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Affirmative Action/Equal Opportunity Employer

NPDES PERMIT

issued to

King Industries, Inc.
Science Road
Norwalk, CT 06852

Location Address:

Science Road
Norwalk, CT 06852

Permit ID: CT0000841

Receiving Stream: Norwalk Harbor

Effective Date: October 01, 2018

Stream Segment Number: CT-W1_012-SB

Permit Expires: September 30, 2023

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) King Industries, Inc., ("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

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- (b) General
- (c) Inspection and Entry
- (d) Effect of a Permit
- (e) Duty
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Section 22a-430-4 Procedures and Criteria

- (a) Duty to Apply
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 - (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) These 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.

"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 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.

"Dry weather discharge sampling" means the sampling of any discharge to a surface water that is not, or minimally comingled with precipitation, snow melt, or ice melt.

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

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

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

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

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

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

"Quarterly", in the context of a sampling frequency, means sampling is required in the months of January, April, July and October.

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

"Semi-Annual" in the context of a sampling frequency for Table A (Dry weather discharge sampling) only, shall mean the sample must be collected in the months of January and July.

"Semi-Annual" in the context of a sampling frequency for Table B (Wet weather discharge sampling) only, shall mean that one monitoring event shall be conducted between October 1 and March 31 and the other monitoring event shall be conducted between April 1 and September 30.

"Stormwater" means waters consisting of rainfall runoff, including snow or ice melt during a rain event but not including mine dewatering waters.

"µg/l" means micrograms per liter.

"Wet weather discharge sampling" means the sampling of any discharge to a surface water that is comingled with precipitation, snow melt, or ice melt.

SECTION 3: COMMISSIONER'S DECISION

- (A) The Commissioner, has issued a final determination and found that continuance of the existing system to treat the discharge will protect the waters of the state from pollution. The Commissioner's decision is based on Application No. 201410659 for permit reissuance received on October 28, 2014 and the administrative record established in the processing of that application.
- (B) (1) From the issuance of this permit through and including the last day of the first calendar month of such issuance, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of Permit No. CT0000841, issued by the Commissioner to the Permittee on May 6, 2010, the previous application submitted by the Permittee on October 1, 2002, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with, Permit No. CT0000841, issued by the Commissioner to the Permittee on May 6, 2010.

(2) Beginning on the first day of the month following the issuance of this permit and continuing until this permit expires or is modified or revoked, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of this permit, Application No. 201410659 received by the Department on October 28, 2014, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with this permit.
- (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 a determination regarding section 316(a) of the Federal Water Pollution Control Act 33 U.S.C. § 1326(a) regarding the thermal component of the discharge, 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.

SECTION 4: GENERAL EFFLUENT LIMITATIONS

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

SECTION 5: SPECIFIC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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

Table A

Discharge Serial Number: DSN 001 - D						Monitoring Location: 1			
Wastewater Description: Cooling tower blowdown, steam condensate from boiler operations, fire response testing and maintenance wastewaters, and residual stormwater									
Monitoring Location Description: Sedimentation basin outlet (Dry weather discharge sampling)									
Allocated Zone of Influence (ZOD): 104,166 gph						In-stream Waste Concentration (IWC): 1.0%			
PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test ³
		Average Monthly Limit	Maximum Daily Limit	Sample// Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample// Reporting Frequency ²	Sample Type or measurement to be reported	
Aluminum, Total	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	*
Aquatic Toxicity, <i>Mysidopsis bahia</i> ⁵ LC 50	%	NA	LC 50> 20%	Semi-Annual ⁴	Daily Composite	LC 50> 6.7%	NR	NA	
Aquatic Toxicity, <i>Cyprinodon variegatus</i> ⁵ LC 50	%	NA	LC 50> 20%	Semi-Annual ⁴	Daily Composite	LC 50> 6.7%	NR	NA	
Biological Oxygen Demand, 5-day (BOD ₅)	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Chemical Oxygen Demand (COD)	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Chlorine, Total Residual	µg/l	7.5	16.2	Quarterly ⁴	Grab Sample Average	24.3	NR	NA	*
Copper, Total	mg/l	0.046	0.077	Quarterly ⁴	Daily Composite	0.115	NR	NA	*
Enterococci	#/100ml	---	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Fecal coliform	#/100ml	---	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Flow, Average Daily ¹ (Dry Weather) ⁴	Gpd	25,000	NA	Continuous// Quarterly ⁴	Daily Flow	NA	NR	NA	
Flow, Maximum Daily ¹ (Dry Weather) ⁴	Gpd	NA	47,000	Continuous// Quarterly ⁴	Daily Flow	NA	NR	NA	
Flow, Day of Sampling (Dry Weather) ⁴	Gpd	NA	47,000	Quarterly ⁴	Daily Flow	NA	NR	NA	
Iron, Total	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Lead, Total	mg/l	---	---	Quarterly ⁴	Daily Composite	NA	NR	NA	*
MBAS	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Nitrogen, Ammonia (Total as N)	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Oil petroleum, total recoverable	mg/l	---	---	Quarterly ⁴	Grab Sample Average	NA	NR	NA	
pH, Minimum ⁶	S.U.	NA	NA	NR	NA	6.0	Continuous //Quarterly ⁴	Continuous	
pH, Maximum ⁷	S.U.	NA	NA	NR	NA	9.0	Continuous //Quarterly ⁴	Continuous	
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.0 – 9.0	Quarterly ⁴	RDS	
Phosphorous, Total	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Temperature, Continuous	°F	NA	NA	NR	NA	95.0	Continuous// Quarterly ⁴	Grab	
Total Dissolved Solids	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Total Organic Carbon	mg/l	NA	---	Quarterly ⁴	Daily Composite	NA	NR	NA	
Total Suspended Solids	mg/l	NA	30.0	Quarterly ⁴	Daily Composite	45.0	NR	NA	
Zinc, Total	mg/l	---	---	Quarterly ⁴	Daily Composite	NA	NR	NA	*

