Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

NPDES PERMIT

issued to

US Naval Submarine Base New London
Environmental Division Box 400
439 Tautog Avenue, Room 104
Groton, CT 06349-5400

Location Address:
Corner of Route 12 and Crystal Lake Road
Groton, CT 06349-5400

Facility ID: 059-036

Permit ID: CT0003921

Receiving Stream:	**Stream Segment I.D. No**	**Permit Expires: February 26, 2017**
Thames River	CT-EI_015-SB	

SECTION 1: GENERAL PROVISIONS

(A) This permit is reissued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), and Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended, and section 402(b) of the Clean Water Act, as amended, 33 USC 1251, et. seq., and pursuant to an approval dated September 26, 1973, by the Administrator of the United States Environmental Protection Agency for the State of Connecticut to administer an N.P.D.E.S. permit program.

(B) US Naval Submarine Base New London ("Permittee"), shall comply with all conditions of this permit including the following sections of the RCSA which have been adopted pursuant to section 22a-430 of the CGS and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(C), (j)(10)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of section 22a-430-3.

Section 22a-430-3 General Conditions

(a) Definitions
(b) General
(c) Inspection and Entry
(d) Effect of a Permit
(e) Duty 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
(l) Conditions Applicable to POTWs
(m) Effluent Limitation Violations (Upsets)
(n) Enforcement
(o) Resource Conservation
(p) Spill Prevention and Control

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

Section 22a-430-4 Procedures and Criteria

(a) Duty to Apply
(b) Duty to Reapply
(c) Application Requirements
(d) Preliminary Review
(e) Tentative Determination
(f) Draft Permits, Fact Sheets
(g) Public Notice, Notice of Hearing
(h) Public Comments
(i) Final Determination
(j) Public Hearings
(k) Submission of Plans and Specifications. Approval.
(l) Establishing Effluent Limitations and Conditions
(m) Case by Case Determinations
(n) Permit issuance or renewal
(o) Permit Transfer
(p) Permit revocation, denial or modification
(q) Variances
(r) Secondary Treatment Requirements
(s) Treatment Requirements for Metals and Cyanide
(t) Discharges to POTWs - Prohibitions

(C) Violations of any of the terms, conditions, or limitations contained in this permit may subject the Permittee to enforcement action including, but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA.

(D) Any false statement in any information submitted pursuant to this permit may be punishable as a criminal offense under section 22a-438 or 22a-131a of the CGS or in accordance with section 22a-6, under section 53a-157b of the CGS.

(E) The authorization to discharge under this permit may not be transferred without prior written approval of the Commissioner of Energy and Environmental Protection ("Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner, at least 30 days prior to the transferee becoming legally responsible for creating or maintaining any discharge which is the subject of the permit transfer. Failure, by the transferee, to obtain the Commissioner's approval prior to commencing such discharge(s) may subject the transferee to enforcement action for discharging without a permit pursuant to applicable sections of the CGS and RCSA.

(F) No provision of this permit and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by the Permittee pursuant to this permit will result in compliance or prevent or abate pollution.

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

(H) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the Regulations of Connecticut State Agencies.

(I) This permitted discharges are consistent with the applicable goals and policies of the Connecticut Coastal Management Act (section 22a-92 of the Connecticut General Statutes).

SECTION 2: DEFINITIONS

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

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

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

"Annual" in the context of any sampling frequency found in Section 5, shall mean the sample must be collected in the month of December or the first month following the month of December if a discharge did not occur in December, unless otherwise noted in this permit.

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

"Critical Test Concentration (CTC)" means the specified effluent dilution at which the Permittee is to conduct a single-concentration Aquatic Toxicity test.

"Daily Composite" means (1) a composite sample taken over a full operating day consisting of grab samples collected at equal intervals of no more than sixty (60) minutes and combined proportionally to flow, or (2) a composite sample continuously collected over a full operating day proportionally to flow. Upon submission of documentation by the applicant satisfactory to the commissioner that a discharge is of consistent effluent quality, the commissioner may allow equal sampling intervals of up to four (4) hours for a daily composite sample.

“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.

"Entrainment" means the incorporation of aquatic organisms, including all life stages of fish and shellfish, with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

"Grab Sample Average" means the arithmetic average of all grab sample analyses. Grab samples shall be collected at least once every four hours over a full operating day for as long as a discharge exists on that day (minimum of two grab samples per day).

"Impingement" means the entrapment of aquatic organisms, including all life stages of fish and shellfish, on the intake structure or against a screening device during periods of intake water withdrawal.

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

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

"Maximum Daily Limit", means the maximum allowable "Daily Concentration" (defined above) when expressed as a concentration (e.g. mg/l); otherwise, it means the maximum allowable "Daily Quantity"

as defined above, unless it is expressed as a flow quantity. If expressed as a flow quantity it means "Maximum Daily Flow" as defined in section 22a-430-3(a) of the RCSA. For the Toxicity parameter, this value is the minimum value, in percent, that represents a passed test.

"mg/l" means milligrams per liter.

"Monitoring Conditional" (MC) means conditional limit not applicable during a monitoring period.

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

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

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

"Quarterly", in the context of a sampling frequency, means sampling is required in the months of March, June, September, and December. In the event that the discharge does not occur in any of these sampling months, the Permittee shall sample during the next discharge event.

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

"Semi-Annually" means that a representative sample of the discharge shall be collected at any time during each of the following periods: January-June and July-December. Analytical results shall be reported in the July and January DMRs.

"ug/l" means micrograms per liter.

SECTION 3: COMMISSIONER'S DECISION

(A) The Commissioner, has issued a final determination and found that continuance of the existing discharges will not cause pollution of the waters of the state. The Commissioner's decision is based on **Application No. 201101967** for permit reissuance received on March 22, 2011 and the administrative record established in the processing of that application.

(B) The Commissioner hereby authorizes the Permittee to discharge in accordance with the provisions of this permit, the above referenced application, and all approvals issued by the Commissioner or the Commissioner's authorized agent for the discharges and/or activities authorized by, or associated with, this permit.

(C) The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Federal Clean Water Act or the CGS or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Federal Clean Water Act or CGS or regulations adopted thereunder which are then applicable.

(D) This permit also includes determinations regarding section 316(a) of the federal Water Pollution Control Act 33 U.S.C. § 1326(a), and compliance with this permit is sufficient to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving waters. The

Commissioner has determined that the thermal component of Discharge Serial No. 001-1, 002-1, and 006-1 will not result in a violation of the Connecticut Water Quality Standards adopted pursuant to section 22a-426 of the Connecticut General Statutes as amended and approved by the U.S. Environmental Protection Agency on May 15, 1992. This determination is based on the report entitled "Impact of the NSB New London Thermal Discharge on the Thames River", dated March 1997, as approved by the Commissioner on May 15, 2001. This permit also contains a determination under section 316(b) of the federal Water Pollution Control Act, 33 U.S.C. § 1326(b) and Conn. Gen. Stat. § 22a-430(a). This 316(b) determination is in Section 9(C) of this permit.

SECTION 4: GENERAL EFFLUENT LIMITATIONS

(A) No discharge shall contain, or cause in the receiving stream, a visible oil sheen or floating solids; or, cause visible discoloration or foaming in the receiving stream beyond the vicinity of the base as demarcated by the piers and the north-south property lines of the base.

(B) No discharge shall cause acute or chronic toxicity in the receiving water body beyond any zone of influence specifically allocated to that discharge in this permit.

(C) The temperature of any discharge shall not increase the temperature of the receiving stream above 83^{o}F, or, in any case, raise the temperature of the receiving stream by more than 4^{o}F beyond the zone of influence identified in the report entitled "Impact of the NSB New London Thermal Discharge on the Thames River", dated March 1997, as approved by the Commissioner on May 15, 2001. The incremental temperature increase in coastal and marine waters is limited to 1.5 ^{o}F during the period including July, August, and September.

SECTION 5: SPECIFIC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

Table A

Discharge Serial Number: 001-1 | **Monitoring Location: 1**

Wastewater Description: Non-contact cooling water the diesel generator heat exchanger and the fresh water cooling well heat exchanger

Monitoring Location Description: Sample tap in Power Plant (Building 29)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[3]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency [2]	Sample Type or measurement to be reported	
NOAEL Static 48Hr Acute Mysid. Bahia[6] NOAEL=100	%	NA	≥90	Quarterly	Composite[4]	≥90	NR	Grab	
NOAEL Static 96Hr Acute Menidia[6] NOAEL=100	%	NA	≥90	Quarterly	Composite[4]	≥90	NR	Grab	
Copper, Total	mg/l	NA	0.020	Quarterly	Composite[4]	0.040	NR	Grab	X
Flow, Maximum During 24 hr Period[1]	MGD	NA	15.0	Daily /Quarterly	Total Flow	NA	NR	NA	
Flow Rate, (Average Daily)[1]	MGD	----	NA	Daily/Quarterly	Total Flow	NA	NR	NA	
Flow, Total (day of sampling)	MGD	NA	15.0	Quarterly	Daily Flow	NA	NR	NA	
Lead, Total	mg/l	NA	0.010	Quarterly	Composite[4]	0.015	NR	Grab	X
Nickel, Total	mg/l	NA	0.010	Quarterly	Composite[4]	0.015	NR	Grab	X
Nitrogen, Ammonia (total as N)	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Nitrogen, Nitrate (total as N)	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Nitrogen, Nitrite (total as N)	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Oil and Grease, Total	mg/l	NA	NA	NR	NA	10	Quarterly	Grab	
pH, Minimum	S.U.	NA	NA	NR	NA	6.0	Continuous	Continuous	
pH, Maximum	S.U.	NA	NA	NR	NA	9.0	Continuous	Continuous	
pH, (Day of Sampling)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Quarterly	RDS	
Temperature, (Maximum) (May 1 – October 31)	^{o}F	NA	NA	NR	NA	90	Continuous	Instantaneous	
Temperature, (Maximum) (November 1 – April 30)	^{o}F	NA	NA	NR	NA	80	Continuous	Instantaneous	
Temperature Difference between Intake (01H) and discharge[5]	^{o}F	NA	NA	NR	NA	40	Continuous	Instantaneous	
Total Suspended Solids	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Zinc, Total	mg/l	NA	0.034	Quarterly	Composite[4]	0.051	NR	Grab	X

Table A Footnotes and Remarks:

Footnotes:

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

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

[3] Minimum Level Test refers to Section 6(A)(3) of this permit.

