reasonable potential analysis indicates that limits are not required. The RPA results, except for ammonia, are included in the Appendix. Ammonia results are included in Section 3.6.3, below.

3.6.1 Total Residual Chlorine

A review of the discharge monitoring report ("DMR") from August 2020 – July 2025 showed that total residual chlorine was always below the minimum level of the analytical test. The analysis in the previous permit cycle showed that about 320 gallons of city water results in negligible increase in the concentration of chlorine in the wastewater. Therefore, a reasonable potential analysis was not conducted for total residual chlorine.

3.6.2 Copper, Lead and Zinc

DMRs from August 2020 – July 2025 showed that copper was always below the minimum level of the analytical test. However, the minimum levels achieved by the analytical test method were not sufficiently sensitive, ranging from 25 µg/L or 50 µg/L. There was one instance where the minimum level for copper was 3 µg/L and the result of the analysis was below the 3 µg/L. Lead and zinc were also mostly below the minimum levels, except for one instance where lead was quantified at 1.0 µg/L, and two instances where zinc was quantified at 146 µg/L and 27 µg/L.

A reasonable potential analysis was conducted for copper, lead and zinc using half of the lab minimum levels for copper and lead and 146 µg/L for zinc as the maximum reported concentrations.

The Permittee was cited for not using an approved test method in an inspection report of May 23, 2023. The test methods used for analytical tests conducted in 2025 meet the minimum level criteria.

3.6.3 Total Ammonia Nitrogen

In order to conduct an RPA for ammonia, the acute (35 µg/L) and chronic (233 µg/L) criteria that are applicable to Class SA surface waters need to be converted from un-ionized ammonia to total ammonia. As specified in Regs. Conn. State Agencies 22a-426-9, this is done according to EPA's *Ambient Water Quality Criteria for Ammonia (Saltwater)-1989* (EPA 440/5-88-004). This document specifies this conversion is highly influenced by pH and temperature, with higher pH and higher temperature

corresponding to more restrictive criteria, and slightly correlated with salinity, with lower salinity associated with more restrictive criteria. The criteria were calculated using the observed pH, temperature, and salinity values in Section 3.5, which would result in the most protective criteria. The reasonable potential analysis indicates that limits are not required.

The guidance specifies that the percentage of un-ionized ammonia (UIA) is based on pK_a and pH. Theoretical models for pK_a were developed by Whitfield and described in the 1974 paper *The hydrolysis of ammonia ions in sea water - a theoretical study*. Hampson then developed a program to in his 1977 paper *Relationship between total ammonia and free ammonia in terrestrial and ocean waters*, which uses the following equations:

$$\% \, UIA = \frac{100}{1 + 10^{\left(pK_a + 0.0324(298 - T) + 0.0415\frac{P}{T} - pH\right)}}$$

Where P = 1 ATM, T is temperature (°K).

$$pK_a = 9.245 + 0.116I$$

Which is the Model B regression equation developed by Whitfield, 1974.

$$I = \frac{19.9273S}{1000 - 1.005109S}$$

Where I is the molar ionic strength and S is salinity.
Next, the water quality criteria (expressed as un-ionized ammonia) are converted to total ammonia:

$$\left[NH_3 + {NH_4}^+\right] = \frac{Unionized \; WQC}{\% \; UIA}$$

Finally, total ammonia is converted to a concentration of total ammonia as nitrogen using a conversion factor of 0.822, which is equivalent to the percent molecular mass of N in NH_3:

$$0.822 = \frac{14.00674}{14.00674 + 3(1.00794)} = \frac{molecular \; mass \; of \; N}{molecular \; mass \; of \; NH_3}$$

$$Total \; Ammonia \; as \; N = 0.822\left[NH_3 + {NH_4}^+\right]$$

Saltwater Ammonia Calculator

Temp	pH	Salinity	Pressure	Molal Ionic Strength	pKa*	% Unionized:	Unionized WQC		Total NH3		Total NH3 as N	
(deg C)	(su)	(ppt)	(ATM)	(not valid if >0.85):	@ 25 deg C		Acute	Chronic	Acute	Chronic	Acute	Chronic
											mg/L	mg/L
25.0	8.0	23.0	1.0	0.469	9.299	4.777%	0.233	0.035	4.88	0.73	4.01	0.60

The acute and chronic criteria for total ammonia (as N) are 4.01 mg/L and 0.6 mg/L, respectively using a temperature of 25°C, pH of 8.0 S.U. and salinity of 23 parts per thousand ("ppt").

Table 3.6.1: Reasonable Potential Evaluation
(This analysis compares the projected maximum concentration in effluent ("PMC") in the receiving stream with the applicable water quality criteria ("WQC"). When the PMC is lower than the WQC, there is no potential for the discharge to exceed the WQC. When the PMC is higher than the WQC, there is a potential for the discharge to exceed the WQC and permit limits are therefore needed.)

Q = Flow, C = Concentration, $(QC)_u$ = Upstream data, $(QC)_d$ = Downstream data, $(QC)_e$ = Effluent data and $Q_d = Q_u + Q_e$, Q_e = 720,000 gpd ÷ 24 = 30,000 gph, Q_u = 2,970,000 gph, and Q_d = 3,000,000 gph

Pollutants	PMC = Max. measured concentration X multiplier in Attachment A	PMC in the waterbody $C_d = \frac{(QC)_u + (QC)_e}{Q_d}$	**Connecticut Water Quality Criteria (WQC) (Freshwater)**			**Is there potential to exceed WQC?**
			Aquatic Life (Acute) (µg/l)	Aquatic Life (Chronic) (µg/l)	Human Health (µg/l)	
Ammonia	130 X 3.5 = 455	4.55	600 [1]	4,010 [1]	--	No

[1] The numbers above were converted from un-ionized ammonia (acute criteria = 35 µg/l, chronic criteria = 233 µg/l).

3.7 Whole Effluent Toxicity

The Permittee shall comply with effluent standards or prohibitions established by CWA Section 307(a) and Regs. Conn. State Agencies Section 22a-430-4(l), and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life.

If toxicity is suspected in the effluent, DEEP may require the Permittee to perform acute or chronic whole effluent toxicity testing. Based on Sections 22a-430-3(j)(7)(A)(i) and 22a-430-4(l)(5) of the Regs. Conn. State Agencies, a discharge that results in an IWC of 1% will have a permit limit of lethal concentration ("LC_{50}") limit of 20%. However, the Permittee's previous permit required annual acute toxicity testing using *Mysodopsis bahia* and *Menidia beryllina* and a "LC_{50}" limit of 100% for both DSN 001 and 002.

During the last permit cycle, the Permittee had no exceedances of its LC_{50} limit (LC_{50} = 100%). In addition, a review of aquatic toxicity monitoring report data (August 2020 – July 2025) for DSN 001 also showed a no observable acute effect level ("NOAEL") of 100%, which means 100% survival of test organisms in an undiluted effluent which shows the discharge is not toxic.

A reasonable potential analysis was performed consistent with EPA's TSD as shown below.

$$Acute\ toxic\ unit\ (TU_a) = \frac{100}{LC_{50}}, Chronic\ toxic\ unit\ (TU_a) = \frac{100}{IC_{25}}, TU_a = \frac{100}{100} = 1TU_a$$

A default coefficient of variation of 0.6 is assumed because of the limited number of data (annual sampling for 5 years), which corresponds to a statistical multiplier of 4.2 for n = 5 (Appendix A).
The projected maximum toxicity unit when the dilution is 1:100 is:

$$Projected\ Maximum\ TU_a$$
$$= 1TU_a\ (highest\ observed\ TU_a\ )\ X\ 4.2\ (multiplier\ in\ Appendix\ A)\ X\ 0.01\ (dilution\ factor)$$
$$= 0.042TU_a$$

The previous permit had no chronic toxicity testing requirement. Therefore, an acute to chronic ratio of 10 is assumed consistent with EPA's TSD.

$$TU_c = 0.042\ TU_a\ X\ 10 = 0.42\ TU_c$$

The EPA's TSD recommends using aquatic toxicity criteria of $TU_a = 0.3$ and $TU_c = 1.0$. $0.042TU_a$ is lower than EPA's TSD recommended $0.3TU_a$ WET criteria for protection against acute effects, and $0.42TU_c$ is lower than EPA's TSD recommended 1.0 TU_c. for protection against chronic effects. Therefore, there is no reasonable potential of causing toxicity at the existing WET limits, and a more stringent WET limit is not needed.