[4] "Composite" shall mean a composite sample consisting of grab samples of equal volumes collected at equal intervals of no more than sixty (60) minutes for as long as the discharge exists during an operating day.

[5] The maximum temperature increase at the discharge outlet above the intake water temperature shall be 40 ^{o}F. In the event the temperature differential exceeds 40 ^{o}F for a period exceeding 24 hours, the Department of Energy and Environmental Protection, Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement shall be notified immediately and a written report of the incident filed within 10 days.

[6] All analysis shall be on the same sample. The results of the Toxicity Tests are recorded in % survival on the DMR based on criteria in Section 6(B) of this permit.

Remarks:

The Permittee shall record the following data and maintain the records on site:

a. Daily range of pH
b. Daily range of flow (gpd)
c. Daily maximum temperature (^{o}F)
d. Daily average temperature (^{o}F)
e. Daily maximum temperature increase
f. Daily average temperature increase

Table B

Discharge Serial Number: 002-1 | **Monitoring Location: 1**

Wastewater Description: Non-contact cooling water for the low pressure air compressor (LPAC) heat exchanger

Monitoring Location Description: Sample tap in Power Plant (Building 29)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[3]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency [2]	Sample Type or measurement to be reported	
NOAEL Static 48Hr Acute Mysid. Bahia[6] NOAEL=100	%	NA	≥90	Quarterly	Composite[4]	≥90	NR	Grab	
NOAEL Static 96Hr Acute Menidia[6] NOAEL=100	%	NA	≥90	Quarterly	Composite[4]	≥90	NR	Grab	
Copper, Total	mg/l	NA	0.020	Quarterly	Composite[4]	0.040	NR	Grab	X
Flow, Maximum During 24 hr Period[1]	MGD	NA	15.0	Daily/Quarterly	Total Flow	NA	NR	NA	
Flow Rate, (Average Daily)[1]	MGD	----	NA	Daily/Quarterly	Total Flow	NA	NR	NA	
Flow, Total (day of sampling)	MGD	NA	15.0	Quarterly	Daily Flow	NA	NR	NA	
Lead, Total	mg/l	NA	0.010	Quarterly	Composite[4]	0.015	NR	Grab	X
Nickel, Total	mg/l	NA	0.010	Quarterly	Composite[4]	0.015	NR	Grab	X
Nitrogen, Ammonia (total as N)	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Nitrogen, Nitrate (total as N)	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Nitrogen, Nitrite (total as N)	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Oil and Grease, Total	mg/l	NA	NA	NR	NA	10	Quarterly	Grab	
pH, Minimum	S.U.	NA	NA	NR	NA	6.0	Continuous	Continuous	
pH, Maximum	S.U.	NA	NA	NR	NA	9.0	Continuous	Continuous	
pH, (Day of Sampling)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Quarterly	RDS	
Temperature, (Maximum) (May 1 – October 31)	^{o}F	NA	NA	NR	NA	90	Continuous	Instantaneous	
Temperature, (Maximum) (November 1 – April 30)	^{o}F	NA	NA	NR	NA	80	Continuous	Instantaneous	
Temperature Difference between Intake (01H) and discharge[5]	^{o}F	NA	NA	NR	NA	25	Continuous	Instantaneous	
Total Suspended Solids	mg/l	NA	-----	Quarterly	Composite[4]	NA	NR	Grab	
Zinc, Total	mg/l	NA	0.034	Quarterly	Composite[4]	0.051	NR	Grab	X

Table B Footnotes and Remarks:

Footnotes:

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

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

[3] Minimum Level Test refers to Section 6(A)(3) of this permit.

[4] "Composite" shall mean a composite sample consisting of grab samples of equal volumes collected at equal intervals of no more than sixty (60) minutes for as long as the discharge exists during an operating day.

[5] The maximum temperature increase at the discharge outlet above the intake water temperature shall be 25 ^{o}F. In the event the temperature differential exceeds 25 ^{o}F for a period exceeding 24 hours, the Department of Energy and Environmental Protection, Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement shall be notified immediately and a written report of the incident filed within 10 days.

[6] All analysis shall be on the same sample. The results of the Toxicity Tests are recorded in % survival on the DMR based on criteria in Section 6(B) of this permit.

Remarks:

The Permittee shall record the following data and maintain the records on site:

a. Daily range of pH
b. Daily range of flow (gpd)
c. Daily maximum temperature (^{o}F)
d. Daily average temperature (^{o}F)
e. Daily maximum temperature increase
f. Daily average temperature increase

Table C	
Discharge Serial Number: 003-1 (formerly DSN 001A)	**Monitoring Location: Not applicable**
Wastewater Description: Shell crusher cup strainer backwash (Building 29)	
Monitoring Location Description: No monitoring is required	
Maximum Daily Flow: 600,000 gpd	

Table D	
Discharge Serial Number: 004-1	**Monitoring Location: Not applicable**
Wastewater Description: Intake screen backwash (Fine mesh traveling screens; Building 490)	
Monitoring Location Description: No monitoring is required	
Maximum Daily Flow: 45,000 gpd	

Remarks:

1. Solids, not including aquatic organisms, collected on the intake racks and screens shall not be reintroduced into the Thames River.

2. When the circulation pumps are operating, the Permittee must conduct on a daily basis a survey of aquatic organisms (living and dead) collected on the intake racks and screens. Such records shall include a general description of types of aquatic organisms (e.g. finfish, shellfish, other invertebrates), sizes, and approximate numbers of organisms impinged and shall be retained on site.

Table E

Discharge Serial Number: Intake 01H | **Monitoring Location:** 7

Description: Intake for Power Plant (Building 29)

Monitoring Location Description: Screen house wet well (Building 490)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency [1]	Sample Type or measurement to be reported	
NOAEL Static 48Hr Acute Mysid. Bahia[5] NOAEL=100	%	NA	-----	Quarterly	Composite[3]	NA	NR	NA	
NOAEL Static 96Hr Acute Menidia[5] NOAEL=100	%	NA	-----	Quarterly	Composite[3]	NA	NR	NA	
Copper, Total	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	X
Lead, Total	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	X
Nickel, Total	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	X
Nitrogen, Ammonia (total as N)	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	
Nitrogen, Nitrate (total as N)	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	
Nitrogen, Nitrite (total as N)	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	
Oil and Grease, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab	
pH, Day of Sampling	S.U.	NA	NA	NR	NA	-----	Quarterly	RDS	
Temperature, (Maximum)[4]	^{o}F	NA	NA	NR	NA	-----	Continuous	Instantaneous	
Total Suspended Solids	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	
Zinc, Total	mg/l	NA	-----	Quarterly	Composite[3]	NA	NR	NA	X

Table E Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[2] Minimum Level Test refers to Section 6(A)(3) of this permit.

[3] "Composite" shall mean a composite sample consisting of grab samples collected at equal intervals of no more than sixty (60) minutes for as long as the discharge exists during an operating day.

[4] The equipment to continuously monitoring the temperature of the intake water is located in Building 29.

[5] All analysis shall be on the same sample. The results of the Toxicity Tests are recorded in % survival on the DMR based on criteria in Section 6(B) of this permit.

Remarks:

(1) Daily composite samples shall be collected at this location on the same day and over the same time period as the samples collected at DSN 001-1 and DSN 002, taking into account the travel time through the system.

Table F

Discharge Serial Number: 005-1 | **Monitoring Location: 1**

Wastewater Description: Potable water to prevent freezing of water pipes supplying potable water to vessels at piers (October 1 – April 30) to the Thames River

Monitoring Location Description: Bleed valve, south side of Pier 12

Allocated Zone of Influence (ZOI) : 350,000 gph | **In-stream Waste Concentration (IWC): 1.0%**

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency [1]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute Mysid. Bahia[3]	%	NA	NA	NR	NA	>20 %	Annual[5]	Grab	
LC50 Static 96Hr Acute Menidia[3]	%	NA	NA	NR	NA	>20 %	Annual[5]	Grab	
Chlorine, Total Residual	mg/l	NA	NA	NR	NA	---	Monthly[4]	Grab	*
Copper, Total	mg/l	NA	NA	NR	NA	0.24	Monthly[4]	Grab	*
Flow Total (Day of Sample)	gpd	NA	201,600	Monthly[5]	Total Flow	NA	NR	NA	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	*
pH (Day of Sample)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Monthly[4]	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	*

Table F Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'

[2] Minimum Level Test refers to revised Section 6(A)(3) of this permit renewal.