The existing toxicity monitoring requirements and the previous limit of LC50 = 100% are maintained in the permit. The salinity range for conducting aquatic toxicity was changed from 25 ± 2 ppt to 28 ± 2 ppt because the proposed salinity is closer to the range in the receiving waterbody.

3.8 Water Quality Based Effluent Limitations ("WQBELS")

The CWA and federal regulations require that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water. This is necessary when less stringent TBELs would interfere with the attainment or maintenance of water quality criteria in the receiving water. See CWA Section 301(b)(1)(C) and 40 CFR Section 122.44(d)(1),122.44(d)(5), 125.84(e) and 125.94(i).

The reasonable potential analysis did not indicate that WQBELS are warranted at this time.

3.9 Comparison of Limits

After preparing and evaluating applicable TBELs and WQBELs, the most stringent limits are applied in the permit. Pollutants of concern that only require monitoring without limits are not included in the table below.

Table 3.9.1: Comparison of Limits Based on Different Criteria

Parameters	WQBELs based on EPA/505/2-90-001	Regs. Conn. State Agencies 22a-430-4(l)(5)(A)	Previous Permit Limits	Case by Case Determination
Acute Aquatic toxicity, *Americamysis bahia*	---	$LC_{50} \geq 20\%$	$LC_{50} = 100\%$	---
Acute Aquatic toxicity, *Menidia beryllina*	---	$LC_{50} \geq 20\%$	$LC_{50} = 100\%$	---
pH, minimum	6.8 S.U.	---	6.8 S.U.	---
pH, maximum	8.5 S.U.	---	8.5 S.U.	---

3.10 Sampling Frequency, Type, And Reporting

The permit has monthly monitoring of pH and flow, while other pollutants are monitored semi-annually. This frequency was established to adequately ensure the Permittee is in compliance with permit terms and conditions, in accordance with Regs. Conn. State Agencies Section 22a-430-3(j)(5).

Acute toxicity monitoring requirements were incorporated in the last permit cycle because of minimal city water that may be added to the discharge. Annual acute toxicity monitoring requirements in the previous permit is proposed to be carried forward. DEEP does not propose more frequent monitoring because the Permittee has demonstrated that the toxicity of the discharge is relatively constant and the potential for the discharge to cause acute toxicity in the receiving waters is minimal, consistent with Regs. Conn. State Agencies Section 22a-430-3(j)(4)(A).

The previous sample type was changed from grab to composite sample because Regs. Conn. State Agencies Section 22a-430-4(c)(20) prescribes daily composite sampling for continuous discharges to account for variability in the wastewater discharge over the course of the daily discharge period. While the discharge occurs for 24 hours, variability in wastewater quality is expected to occur when operations staff are present at the lab during the first shift operating hours. This timeframe correlates to when the majority of lab operations occur, including tank cleanouts, experiment work, and maintenance. Minimal variation is expected in wastewater quality outside of these operating hours; therefore, the composite sample shall be comprised of equal aliquots, collected at the beginning, middle and end of first shift operating hours.

3.11 Effluents Limitations and Monitoring Requirements

Pollutants	Limit	Basis for Limits	Monitoring /Reporting Frequency	Sample Type
DSNs 001-1 and 002-1:				
Acute Aquatic Toxicity, *Americamysis bahia,* LC_{50}	100%	Anti-backsliding regulation	Annually	Daily Composite
Acute Aquatic Toxicity *Menidia beryllina,* LC_{50}	100%	Anti-backsliding regulation	Annually	
Ammonia (as N)	Monitoring only requirement for pollutant of concern, No RP		Semi-annually	
Copper, Total	Monitoring only requirement for pollutant of concern, No RP		Semi-annually	
Flow, Maximum during 24-hr period	DSN 001-1: 720,000 gpd DSN 002-1: 54,600 gpd	Permitted discharge flow per application	Continuous/ Monthly	Total daily flow
Kjeldahl Nitrogen, Total (as N)	Monitoring only requirement due to TMDL		Semi-annually	Daily Composite
Lead, Total	Monitoring only requirement for pollutant of concern, No RP		Semi-annually	
Nitrate (as N)	Monitoring only requirement due to TMDL		Semi-annually	
Nitrite (as N)	Monitoring only requirement due to TMDL		Semi-annually	
Nitrogen, Total	Monitoring only requirement due to TMDL		Semi-annually	
pH, Minimum	6.8	WQC	Continuous/ Monthly	Continuous
pH, Maximum	8.5	WQC		
Phosphorus, Total	Monitoring only requirement for pollutant of concern		Semi-annually	Daily Composite
Total Residual Chlorine	Monitoring only requirement for pollutant of concern, No RP		Semi-annually	Grab Sample Average
Total Suspended Solids	Monitoring only requirement for pollutant of concern		Semi-annually	Daily Composite
Zinc, Total	Monitoring only requirement for pollutant of concern, No RP		Semi-annually	
RP: Reasonable Potential; TMDL: Total Maximum Daily Load; WQC: Water Quality Criteria				

3.11.1 Sufficiently Sensitive Methods:

EPA at 40 CFR Section 122.21(e)(3) and 122.44(i) requires sufficiently sensitive test methods to be utilized for all parameters in a NPDES permit. A method approved under 40 CFR 136 or required through other regulations is sufficiently sensitive when:

- The method minimum level ("ML") is at or below the level of the applicable water quality criterion or effluent limitation (if below the water quality criterion), whichever is more stringent, for the measured pollutant or pollutant parameter; or
- The method ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or
- The method has the lowest ML of the analytical methods approved under 40 CFR part 136 or required under 40 CFR chapter I, subchapter N (effluent limit guidelines) or O (sewage sludge) for the measured pollutant or pollutant parameter. Note some effluent limit guidelines ("ELGs") will specify a required ML for certain analyses.

DEEP has specified ML requirements in the permit to ensure compliance with the sufficiently sensitive test method regulations. The MLs listed in the NPDES permit are the minimum concentration at which quantification must be achieved and verified during the laboratory analysis of the parameter. These values are not necessarily equivalent to the MLs that would be formally established by a lab under the ML definition at 40 CFR Section 136. In other words, at a minimum, the permittee's analytical method must achieve the ML listed in the permit. This may vary from the actual ML established by the lab for the analysis, using the MDL, lowest calibration point, or other acceptable method under 40 CFR Section 136.

3.12 Other Permit Conditions

The permit prohibits cleaners or detergents from entering the discharge of DSN 001-1 and 002-1 when used by the Permittee for washing floors. If cleaners or detergents are used, the wastewater should be contained, mopped, vacuumed and then discharged to the sanitary sewer.

3.13 Compliance Schedule

There is no compliance schedule.

3.14 Antidegradation

Implementation of the Antidegradation Policy follows a tiered approach pursuant to the federal regulations (40 CFR Section 131.12) and consistent with the Connecticut Antidegradation Policy included in the Connecticut Water Quality Standards (Section 22a-426-8(b-f) of the Regulations of Connecticut State Agencies). Tier 1 Antidegradation review applies to all existing permitted discharge activities to all waters of the state. Tiers 1 and 2 Antidegradation reviews apply to new or increased discharges to high quality waters and wetlands, while Tiers 1 and 3 Antidegradation reviews apply to new or increased discharges to outstanding national resource waters.