[3] All analysis shall be on the same sample. The results of the Toxicity Tests shall be recorded in % survival on the DMR.

[4] Monthly monitoring is required only during **December through March**.

[5] "Annual" means the sample must be collected in the month of December.

Table G

Discharge Serial Number: 006-1 | **Monitoring Location: 1**

Wastewater Description: Auxiliary seawater system - Once through non-contact cooling water for hosted vessels, and pressurization of dry dock fire main systems to the Thames River.

Monitoring Location Description: Shippingport ASW discharge pipe (designated discharge/return manifold on the shippingport)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[3]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency [2]	Sample Type or measurement to be reported	
NOAEL Static 48Hr Acute Mysid. Bahia[4] NOAEL=100	%	NA	NA	NR	NA	≥ 90%	Semi-annual	Grab	
NOAEL Static 96Hr Acute Menidia[4] NOAEL=100	%	NA	NA	NR	NA	≥ 90%	Semi-annual	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Flow, Maximum During 24 hr Period[1]	MGD	NA	1.44	Daily/Semi-annual	Total Flow	NA	NR	NA	
Flow Total (Day of Sample)	MGD	NA	1.44	Semi-annual	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Nickel, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Nitrogen, Ammonia (total as N)	mg/l	NA	----	NR	NA	-----	Semi-annual	Grab	
Nitrogen, Nitrate (total as N)	mg/l	NA	----	NR	NA	-----	Semi-annual	Grab	
Nitrogen, Nitrite (total as N)	mg/l	NA	----	NR	NA	-----	Semi-annual	Grab	
pH (Day of Sample)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Semi-annual	Grab	
Temperature, (Maximum) (May 1 – October 31)	^{o}F	NA	NA	NR	NA	90	Daily/Semi-annual	Instantaneous	
Temperature, (Maximum) (November 1 – April 30)	^{o}F	NA	NA	NR	NA	80	Daily/Semi-annual	Instantaneous	
Total Suspended Solids	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Silver, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*

Table G Footnotes and Remarks:

Footnotes:

[1] For this parameter, the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Maximum Daily Flow for each semi-annual period.

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

[3] Minimum Level Test refers to revised Section 6(A)(3) of this permit renewal.

[4] All analysis shall be on the same sample. The results of the toxicity tests shall be recorded in % survival on the DMR.

Table H									
Discharge Serial Number: 009-1						**Monitoring Location: 1**			
Wastewater Description: Floating dry dock ballast water to the Thames River									
Monitoring Location Description: Dry dock Shippingport ballast tanks									
Allocated Zone of Influence (ZOI): 15,650,000 gph						**In stream waste concentration (IWC): 13.8%**			
PARAMETER	**UNITS**	**FLOW/TIME BASED MONITORING**				**INSTANTANEOUS MONITORING**			**Minimum Level Test[3]**
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency [2]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute Mysid. Bahia[4]	%	NA	>41%	Quarterly	Composite	>41%	NR	Grab	
LC50 Static 96Hr Acute Menidia[4]	%	NA	>41%	Quarterly	Composite	>41%	NR	Grab	
Aluminum, Total	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	
BOD_5	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	
Oxidants, Total Residual	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab	*
Copper, Total	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	*
Flow, Maximum During 24 hr Period[1]	MGD	NA	5.0	Daily/Quarterly	Total Flow	NA	NR	NA	
Flow Total, (Day of Sample)	MGD	NA	5.0	Quarterly	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	-----	Quarterly	Composite	NA	NR	Grab	
Lead, Total	mg/l	NA	-----	Quarterly	Composite	NA	NR	Grab	*
Nickel, Total	mg/l	NA	----	Quarterly	Composite	NA	NR	Grab	*
Nitrogen, Ammonia (total as N)	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	
Nitrogen, Nitrate (total as N)	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	
Nitrogen, Nitrite (total as N)	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	
Oil and Grease, Total	mg/l	NA	10	Quarterly	See Footnote 5	NA	NR	Grab	
pH (Day of Sample)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Quarterly	Grab	
Silver, Total	mg/l	NA	---	Quarterly	Composite	NA	NR	Grab	*
Tin, Total	mg/l	NA	-----	Quarterly	Composite	NA	NR	Grab	
Total Suspended Solids	mg/l	NA	-----	Quarterly	Composite	NA	NR	Grab	
Zinc, Total	mg/l	NA	----	Quarterly	Composite	NA	NR	Grab	*

Table H Footnotes and Remarks:

Footnotes:

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

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

[3] Minimum Level Test refers to revised Section 6(A)(3) of this permit renewal.

[4] All analysis shall be on the same sample. The results of toxicity tests shall be recorded in % survival on the DMR.

[5] Grab samples shall be collected from six ballast tanks (3 from each side of the dry dock) and analyzed using Section 8.3 of EPA Method 1664A for oil and grease.

Remarks:

"Composite" shall consist of grab samples collected from six ballast tanks (3 from each side of the dry dock) and combined into one sample. A single grab sample shall be collected and tested for total residual Oxidants and pH.

"Quarterly" means that a representative sample of the discharge shall be collected at any time during each of the following periods: January-March; April-June, July-September, and October-December. Analytical results shall be reported in the March, June, September, and December DMRs."

Table I

Discharge Serial Number: 011-1 | **Monitoring Location: 1**

Wastewater Description: Stormwater runoff from the floating dry dock pontoon deck to the Thames River

Monitoring Location Description: On the pontoon deck near an aft drain well on Shippingport

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency[1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency[1]	Sample Type or measurement to be reported	
Aluminum, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
LC50 Static 48Hr Acute D. Pulex[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
LC50 Static 48Hr Acute Pimephales[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
Cadmium, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Chemical Oxygen Demand	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Chromium, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Copper, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Flow Total (Day of Sample)	gpd	NA	----	Semi-annual	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Nickel, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Nitrogen, Nitrate (total as N)	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Nitrogen, Total Kjeldahl	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Oil and Grease, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
pH (Day of Sample)	S.U.	NA	NA	NR	NA	-----	Semi-annual	Grab	
Phosphorus, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Silver, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Rainfall Duration	hr/day	NA	-----	Semi-annual	Total (Hours)	NA	NR	NA	
Rainfall	in	NA	-----	Semi-annual	Total (Inches)	NA	NR	NA	
Tin, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Total Suspended Solids	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*

Table I Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[2] Minimum Level Test refers to revised Section 6(A)(3) of this permit renewal.

[3] All analysis shall be on the same sample. The results of toxicity tests shall be recorded in % on the DMR.

Remarks:

Semi-Annual samples shall be collected from discharges resulting from a storm event that is greater than 0.1 inch in magnitude and a least one of the semi-annual samples shall be collected when a hosted vessel is docked. Runoff events resulting from snow or ice melt cannot be used to meet the minimum annual monitoring requirements. Grab samples shall be used for all monitoring.

Table J

Discharge Serial Number: 012-1 | **Monitoring Location: 1**

Wastewater Description: Utility trench dewatering wastewaters (stormwater, groundwater, steam condensate and pipe condensate) to the Thames River

Monitoring Location Description: Building 332 sump effluent

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency[1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency[1]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute D. Pulex[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
LC50 Static 96Hr Acute Pimephales[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Cyclohexylamine	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Flow Total (Day of Sample)	gpd	NA	---	Semi-annual	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Oil and Grease, Total	mg/l	NA	NA	NR	NA	10.0	Semi-annual	Grab	
pH, Day of sampling	S.U.	NA	NA	NR	NA	6.0 – 9.0	Semi-annual	Grab	
Surfactants (MBAS)	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*

Table J Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[2] Minimum Level Test refers to revised Section 6(A)(3) of this permit modification.

[3] The results of toxicity tests shall be recorded in % on the DMR.

Table K

Discharge Serial Number: 014-1 | **Monitoring Location: 1**

Wastewater Description: Utility trench dewatering wastewaters (stormwater, groundwater, steam condensate and pipe condensate) to the Thames River

Monitoring Location Description: Building 77 sump effluent

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency[1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency[1]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute D. Pulex[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
LC50 Static 96Hr Acute Pimephales[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Cyclohexylamine	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Flow Total (Day of Sample)	gpd	NA	---	Semi-annual	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Oil and Grease, Total	mg/l	NA	NA	NR	NA	10.0	Semi-annual	Grab	
pH, Day of sampling	S.U.	NA	NA	NR	NA	6.0 – 9.0	Semi-annual	Grab	
Surfactants (MBAS)	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*

Table K Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[2] Minimum Level Test refers to revised Section 6(A)(3) of this permit modification.

[3] The results of toxicity tests shall be recorded in % on the DMR.

Table L

Discharge Serial Number: 015-1 | **Monitoring Location: 1**

Wastewater Description: Utility trench dewatering wastewaters (stormwater, groundwater, steam condensate and pipe condensate) to the Thames River

Monitoring Location Description: Building 427 sump effluent

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency[1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency[1]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute D. Pulex[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
LC50 Static 96Hr Acute Pimephales[3]	%	NA	NA	NR	NA	-----	Semi-annual	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Cyclohexylamine	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Flow Total (Day of Sample)	gpd	NA	---	Semi-annual	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*
Oil and Grease, Total	mg/l	NA	NA	NR	NA	10.0	Semi-annual	Grab	
pH, Day of sampling	S.U.	NA	NA	NR	NA	6.0 – 9.0	Semi-annual	Grab	
Surfactants (MBAS)	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Semi-annual	Grab	*

Table L Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[2] Minimum Level Test refers to revised Section 6(A)(3) of this permit modification.