This discharge is an existing discharge, and the Permittee does not propose an increase in volume or concentration of constituents. Therefore, only the Tier 1 Antidegradation Evaluation and Implementation Review was conducted to insure 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 Standards, Regs. Conn. State Agencies Sec.22a-426-8(a)(1). This review involved:

- An evaluation of narrative and numeric water quality standards, criteria and associated policies;
- Consideration of the discharge activity both independently and in the context of other dischargers in the affected waterbodies; and

- Consideration of any impairment listed pursuant to Section 303d of the federal Clean Water Act or any TMDL established for the waterbody.

DEEP 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 data. Compliance with all the terms and conditions in the new permit would ensure that existing and designated uses of surface waters and the water quality necessary for their protection are maintained and preserved.

3.15 Anti-Backsliding

This permit has effluent limitations, standards or conditions that are at least as stringent as the final effluent limitations, standards, or conditions in the previous permit as required in 40 CFR Section 122.44(l) and Regs. Conn. State Agencies Section 22a-430-4(l)(4)(A)(xxiii).

3.16 Categorical Discharge Conditions

There are no categorical discharge conditions.

3.17 Intake Structure

Section 316(b) of the Federal Water Pollution Control Act, U.S.C. Section 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 ("BTA") for minimizing adverse environmental impact".

The federal regulations establish requirements under Section 316(b) of the CWA for existing power generating facilities and existing manufacturing and industrial facilities with a cooling water intake structure having a design intake flow greater than 2 million gallons per day of water from waters of the United States and use at least 25 percent of the water they withdraw exclusively for cooling purposes. Section 125.92 defines "Cooling water intake structure" as "the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the United States. The cooling water intake structure extends from the point at which water is first withdrawn from waters of the United States up to and including the intake pumps."

Section 125.90(b), states "Cooling water intake structures not subject to requirements under Section 125.94 through 125.99 or subparts I or N of this part must meet requirements under Section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis."

The water withdrawn at the facility's intake structure described in Section 1.4.1 of this fact sheet is not used for cooling purposes. Therefore, Section 316(b) of the CWA is not applicable.

3.18 Variances and Waivers

The facility did not request a variance or a waiver.

3.19 E-Reporting

The Permittee is required to electronically submit documents in accordance with 40 CFR Section 127.

Section 4 Summary of New Permit Conditions and Limits from the Previous Permit

- Monitoring tables for acute toxicity testing (DSN 001 and 002) have been added to the permit. These tables do not change the testing requirements, rather they change the way the acute toxicity

monitoring data are reported by the Permittee. The Permittee is now required to electronically report toxicity results and paired chemical and receiving water data through NetDMR with the annual DMR reports.

- The sample type was changed from grab to composite because the discharge is a continuous flow.
- The salinity range for conducting aquatic toxicity was changed from 25 ± 2 ppt to 28 ± 2 ppt because the proposed salinity is closer to the range in the receiving waterbody.
- Sulfate monitoring requirements were removed because the wastewater sulfate concentrations do not vary significantly from the typical sulfate concentrations of 2,700 mg/l in saltwater.
- Biochemical Oxygen Demand ("BOD5") monitoring requirements were removed because continuous monitoring showed that BOD5 was always below the minimum level of 4 mg/L.
- To better describe the monitoring location, the monitoring location description of DSN 001-1 discharge in Tables A and B was changed from "15" P.V.C drain outside of the building" to "Inside the fiberglass drain immediately before the 15-inch P.V.C drain outside the laboratory".

Section 5 Public Participation Procedures

5.1 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. 202505184 Permit ID No. CT0028631

Interested persons may obtain copies of the application from Jennifer Williams, University of Connecticut, Department of Marine Sciences, 1080 Shennecossett Road, Groton, CT 06340.

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.

5.2 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, Environmental Engineer 3, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127 or DEEP.IndustrialNPDESPublicComments@ct.gov and should indicate the Permit ID No. CT0028631 in the subject line. 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 (25) persons. Notice of any public hearing shall be published at least thirty (30) days prior to the hearing.