[3] The results of toxicity tests shall be recorded in % on the DMR.

Table M

Discharge Serial Number: 017-1 | **Monitoring Location: 1**

Wastewater Description: Steam condensate from condensate return collection tank overflows (includes DSN018 from the application) to the Thames River

Monitoring Location Description: At the sample port at the pit in Building 29

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[2]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency[1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency[1]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute Mysid. Bahia[3]	%	NA	NA	NR	NA	-----	Monthly[4]	Grab	
LC50 Static 96Hr Acute Menidia[3]	%	NA	NA	NR	NA	-----	Monthly[4]	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	*
Cyclohexylamine	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	*
pH (Day of Sample)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Monthly[4]	Grab	
Temperature	^{o}F	NA	NA	NR	NA	-----	Monthly[4]	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Monthly[4]	Grab	*

Table M Footnotes and Remarks:

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

[2] Minimum Level Test refers to revised Section 6(A)(3) of this permit renewal.

[3] All analysis shall be on the same sample. The results of toxicity tests shall be recorded in % on the DMR.

[4] Monthly monitoring is required **only during September through March**. The Permittee shall attach a written summary of these discharges indicating the dates of discharge to the Discharge Monitoring Report (DMR) for the month of September.

Table N

Discharge Serial Number: 019-1 | **Monitoring Location: 1**

Wastewater Description: Fire hydrant test wastewaters, fire hydrant training wastewaters, and intermittent leaks to the Thames River

Monitoring Location Description: Representative sample of effluent from fire hydrant 5-12 at buildings 409/410

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test[3]
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency[2]	Sample Type or measurement to be reported	
LC50 Static 48Hr Acute Mysid. Bahia[4]	%	NA	NA	NR	NA	-----	Annual	Grab	
LC50 Static 96Hr Acute Menidia[4]	%	NA	NA	NR	NA	-----	Annual	Grab	
Chlorine, Total Residual	mg/l	NA	NA	NR	NA	0.61	Annual	Grab	*
Copper, Total	mg/l	NA	NA	NR	NA	-----	Annual	Grab	*
Flow, Maximum During 24 hr Period[1]	gpd	NA	-----	Daily/Annual	Total Flow	NA	NR	NA	
Flow Total (Day of Sample)	gpd	NA	----	Annual	Total Flow	NA	NR	NA	
Iron, Total	mg/l	NA	NA	NR	NA	-----	Annual	Grab	
Lead, Total	mg/l	NA	NA	NR	NA	-----	Annual	Grab	*
Nickel, Total	mg/l	NA	NA	NR	NA	-----	Annual	Grab	*
pH (Day of Sample)	S.U.	NA	NA	NR	NA	6.0 – 9.0	Annual	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Annual	Grab	*

Table N Footnotes and Remarks:

Footnotes:

[1] For this parameter, the Permittee shall maintain at the facility a record of the total flow for each day of sample collection and shall report the Maximum Daily Flow for each year.

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

[3] Minimum Level Test refers to revised Section 6(A)(3) of this permit renewal.

[4] All analysis shall be on the same sample. The results of the Toxicity Tests shall be recorded in % survival on the DMR.

Remarks:

"Annual" means that a representative sample of the discharge shall be collected at any time during January – December. Analytical results shall be reported in the December DMR.

(1) 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. All samples collected shall be representative of the discharge during standard operating conditions.

(2) In cases where limits and sample type are specified but sampling is not required by this permit, the limits specified shall apply to all samples which may be collected and analyzed by the Department of Energy and Environmental Protection personnel, the Permittee, or other parties.

(3) This permit becomes effective on the 1st day of the month following the date of signature.

SECTION 6: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES

(A) Chemical Analysis

(1) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall be performed using the methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 40 CFR 136.4 or as provided in section 22a-430-3(j)(7) of the RCSA. Chemicals which do not have methods of analysis defined in 40 CFR 136 shall be analyzed in accordance with methods specified in this permit.

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

(3) The Minimum Levels specified below represent the concentrations at which quantification must be achieved and verified during the chemical analyses for the parameters identified in Section 5 Tables A, B, and E thru N. Analyses for these parameters must include check standards within ten percent of the specified Minimum Level or calibration points equal to or less than the specified Minimum Level.

Parameter	Minimum Level
Chlorine, total residual	20.0 ug/L
Copper	5.0 ug/L
Lead	5.0 ug/L
Nickel	5.0 ug/L
Silver	2.0 ug/L
Zinc	20.0 ug/L

(4) The value of each parameter for which monitoring is required under this permit shall be reported to the maximum level of accuracy and precision possible consistent with the requirements of this section of the permit.

(5) Effluent analyses for which quantification was verified during the analysis at or below the minimum levels specified in this section and which indicate that a parameter was not detected shall be reported as "less than x" where 'x' is the numerical value equivalent to the analytical method detection limit for that analysis.

(6) Results of effluent analyses which indicate that a parameter was not present at a concentration greater

than or equal to the Minimum Level specified for that analysis shall be considered equivalent to zero (0.0) for purposes of determining compliance with effluent limitations or conditions specified in this permit.

(B) Acute Aquatic Toxicity Test

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

(a) Composite samples shall be chilled as they are collected. Grab samples shall be chilled immediately following collection. Samples shall be held at 4 degrees Centigrade until Aquatic Toxicity testing is initiated.

(b) Effluent samples shall not be dechlorinated, filtered, or, modified in any way, prior to testing for Aquatic Toxicity unless specifically approved in writing by the Commissioner for monitoring at this facility.

(c) Chemical analyses of the parameters identified in Section 5 Tables A, B, and E thru N shall be conducted on an aliquot of the same sample tested for Aquatic Toxicity.

(i) At a minimum, pH, specific conductance, salinity, total alkalinity, total hardness, and total residual chlorine shall be measured in the effluent sample and, during Aquatic Toxicity tests, in the highest concentration of test solution and in the dilution (control) water at the beginning of the test and at test termination. If Total Residual Chlorine is not detected at test initiation, it does not need to be measured at test termination. Dissolved oxygen, pH, and temperature shall be measured in the control and all test concentrations at the beginning of the test, daily thereafter, and at test termination. Salinity shall be measured in each test concentration at the beginning of the test and at test termination.

(ii) For tests with saltwater organisms that require salinity adjustment of the effluent, chemical analyses shall be conducted on an aliquot of the effluent sample collected for Aquatic Toxicity testing and on an aliquot of the effluent following salinity adjustment. Both sets of results shall be reported on the Aquatic Toxicity Monitoring Report (ATMR).

(d) Tests for Aquatic Toxicity shall be initiated within 36 hours of sample collection.

(2) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (invertebrate) above shall be conducted for 48-hours utilizing neonatal Mysidopsis bahia (1-5 days old with no more than 24-hours range in age)

(3) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (vertebrate) above shall be conducted for 96-hours utilizing larval Menidia beryllinia (9-14 days old with no more than 24-hours range in age).

(4) Tests for Aquatic Toxicity shall be conducted as prescribed for static non-renewal acute tests in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012), except as specified below.

(a) Definitive (multi-concentration) testing, with LC50 as the endpoint, shall be conducted to determine compliance with limits on Aquatic Toxicity and monitoring conditions and shall incorporate, at a minimum, the following effluent concentrations:

(i) For Aquatic Toxicity Limits expressed as LC50 values of 33% or greater: 100%, 75%, 50%, 25%, 12.5%, and 6.25%

(ii) For Aquatic Toxicity Limits expressed as LC50 values between 15% and 33% and for monitoring only conditions: 100%, 50%, 25%, 12.5%, and 6.25%

(iii) For Aquatic Toxicity Limits expressed as LC50 values of 15% or less: 100%, 50%, 25%, 12.5%, 6.25%, and 3%

(b) For Aquatic Toxicity Limits and for monitoring only conditions, expressed as an NOAEL value, Pass/Fail (single-concentration) tests shall be conducted at a specified Critical Test Concentration (CTC) equal to the Aquatic Toxicity Limit, or 100% in the case of monitoring only conditions, as prescribed in section 22a-430-3(j)(7)(A)(i) of the Regulations of Connecticut State Agencies, except that five replicates of undiluted effluent and five replicates of effluent diluted to the CTC shall be included.

(c) Mysids shall be fed during the tests.

(d) Aquatic toxicity tests with saltwater organisms shall be conducted at the same final salinity, plus or minus 2 parts per thousand, as the effluent.

(i) Sodium lauryl sulfate or sodium dodecyl sulfate shall be used as the reference toxicant.

(ii) Synthetic seawater for use as dilution water or controls shall be prepared with deionized water and artificial sea salts as described in EPA/821-R-02-012.

(iii) If the salinity of the source water is more than 5 parts per thousand higher, or lower than the culture water used for rearing the organisms, a second set of controls matching the salinity of the culture water shall be added to the test series. Test validity shall be determined using the controls adjusted to match the source water salinity.

(iv) Salinity adjustment that may be required in tests with saltwater organisms shall utilize artificial sea salts necessary to achieve the required salinity.

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

(vi) For Tables F, M, and N salinity adjustment that may be required in tests with saltwater organisms shall utilize the minimum amount of synthetic sea salt necessary to achieve the required salinity (26-30 ppt).