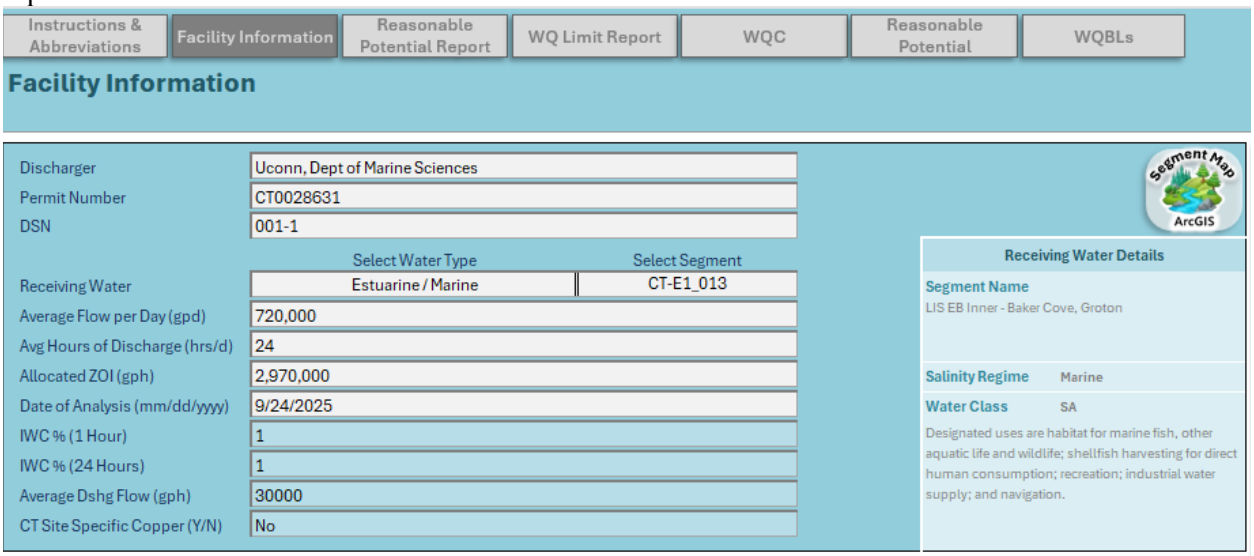
Petitions shall be submitted within thirty (30) days from the date of publication of this public notice and should include the application number noted above and also identify a contact person to receive notifications. Petitions may also identify a person who is authorized to engage in discussions regarding the

application and, if resolution is reached, withdraw the petition. Upon receipt of a petition, the Commissioner shall take action as required by relevant laws, including Public Act 25-84, which was effective upon passage in June 2025. The Office of Adjudications will accept electronically-filed petitions for hearing in addition to those submitted by mail or hand-delivered. Petitions with required signatures may be sent to deep.adjudications@ct.gov; those mailed or delivered should go to the DEEP Office of Adjudications, 79 Elm Street, Hartford, CT 06106. If the signed original petition is only in an electronic format, the petition must be submitted with a statement signed by the petitioner that the petition exists only in that form. Original petitions that were filed electronically must also be mailed or delivered to the Office of Adjudications within 30 days of electronic submittal. Additional information can be found at www.ct.gov/deep/adjudications.

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action/Equal Opportunity Employer that is committed to complying with the requirements of the Americans with Disabilities Act ("ADA"). If you are seeking a communication aid or service, have limited proficiency in English, wish to file an ADA or Title VI discrimination complaint, or require some other accommodation, including equipment to facilitate virtual participation, please contact the DEEP Office of Diversity and Equity at 860-418-5910 or by email at deep.accommodations@ct.gov. Any person needing an accommodation for hearing impairment may call the State of Connecticut relay number - 711. In order to facilitate efforts to provide accommodation, please request all accommodations as soon as possible following notice of any agency hearing, meeting, program, or event.