(vii) For tests with saltwater organisms that require salinity adjustment of the effluent, chemical analyses for Tables F, M, and N shall be conducted on an aliquot of the

effluent sample collected for Aquatic Toxicity testing and on an aliquot of the effluent following salinity adjustment. Both sets of results shall be reported on the Aquatic Toxicity Monitoring Report (ATMR).

For DSN011-1, DSN012, DSN014, and DSN015:

(5) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (invertebrate) above shall be conducted for 48 hours utilizing neonatal Daphnia pulex (less than 24 hours old)

(6) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (vertebrate) above shall be conducted for 48 hours utilizing larval Pimephales promelas (1-14 days old with no more than 24 hours range in age).

(7) Tests for Aquatic Toxicity shall be conducted as prescribed for static non-renewal acute tests in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012), except as specified below.

(a) Definitive (multi concentration) testing, with LC50 as the endpoint, shall be conducted to determine compliance with limits on Aquatic Toxicity and monitoring conditions and shall incorporate, at a minimum, the following effluent concentrations:

(i) For Aquatic Toxicity Limits expressed as LC50 values of 33% or greater: 100%, 75%, 50%, 25%, 12.5%, and 6.25%

(b) Organisms shall not be fed during the tests.

(c) Copper nitrate shall be used as the reference toxicant in tests with freshwater organisms.

(d) Synthetic freshwater prepared with deionized water adjusted to a hardness of 50 mg/L (plus or minus 5 mg/L) as $CaCO_3$ shall be used as dilution water in tests with freshwater organisms.

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

(a) For limits expressed as a minimum LC_{50} value, compliance shall be demonstrated when the results of a valid definitive Aquatic Toxicity test indicates that the LC_{50} value for the test is greater than the Aquatic Toxicity Limit.

(b) For limits expressed as an NOAEL value, compliance shall be demonstrated when the results of a valid pass/fail Aquatic Toxicity test indicates there is greater than 50% survival in the undiluted effluent and 90% or greater survival in the effluent at the specified CTC.

SECTION 7: REPORTING REQUIREMENTS

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

include a detailed explanation of any violations of the limitations specified. The DMR shall be received at this address by the last day of the month following the month in which samples are collected.

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

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

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

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

(D) NetDMR Reporting Requirements

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

(a) NetDMR Subscriber Agreement

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

(b) Submittal of Reports Using NetDMR

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

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

(c) Submittal of NetDMR Opt-Out Requests

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

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

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

SECTION 8: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

(A) 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 Section 5 and Section 6, and the results reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing), at the address listed above, within 30 days of the exceedance or invalid test. Results of all tests, whether valid or invalid, shall be reported.

(B) If any two consecutive test results or any three test results in a twelve month period indicates that an Aquatic Toxicity Limit has been exceeded, the Permittee shall immediately take all reasonable steps to eliminate toxicity

wherever possible and shall submit a report to Bureau of Materials Management and Compliance Assurance (Attn: Aquatic Toxicity) for the review and approval of the Commissioner in accordance with section 22a-430-3(j)(10)(c) of the RCSA describing proposed steps to eliminate the toxic impact of the discharge on the receiving water body. Such a report shall include a proposed time schedule to accomplish toxicity reduction and the Permittee shall comply with any schedule approved by the Commissioner.

(C) The Permittee shall notify the Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement Division, within 72 hours and in writing within thirty days of the discharge of any substance listed in the application but not listed in the permit if the concentration or quantity of that substance exceeds two times the level listed in the application.

SECTION 9: COMPLIANCE SCHEDULE

(A) The Permittee shall conduct wastewater analyses for Discharge Serial Numbers (DSN) 006, 009, and 011 and submit for the Commissioner's review a completed "Attachment O, Part B Form" from the permit application for these wastewater discharges on or before sixty (60) days after the respective discharges have been initiated. Specifically the following analyses from Attachment O, Part B, shall be conducted as follows; all parameters in Table 1, the toxic metals, cyanides and phenols, volatiles, acid and base/neutral compounds section of Table 2, and any other substances listed in Tables 3 and 4 that are known or suspected to be present. All samples shall be collected and analyzed using methods specified under 40 CFR 136 or as otherwise approved by the Commissioner. All results shall be generated from representative samples obtained from each respective discharge.

(B) On or before **960** days after the discharge DSN 009 has been initiated, the Permittee shall conduct a study and submit for the Commissioner's review and written approval an engineering report which summarizes effluent data for total suspended solids (TSS), 5-day Biochemical Oxygen Demand (BOD5), total copper, aluminum, nickel, zinc, and silver for DSN 009 over a two year period to confirm that the discharges of TSS, BOD5, total copper, aluminum, nickel, zinc, and silver are protective of the waters of the state and consistent with Connecticut Water Quality Standards (WQS). The report shall include, but not be limited to the following: 1) a discussion of the comparability of the intake water and discharge analytical results for TSS, BOD5, total copper, aluminum, nickel, zinc, and silver for DSN 009 and 2) a recommendation on whether effluent limitations for TSS, BOD5, total copper, aluminum, nickel, zinc, and silver for DSN 009 are necessary for protection of the waters of the state.

(C) Pursuant to Section 316(b) of the federal Water Pollution Control Act, 33 U.S.C. § 1326(b), and Conn. Gen. Stat. § 22a-430(a), the location, design, construction, and capacity of the cooling water intake structures shall reflect the Best Technology Available ("BTA") for minimizing adverse environmental impacts. The Commissioner has determined that the current location, design, construction and capacity of the cooling water intake structures at US Naval Submarine Base does not represent the BTA for minimizing adverse environmental impacts. The Commissioner has made the following BTA determination:

(1) The Permittee shall install a new cooling tower system for the diesel generator heat exchanger as soon as possible but in no event later than **December 31, 2015** in accordance with the following:

(a) On or before **365 days** after the date of issuance of this permit, the Permittee shall submit a proposal for the installation of a cooling tower.

(b) The Permittee shall submit to the Commissioner semi-annual status reports continuing

beginning **January 4, 2013** until all actions required by Sections 9(C)(1) have been completed as approved to the Commissioner's satisfaction, the Permittee shall submit a progress report to the Commissioner describing the status of the actions the Permittee has undertaken pursuant to Sections 9(C)(1). All progress reports and attachments shall be provided by the Permittee for the sole purpose of informing the Commissioner of the Permittee's progress towards performing the tasks specified by the BTA determination pursuant to Sections 9(C)(1).

(c) The Permittee shall perform the approved actions in accordance with the approved schedule, but in no event shall the approved actions be completed later than **December 31, 2015**. Within 30 days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed as approved.

(D) On or before June 30, 2013, the Permittee shall conduct a chlorine impact study in the receiving stream for the discharge of potable water during winter for freeze protection associated with DSN 005 and submit for the Commissioner's review and written approval an engineering report that summarizes the sampling for chlorine at the discharge and at the surface or slightly below the surface. The area impacted by chlorine values greater than 7.5 ug/l should be delineated on a map of the piers area. This should include sampling 1) at the discharge and 2) at the surface directly below the discharge. The flow rate during time of sampling should be recorded. The chlorine impact study should be conducted during a worst case or high discharge rate scenario. It should be conducted when the freeze protection is running continuously. It should be conducted during low or ebbing tide.

(E) The Permittee shall use best efforts to submit to the Commissioner all documents required by this section of the permit in a complete and approvable form. If the Commissioner notifies the Permittee that any document or other action is deficient, and does not approve it with conditions or modifications, it is deemed disapproved, and the Permittee shall correct the deficiencies and resubmit it within the time specified by the Commissioner or, if no time is specified by the Commissioner, within thirty days of the Commissioner's notice of deficiencies. In approving any document or other action under this Compliance Schedule, the Commissioner may approve the document or other action as submitted or performed or with such conditions or modifications as the Commissioner deems necessary to carry out the purposes of this Section of the permit. Nothing in this paragraph shall excuse noncompliance or delay.

(F) Dates. The date of submission to the Commissioner of any document required by this section of the permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this section of the permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this section of the permit means calendar day. Any document or action which is required by this section only of the permit, to be submitted, or performed, by a date which falls on, Saturday, Sunday, or, a legal Connecticut or federal holiday, shall be submitted or performed on or before the next day which is not a Saturday, Sunday, or legal Connecticut or federal holiday.

(G) Notification of noncompliance. In the event that the Permittee becomes aware that it did not or may not comply, or did not or may not comply on time, with any requirement of this Section of the permit, or of any document required hereunder, the Permittee shall immediately notify the Commissioner and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. In so notifying the Commissioner, the Permittee shall state in writing the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and the Permittee shall comply with any dates that may be approved in writing by

the Commissioner. Notification by the Permittee shall not excuse noncompliance or delay, and the Commissioner's approval of any compliance dates proposed shall not excuse noncompliance or delay unless specifically so stated by the Commissioner in writing.

(H) Notice to Commissioner of changes. Within fifteen days of the date the Permittee becomes aware of a change in any information submitted to the Commissioner under this section of the permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the Commissioner.