Appendix: Reasonable Potential Analysis

Input data



Chemical Type	Chemical Name	CASRN	Maximum Value	Number of results >20=20	Coefficient of Variance	Number of Samples / Month for Permit Limit
Metals & Inorganics	Ammonia	7664417	130	10	0.7	4
Metals & Inorganics	Copper	7440508	25	10	0.5	4
Metals & Inorganics	Lead	7439921	10	10	0.7	4
Metals & Inorganics	Zinc	7440666	146	10	1.7	4

Reasonable Potential Analysis Result

Chemical Type	Chemical Name	CASRN	Estimated Maximum Concentration in Effluent	Waste Load Allocation	Limit Needed?	Governing WLA
Metals & Inorganics	Ammonia	7664417	455		WQ Group	
Metals & Inorganics	Copper	7440508	65	310	No	Chronic
Metals & Inorganics	Lead	7439921	35	810	No	Chronic
Metals & Inorganics	Zinc	7440666	1,504	8,100	No	Chronic

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

1.0 TENTATIVE DECISION

The Commissioner of the Department of Energy and Environmental Protection ("the Commissioner") hereby gives notice of a tentative determination to renew a permit based on an application and administrative record submitted by University of Connecticut, Department of Marine Sciences ("the Applicant") under Section 22a-430 of the Connecticut General Statutes ("Conn. Gen. Stat.") 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 determination 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 Baker Cove in the Long Island Sound.

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

2.0 APPLICANT'S PROPOSAL

University of Connecticut, Department of Marine Sciences, presently discharges 774,600 gallons per day of aquarium seawater, aquarium experiment brackish water, aquarium maintenance rinse seawater, sand filter backflush, flow through seawater and floor rinse water wastewater to the Long Island Sound from operations at a biological oceanography research laboratory.

The name and mailing address of the permit Applicant are: University of Connecticut, Department of Marine Sciences, 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.

3.0 REGULATORY CONDITIONS

3.1 Type of Treatment

No treatment

3.2 Effluent Limitations

This permit contains effluent limitations consistent with a Case-by-Case Determination using the criteria of Best Professional Judgement of Connecticut State Agencies and water quality-based effluent limits, which will meet Water Quality Standards when the Applicant complies with all permit requirements.

4.0 COMMISSIONER'S AUTHORITY

The Commissioner 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 Conn. Gen. Stat. and the Water Discharge Permit Regulations (Section 22a-430-3 and 4 of the Regulations of Connecticut State Agencies).

5.0 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. 202505184 PERMIT ID NO. CT0028631

Interested persons may obtain copies of the application from Jennifer Williams, University of Connecticut, Environmental Health and Safety Programs, 3102 Horsebarn Hill Road, Unit 4097, Storrs, CT 06269, (860) 486-8148.

The application is available for inspection by contacting Oluwatoyin Fakilede, Environmental Engineer 3, at 860-424-3025 or oluwatoyin.fakilede@ct.gov, at the Department of Energy and Environmental Protection, Bureau of Materials Management and Compliance Assurance, 79 Elm Street, Hartford, CT 061065127 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.

6.0 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, Environmental Engineer 3, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 061065127 or DEEP.IndustrialNPDESPublicComments@ct.gov and should indicate the Permit ID No. CT0028631 in the subject line. 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 thirty (30) days prior to the hearing.

7.0 PETITIONS FOR HEARING

Petitions shall be submitted within thirty (30) days from the date of publication of this public notice and should include the application number noted above and also identify a contact person to receive notifications. Petitions may also identify a person who is authorized to engage in discussions regarding the application and, if resolution is reached, withdraw the petition. Upon receipt of a petition, the Commissioner shall take action as required by relevant laws, including Public Act 25-84, which was effective upon passage in June 2025. The Office of Adjudications will accept electronically-filed petitions for hearing in addition to those submitted by mail or hand-delivered. Petitions with required signatures may be sent to deep.adjudications@ct.gov; those mailed or delivered should go to the DEEP Office of Adjudications, 79 Elm Street, Hartford, CT 06106. If the signed original petition is only in an electronic format, the petition must be submitted with a statement signed by the petitioner that the petition exists only in that form. Original petitions that were filed electronically must also be mailed or delivered to the Office of Adjudications within 30 days of electronic submittal. Additional information can be found at www.ct.gov/deep/adjudications.

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Audra Godfrey

Audra Godfrey, Director
Water Permitting and Enforcement Division
Bureau of Materials Management and Compliance Assurance
Department of Energy and Environmental Protection

Dated: April 2, 2026