(I) Submission of documents. Any document, other than a discharge monitoring report, required to be submitted to the Commissioner under this section of the permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

Enna Wilson, Sanitary Engineer
Department of Energy & Environmental Protection
Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division
79 Elm Street
Hartford, CT 06106 5127

This permit is hereby issued on **2/27/2012**

MACKY MCCLEARY
DEPUTY COMMISSIONER

MM/EW

DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: US Naval Submarine Base New London

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #: CT0003921 APPLICATION #: 201101967 FACILITY ID. 059-036

Mailing Address:						***Location Address:***					
Street:	*Environmental Division Box 400* *439 Tautog Avenue, Room 104*					***Street:***	*Corner of Route 12 and Crystal Lake Road*				
City:	*Groton*	*ST:*	*CT*	*Zip:*	*06349-5400*	***City:***	*Groton*	*ST:*	*CT*	***Zip:***	*06349-5400*
Contact Name:	*Michael J. Brown*					***DMR Contact***	*Same*				
Phone No.:	*(860) 694- 3976*					***Phone No.:***					
Contact E-mail:	*michael.brown13@navy.mil*					*DMR Contact E-mail:*					

PERMIT INFORMATION

DURATION *5 YEAR X* *10 YEAR ___* *30 YEAR _____*

TYPE *New _* *Reissuance X* *Modification ___*

CATEGORIZATION *POINT (X)* *NON-POINT ( )* *GIS # ___*

NPDES (X) *PRETREAT ()* *GROUND WATER(UIC) ( )* *GROUND WATER (OTHER) ( )*

NPDES MAJOR (MA) X
NPDES SIGNIFICANT MINOR or PRETREAT SIU (SI) _____
NPDES or PRETREATMENT MINOR (MI) _____

PRETREAT SIGNIFICANT INDUS USER (SIU) _____
PRETREAT CATEGORICAL (CIU) _____

POLLUTION PREVENTION MANDATE __ ENVIRONMENTAL EQUITY ISSUE _____

***SIC CODE: 9711** National Security*

COMPLIANCE ISSUES

COMPLIANCE SCHEDULE *YES X* *NO ___* *(If yes check off what it is in relation to.)*

POLLUTION PREVENTION — *TREATMENT REQUIREMENT* — *WATER CONSERVATION* —

WATER QUALITY REQUIREMENT — *REMEDIATION* — *OTHER* ***X*** *(Attachment O, Part B form, effluent data evaluation and 316(b) requirements)*

IS THE PERMITTEE SUBJECT TO A PENDING ENFORCEMENT ACTION? NO X YES ___

OWNERSHIP CODE

Private __ Federal __X__ State __ Municipal (town only) __ Other public ____

DEEP STAFF ENGINEER Enna Wilson

PERMIT FEES

Discharge Code	***DSN Number***	***Annual Fee***
*Shipbuilding – 101057**	*006, 009*	*$5,616.67*
Cooling Water (Non-Contact) 102000a	*001, 002, 017*	*$8,425.00*
Stormwater -1080000	*011, 012, 014, 015*	*$2,912.50*
Water Production Waste-waters	*003, 004*	*$660.00*
Hydrostatic Pressure Testing-121000b	*005, 019*	*$2,290.00*
	TOTAL	***$19,904.17***

** Application and annual permit fees have been reduced by 33%*

FOR NPDES DISCHARGES

Drainage basin Code: *3000* ***Present/Future Water Quality Standard:*** *SC/SB*

NATURE OF BUSINESS GENERATING DISCHARGE

SUBASENLON maintains a 1.8 MW electricity generating power plant, which utilizes both water from the Thames River in a once through non-contact cooling water system and air to cool a gas turbine generator. Since the once-through non-contact cooling water system is utilized intermittently, discharges DSN 001 and DSN 002 occur on average two (2) days per month. US Naval Submarine Base uses natural gas as a fuel source. The facility also operates a floating dry dock for submarine maintenance and repair. See "Other Comments".

PROCESS AND TREATMENT DESCRIPTION (by DSN)

The following discharges do not require treatment prior to discharge:

DSN 001: This discharge is the result of non-contact cooling that is drawn from the Thames River and passed through

heat exchangers to cool electricity producing equipment (Emergency Diesel Generator only). Steam turbine generator was taken off line and abandoned in place on NOV. 22, 2010. There is currently no chemical treatment of the non-contact cooling water or the backwash water.

DSN 002: This discharge is composed of once-through non-contact cooling water for the Low Pressure Air compressors (LPAC). The source of the cooling water is the Thames River.

DSN 001H: Monitoring location of the intake water for the powerhouse.

DSN 003: This discharge is generated by backwashing the intake water shell crusher cup strainer. The shell crusher is backwashed using Thames River water for approximately 3 minutes in every 12-minute cycle.

DSN 004: This discharge consists of wash debris from the fine mesh travelling screen, which then travels to a collection trolley. The wash water empties out the bottom of the trolley to the Thames River. Debris in the trolley is then transferred to a dumpster for disposal as municipal solid waste. Typical debris is composed of leaves.

DSN 005 (Freeze protection wastewater): Potable water is discharged from the pipes supplying potable and fire protection water to vessels at the piers in multiple locations. The flow of the water prevents the freezing of water in the pipes.

DSN 006 (Auxiliary seawater system wastewater): Once through non-contact cooling water from a dry dock hosted vessel supplied by pressurization of dry dock fire main systems.

DSN 009: Ballast water from ballast tanks from the floating dry dock (Shippingport). Ballast water is taken into tanks to lower the dock (ballasting) to allow hosted vessel (HV) entry (docking) and then discharged from the tanks (de-ballasting) to lift the dock for HV maintenance. After maintenance is complete, ballast water is taken in to lower the dock (ballasting) and then discharged after the vessel has exited the dock (un-docking).

DSN 011: Storm water from the deck of the dry dock is discharged via the six pontoon deck collection system well drains. The Applicant indicated in the permit renewal application that the volume of runoff generated by an ***inch*** *of rainfall on the deck of the dry dock is* ***18,050 gallons per day****. The Applicant will use a rainfall gauge at Groton Utilities Water Service to monitor precipitation to calculate total daily flows.*

DSN 012, 014, 015: Utility trench de-watering wastewater discharge from three on-site locations are associated with mainly stormwater and minor discharges of steam condensate and potentially groundwater.

DSN 017 (Steam condensate from steam condensate collection return tank overflows): This wastewater is generated when the pump for the condensate return collection tank fails. The tank then reaches its capacity and the additional condensate sent to the tank flows out its overflow pipe. This discharge consists of steam and hot liquid condensate. Steam is created at the Utility Plant and is distributed via a closed loop system to the facility. This discharge is different states (gas and liquid) of the same boiler make-up water. The liquid condensate wastewater which is not discharged returns to the Utility Plant for re-distribution as steam to the field. The amount of liquid condensate varies with the steam conditions in the building's steam system and atmospheric conditions. Discharge destinations are to the ground from multiple locations around the base. Steam condensate from Building 29 is representative of all condensate discharges to the environment from steam condensate return tank overflows discharges. Giving the unpredictably of this discharge sampling the discharge presents some inherent difficulties, the Permittee is allowed to collect samples from Building 29 after the discharge has occurred.

DSN 019 (Fire Hydrant Test Wastewater and Intermittent Leaks): There are multiple fire hydrants at the base that are

flushed to remove sediment and debris and to perform maintenance. Flushing for all hydrants is generally performed during a four-week period in the late spring or early summer. For sampling this discharge, fire hydrants (5-12) at buildings 409/410 have been specified as the sampling location. While potable water is accessed from fire hydrants, there may be intermittent leaking from the fire hydrants or from hoses attached to the hydrant.

RESOURCES USED TO DRAFT PERMIT

__ *Federal Effluent Limitation Guideline 40 CFR*
name of category

__ *Performance Standards*

__ *Federal Development Document*
Name of category

__ *Treatability Manual*

_X_ *Department File Information*

_X_ *Connecticut Water Quality Standards*

_X_ *Anti-degradation Policy (See General Comments)*

_X_ *Coastal Management Consistency Review Form (See Other Comments)*

_X_ *Other – Explain*

BASIS FOR LIMITATIONS, STANDARDS, OR CONDITIONS

_**X**_ *Case-by-Case Determination and Best Professional Judgment*

DSN 001, 002: Total copper, lead, nickel, zinc, suspended solids, and oil and grease, ammonia, nitrate, nitrite, pH, and temperature.

DSN 005: pH, total lead, residual chlorine, and zinc.

DSN 006: Total copper, iron, nickel, lead, silver, and zinc, ammonia, nitrate, nitrite, pH, temperature, and total suspended solids.

DSN 009: Total iron, aluminum, copper, lead, nickel, zinc, and silver, total residual oxidants, BOD_5, ammonia, nitrate, nitrite, oil and grease, pH, tin, and total suspended solids.

DSN 011: Aquatic Toxicity $LC_{50,}$ total aluminum, cadmium, chromium, copper, iron, lead, nickel, phosphorus, silver, tin, and zinc, chemical oxygen demand, nitrate, total kjeldahl, oil and grease, pH, and total suspended solids.

DSNs 012, 014,015: Aquatic Toxicity LC50, total copper, cyclohexylamine, total iron, lead, suspended solids, and zinc, oil and grease, pH, and surfactants.

DSN 017: Aquatic Toxicity LC_{50}, total copper, iron, lead, nickel, and zinc, cyclohexylamine, pH, temperature, and total suspended solids.

DSN 019: Aquatic Toxicity LC_{50}, total copper, iron, lead, nickel, and zinc, and pH.

X *In order to meet in-stream water quality*

DSN 001, 002: Aquatic Toxicity (NOAEL).

DSN 005: Aquatic Toxicity LC_{50} and total copper.

DSN 006: Aquatic Toxicity NOAEL.

DSN 009: Aquatic Toxicity LC_{50}.

DSN 019: Total residual chlorine.

GENERAL COMMENTS

EFFLUENT MONITORING AND LIMITATIONS REQUIREMENTS

A. BASIS FOR TOTAL OIL AND GREASE AND pH:

Effluent limitations for total oil and grease and pH were derived using best professional judgment (BPJ) which is consistent with 40 CFR 404.14 and Section 22a-430-4(m) of the RCSA. Section 22a-430-4(s) of the RCSA was used as guidance in establishing limitations for total oil and grease for DSN 001, 002, and 009. Best conventional pollutant control technology (BCT) and 40 CFR 133 Secondary Treatment Regulation were used as guidance in establishing limitations for pH for DSN 001, 002, 005, 006, 009, 017, and 019.

B. BASIS FOR DSN 001 and 002 PARAMETERS, LIMITS

The proposed effluent limitations and conditions are based on a case-by-case determination using the criteria of best professional judgment pursuant to Section 22a-430-4(m) of the RCSA and 40 CFR 125.3(d). The need for inclusion of effluent limitations for DSN 001 and DSN 002 in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria pursuant to 40 CFR 122.44(d) and 22a-430-4(l)(4)(x) of the Regulations of Connecticut State Agencies. When developing NPDES permits, the Department staff does a "reasonable potential analysis" using EPA protocols and historical effluent data to determine whether a permit needs to include certain pollutant limits. Effluent from DSN 001 consists of non-contact cooling water discharged to Thames River. The source of the intake water for this discharge is also the Thames River. An analysis was performed to evaluate whether the use of the water at the facility caused or contributed to any unacceptable increase in chemical constituent concentrations in the effluent as compared to those present in the influent. A finding that there is essentially a "net" increase of chemical constituent concentrations in the effluent as a result of use at the facility demonstrates that effluent from DSN 001 and DSN 002 is likely to cause or contribute to any potential increases in chemical concentrations within Thames River. Therefore, effluent limits were included in the permit for copper, lead, nickel, and zinc. The existing permit issued on September 27, 2006 contains maximum daily limits for copper, lead, nickel, and zinc which were based on the 90th percentile of sample results reported by the Permittee on Discharge Monitoring Reports (DMRs) during 2003-2006. Based on WPED staff review of the DMRs over the last five years, US Navy Submarine Base is in compliance with the existing effluent limitations for lead, nickel, and zinc. These same effluent limitations for lead, nickel, and zinc are proposed to be carried over from the last permit.

However, a review of the US Naval Submarine's DMR effluent performance data in the last five (5) years revealed that the Permittee has not been able to comply with ***copper*** *effluent limitations. Since the circumstances on which the previous permit was based have changed (reduction in the discharge flow from 22 million gallons per day (mgd) to 15 mgd), DEEP staff reevaluated this copper effluent limitation in this permit review process, and we are recommending based on Section 22a -430 4(l)4(A)(xxiii)(1) of the Regulations of Connecticut State Agencies that the effluent limitation for total copper be modified from* ***0.015*** *mg/l to* ***0.020*** *mg/l in Tables A and B, which is based on the 95th percentile of sample results reported by the Permittee on DMRs.*

Section 316(a) of the Federal Water Pollution Control Act (FWPCA) Determination

Section 316(a) of the federal Water Pollution Control Act, U.S.C. § 1326(a) requires that the thermal component of any discharge will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving water body. The segment of Thames River where the discharge is located is classified as a class "SC/SB" under the Connecticut Water Quality Standards (WQS). The allowable temperature increase criterion for a class "SB" surface water states: "There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this class and, in no case exceed 83^{o}F, or in any case raise the temperature of surface water more than 4 ^{o}F. During the period including July, August, and September, the temperature of the receiving water shall not be raised more than 1.5 ^{o}F" (Section 4(C) of this permit renewal).

To comply with the 316(a) requirements, US Naval Submarine Base submitted a thermal evaluation report entitled "Impact of the NSB New London Thermal Discharge on the Thames River" on 4/4/97and approved by the Department on May 5, 2001 as part of the NPDES permit issued on September 27, 2006. The DEEP staff evaluated the thermal discharge impact on the Thames River in this permit renewal. This evaluation was conducted consistent with Section 316(a) of the Federal Water Pollution Control Act (FWPCA) and the Connecticut Water Quality Standards. This evaluation determined that the existing maximum instantaneous temperature limits of 90 ^{o}F during (May 1 – October 31) and 80 ^{o}F during (November 1 – April 30) will not cause an exceedance of the Connecticut Water Quality Standards or Section 4(C) of the existing permit and will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the Thames River (See Attachment 2). Since there have not been any changes to the cooling water discharge to the Thames River since this facility started up, DEEP staff is not recommending additional thermal discharge verification studies at this time.

Section 316(b) of the FWPCA Determination

US Navy Submarine Base must meet requirements under section 316(b) of the CWA as determined by the Commissioner on a case-by-case, using best professional judgment (BPJ), which is consistent with 40 CFR 404.14 and Section 22a-430-4(m) of the RCSA. In addition, section 316(b) of the FWPCA states: "any standard pursuant to section 301 or 306 of the Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available ("BTA") for minimizing adverse environmental impact".

A review of DMRs submitted since the cooling tower went on-line in May 2001 shows that the power plant continues to use the once through system, but the use of the system is intermittent, on no regular schedule, and frequently for only one or two days per month. The average daily withdrawal has been ***1.8*** *million gallons per day (mgd).*

Description of the Cooling Water Intake and Operation

Water is withdrawn from the Thames River to provide once through cooling for a 1.5 MW generator. The generator provides electricity to cold-start the main gas turbine generator (TG#6) in the event that the power supplied by Groton Utilities is interrupted. The water is circulated by a single pump that can circulate 14.4 (mgd). The water intake is equipped with a traveling screen comprised of 5/16 in. mesh. The through screen velocity was calculated to be 0.08 fps. This meets two BTA guidelines for impingement (3/8 in. mesh and <0.5 fps). The low estimate is probably explained by the fact that the intake was designed for a larger water withdrawal that was needed before cooling towers were installed. The intake is not equipped with a fish return system. The generator is only operated under two circumstances: (1) during 4 scheduled maintenance days per year and (2) when a power failure occurs and the generator is used to cold-start the main gas turbine generator. Records of daily discharge volume from 2009 through 2010 show that the generator was not operated during six of the 24 months and it operated a maximum of four days during a single month. The maximum monthly flow was 7.98 million gallons.

Mark Johnson of the DEEP Inland Fisheries Division reviewed information on the intake structure and biological studies and provided an Interoffice Memorandum dated July 27, 2011 to the Water Permitting and Enforcement Division (WPED) indicating that given the purposes of the generator, capacity of the pump, days of operation, low volume of water withdrawn, and location and structure of the intake, entrainment and impingement studies are not necessary at this time. Mark Johnson of the DEEP Inland Fisheries Division Interoffice Memorandum is attached to this fact sheet for more details.

However, the DEEP staff is recommending an enforceable compliance schedule in Section 9(C), which requires the Permittee to install a cooling tower system to eliminate adverse environmental impacts associated with the use of the cooling water intake structures ("BTA Determination").

C. BASIS FOR DSN 005-1 PARAMETERS, LIMITS

Selection of parameters was determined using best professional judgment on a case-by-case basis and consistent with other freeze protection wastewater discharges.

The need for inclusion of water quality based discharge limitations was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Each parameter was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate. Although the data submitted on Attachment O of the application are lower than these criteria, the Department is recommending a water-quality based limit for copper since the effluent data review of other freeze protection water wastewater discharges in Connecticut revealed that copper is present at significant levels that range between 5 ug/l and 120 ug/l and in average have been found at 92 ug/l. These levels indicate potential to exceed water quality standards. The statistical procedures outlined in the EPA Technical Support Document for Water Quality based Toxics Control (EPA/505/2 90 001) were employed to calculate this limit. Calculations, including assumptions and example calculations are summarized on Attachment 1. The limits for aquatic toxicity (LC_{50}) are based on the IWC (1.0 %, 24 hrs).

This permit renewal includes a compliance schedule step, which requires US Naval Submarine Base to conduct a chlorine impact study in the receiving stream for the discharge of potable water during winter for freeze protection associated with DSN 005 and submit for the Commissioner's review and written approval an engineering report that summarizes the chlorine plume delineation.

D. BASIS FOR DSN 006-1 TEMPERATURE LIMITS

The existing permit issued on July 7, 1995 contains effluent limitations requirements for temperature for the non-contact cooling discharge (DSN001) that is permitted at maximum flow of 22 MGD. The maximum instantaneous temperature limit during (May 1 – October 31) was set up at 90 ^{o}F and the maximum instantaneous temperature during (November 1 – April 30) was set up at 80 ^{o}F. These maximum instantaneous temperature limits were developed for this permit based on thermal studies previously conducted by US Naval Submarine Base. The DEEP staff evaluated the thermal discharge impact on the Thames River in this permit renewal. This evaluation was conducted consistent with Section 316(a) of the Federal Water Pollution Control Act (FWPCA) and the Connecticut Water Quality Standards. This evaluation determined that the maximum instantaneous temperature limits of 90 ^{o}F during (May 1 – October 31) and 80 ^{o}F during (November 1 – April 30) will not cause an exceedance of the Connecticut Water Quality Standards or Section 4(C) of the existing permit and will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the Thames River (See Attachment 2). These same temperature effluent limitations are proposed to be included for this thermal discharge.

The limits for aquatic toxicity (NOAEL) are based on the Connecticut Water Quality Standards. It is expected that all non-contact cooling waters will not be acutely toxic.

E. BASIS FOR DSNs 006, 009, 011 EFFLUENT REQUIREMENTS

Selection of parameters was determined using best professional judgment on a case-by-case basis. Also, DSN 009 requirements are consistent with other ballast wastewater discharges permitted by the Department. According to the Permittee, the dry dock may not be returned to the site until September 2011 and related discharges (DSNs 006, 009, 011) may not occur for some time after. This permit renewal includes a compliance schedule step, which requires US Naval Submarine Base to: 1) conduct wastewater analyses for Discharge Serial Numbers (DSN) 006, 009, and 011 and submit for the Commissioner's review a completed "Attachment O, Part B Form" from the permit application for these wastewater discharges on or before sixty (60) days after the respective discharges have been initiated. Specifically the following analyses for Attachment O of the application shall be conducted as follows: all parameters in Table 1, the toxic metals, cyanides and phenols, volatiles, acid and base/neutral compounds section of Table 2, and any other substances listed in Tables 3 and 4 that are known or suspected to be present. All samples shall be collected and analyzed using methods specified under 40 CFR 136. All results shall be generated from representative samples obtained from each respective discharge and 2) submit an engineering report which summarizes effluent data for total suspended solids (TSS), 5-day Biochemical Oxygen Demand (BOD5), total copper, aluminum, nickel, zinc, and silver for DSN 009 over a two year period to confirm that the discharges of TSS, BOD5, copper, aluminum, nickel, zinc, and silver are protective of the waters of the state and consistent with Connecticut Water Quality Standards (WQS). The report shall include, but not be limited to the following: 1) a discussion of the comparability of the intake water and discharge analytical results for TSS, BOD5, total copper, aluminum, nickel, zinc, and silver for DSN 009 and 2) a recommendation on whether effluent limitations for TSS, BOD5, total copper, aluminum, nickel, zinc, and silver for DSN 009 are necessary for protection of the waters of the state.

F. BASIS FOR DSNs 012, 014, 015 EFFLUENT REQUIREMENTS

Selection of parameters was determined using best professional judgment on a case-by-case basis. Also, these requirements are consistent with other utility trench wastewater discharges permitted by the Department.

G. BASIS FOR DSN 019-1 PARAMETERS, LIMITS

The need for inclusion of water quality based discharge limitations was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Each parameter was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate. The Department is recommending a water-quality based limit for total residual chlorine since the effluent data review of other fire hydrant test waters wastewaters discharges in Connecticut revealed that total residual chlorine to be present at significant levels that range between 0.2 mg/l and 1.3 mg/l and in average have been found at 1.02 mg/l. These levels indicate potential to exceed water quality standards. The statistical procedures outlined in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) were employed to calculate such limit. Calculations, including assumptions and example calculation are summarized on Attachment 3.

OTHER COMMENTS

Since this application does not include any new exterior construction at the facility, the applicant was not required to submit a CAM consistency form. This facility is considered to be consistent with the CAM Act.

The operation of the power plant is not subject to 40 CFR 423 Steam Electric Power Generating Point Source Category because the electricity generated is utilized on the base and is not generated for distribution and sale.

Consent Order No. WC-5673 was issued to the US Naval Submarine Base on April 1, 2010 to address the following wastewater discharges that the Permittee has discharged into the Thames River without obtaining a permit from the Commissioner under Section 22a-430 of the Connecticut General Statutes:

a. Discharge of steam condensate from pressure relief valves from steam return tank overflows;
b. Discharge of submarine lock-out trunk testing wastewater;
c. Discharge of freeze protection wastewater;
d. Discharge of fire-hydrant test wastewaters;
e. Discharge of ballast wastewater from dry dock;
f. Discharge of auxiliary seawater system wastewater from vessels hosted in the dry dock;
g Discharge of stormwater runoff from the dry dock pontoon deck during dry dock usage;
h. Discharge of utility trench de-watering wastewaters from three on-site locations; and
i. Discharge of wastewater associated with topside/dockside chlorination/dechlorination activities for non-contact cooling water associated with auxiliary cooling system on submarines docked at facility.

The Department received a permit modification request from US Naval Submarine Base New London for Permit No. CT0003921 and fee on October 4, 2010 to include unpermitted wastewater discharges into the existing NPDES permit. The Department issued a permit modification to the Navy on July 28, 2011. DEEP is in the process of closing the pending enforcement action.

The differences between the effluent limitations and monitoring requirements of the existing permit and this permit renewal are as follows:

DSN 001 and 002
*The existing permit issued on September 27, 2006 contains monitoring requirements for total tin. A review of the US Naval Submarine Base's DMRs over the last five (5) years revealed that results for **total tin** have been consistently below detection consistent with background Thames River water quality. Therefore, the DEEP staff is recommending that effluent monitoring requirements for this parameter not be included in Tables A and B of this permit renewal.*

The steam turbine generators #3 and #5 were taken off line and abandoned in place on November 22, 2010. The discharge of non-contact cooling water for the turbine #3 and #5 condensers that were associated with DSN001 and DSN002 have been eliminated at the facility. Therefore, the non-contact cooling water for the turbine #3 and # 5 condenser discharges are no longer listed in Tables A and B of this permit. The Applicant has requested to reduce the DSN001 and DSN002 discharge flows from 22 million gallons per day (mgd) to 15 mgd.

DSN 013

In regards to the discharge of the utility trench de-watering wastewater associated with DSN013, the US Naval Submarine Base has submitted an application to modify its pretreatment Permit No.SP0000915 to include this discharge into the sanitary sewer system. DEEP is in the process of modifying the State Permit No. SP0000915. Therefore, this discharge is not included in this permit renewal.

DSN 016

The submarine lock-out-trunk draining wastewater discharge is presently covered under the existing US Naval Submarine Base's NPDES permit. Since the submarine lock-out-trunk draining wastewater discharge meets the requirements of the General Permit for the Hydrostatic Pressure Testing Wastewater, the US Naval Submarine Base applied for and obtained the subject general permit for this discharge. Therefore, this discharge has been removed from this individual NPDES permit.

ATTACHMENT 1

DSN 005: Copper Limits Calculations and Toxicity Limits

ZOI =	350,000
Average Flow =	**80,640**
Hours of Discharge	24

Dilution Factor (Acute):	(80640/24 + 300,000) /(80640/24) =	105	D=Adjust to (100)
Dilution Factor (Chronic) :	(80640 + 300,000*24) /(80640) =	105	

IWC	1/Dilution*100 %	1.00	%

Salt Water Criteria	Cu
Acute	4.8
Chronic	3.1
HH	-

WLAa	480.00
WLAc	310.00
WLAh	-
LTAa	154.08
LTAc	163.37
LTAh	-
Lowest LTA	154.08
AML (ug/l)	238.82
MDL (ug/L)	479.19

Chronic Toxicity Limit	LC50>IWC*20

Chronic Toxicity Limit	1.0*20 = 20

ATTACHMENT 2

DSN 001,002, 006 : Temperature and Toxicity Limits

Qz = Zone of Influence Flow = 15% River Flow
Qd = Total Non-contact Cooling Water Discharges flow = 7.2+7.2+1.4 = 15.8 mgd
Qf = Combined Non-contact Cooling Water Discharge + Zone of Influence Flows = Qz + Qd

Tz = Zone Influence Temperature = Average Thames River Summer Temperature = 75.0 °F
Td = Maximum Non-contact Cooling Water Outfall Temperature = 90 °F
Tf = Combined Non-contact Cooling Water Temperature + Zone Influence Temperature
$\Delta T = Tf - Tz$

Mixing Equation
Qz*Tz + Qd*Td=Qf*Tf

Solving to find the combined temperature after mixing, Tf,

Tf = ((Qz*Tz) + (Qd*Td))/(Qf)
or
Tf = ((Qz*Tz) + (Qd*Td))/(Qd+Qz)

Q Thames River near to discharge = (400 ftx35 ft x 0.66 ft/s*36 0s/h*7.48 al)	5,118,474,240	gpd
	5118.5	MGD
15% of River Flow =	**767.77**	MGD
Mixing Equation @ Max Flow & Temp. River Summer = 75 °F		
Max flow =	15.8	MGD
Max Temp. =	90	°F
(15.8*90+767.8*75) / (15.8+767.8)=	75.6	°F
ΔT =	0.3	@ Max Temperature, Flow

Warm - Conditions

Td (°F)	Tz (°F)	Qz (gpd)	Qd (gpd)	Td-Tz (°F)	Tf (°F)	ΔT
90	75	767.8	15.80	15	**75.302**	0.302

Cold - Conditions

Td (°F)	Tz (°F)	Qz (gpd)	Qd (gpd)	d-Tz (°F)	Tf (°F)	ΔT
80	40	767.8	15.80	40	**40.807**	0.807

NOAEL > 90% LIMIT: In order to meet in stream water quality

It is expected that all non contact cooling waters will not be acutely toxic.

ATTACHMENT 3

DSN 019: Total Residual Chlorine Limit Calculations

Using 100:1 dilution that is allowed	
Salt Water Criteria	TRC
Acute	13
Chronic	7.5
HH	-

WLAa	1300.00
WLAc	750.00
WLAh	-
LTAa	417.30
LTAc	395.25
LTAh	
Lowest LTA	395.25
AML (ug/l)	612.64
MDL (ug/L)	1229.23