Table Footnotes and Remarks:

Footnotes:

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

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

³ Minimum Level Test refers to Section 6, Paragraph (A)(3) of this permit.

⁴ Dry weather discharge sampling shall be taken after two days (48 hours) of antecedent dry weather and 48 hours of no tank farm pump outs to assure a negligible presence of stormwater within the basin. Aquatic toxicity testing as specified in Table A above shall be performed during dry weather discharge only. Sampling shall be conducted according to the requirements above unless climatic conditions preclude, in which case the sample shall be taken at a time as closely approximating to the conditions as possible.

⁵ The results of the Toxicity Tests shall be recorded in % survival on the DMR. Aquatic toxicity testing specified in Table A above shall be performed during dry weather sampling only.

⁶ For this parameter, the Permittee shall report the lowest value of all of the monitoring data for the reporting quarter (Quarter 1: November – January, Quarter 2: February – April, Quarter 3: May – July and Quarter 4: August – October).

⁷ For this parameter, the Permittee shall report the highest value of all of the monitoring data for the reporting quarter (Quarter 1: November – January, Quarter 2: February – April, Quarter 3: May – July and Quarter 4: August – October).

Remarks:

- a. Refer to Section 6(C) for chronic toxicity requirements.

Table B (See Section 8 for Additional Requirements)

Discharge Serial Number: DSN 001 - W

Monitoring Location: 1

Wastewater Description: Stormwater mixed with cooling tower blowdown, steam condensate from boiler operations, fire response testing and maintenance wastewaters

Monitoring Location Description: Sedimentation basin outlet (Wet weather discharge sampling only)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING			Minimum Level Test ⁵
		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	
Aquatic Toxicity, <i>Mysidopsis bahia</i> ⁵ LC 50	%	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Aquatic Toxicity, <i>Cyprinodon variegatus</i> ⁵ LC 50	%	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Chemical Oxygen Demand (COD)	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Copper, Total	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	*
Enterococci	#/100ml	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Fecal coliform	#/100ml	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Flow, Day of Sampling (Wet Weather)	Gpd	NA	---	Semi-Annual ⁴	Daily Flow	NA	NR	NA	
Flow, Average Daily ¹ (Wet Weather)	Gpd	---	NA	Quarterly	Daily Flow	NA	NR	NA	
Flow, Maximum Daily ¹ (Wet Weather)	Gpd	NA	---	Quarterly	Daily Flow	NA	NR	NA	
Lead, Total	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	*
Nitrate as Nitrogen	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
pH	S.U.	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Oil and grease, Total	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Phosphorous, Total	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Total Organic Carbon	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Total Suspended Solids	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Total Kjeldahl Nitrogen	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	
Zinc, Total	mg/l	NA	NA	NR	NA	---	Semi-Annual ⁴	Grab	*

Footnotes:

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

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

³ Minimum Level Test refers to Section 6, Paragraph (A)(3) of this permit.

⁴ See Section 8(E)(1)(a)(ii) for Stormwater monitoring procedures and semi-annual sampling frequency. Runoff events resulting from snow or ice melt cannot be used to meet the minimum semi-annual monitoring requirements.

⁵ The results of the Toxicity Tests shall be recorded in % survival on the DMR. Aquatic toxicity testing specified in Table B above shall be performed during wet weather discharge sampling only.

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

SECTION 6: 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 sufficiently sensitive methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 40 CFR 136.4 or as provided in section 22a-430-3(j)(7) of the RCSA. Chemicals which do not have methods of analysis defined in 40 CFR 136 shall be analyzed in accordance with methods specified in this permit.
- (2) All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR 136 unless otherwise specified.
- (3) The Minimum Levels specified below represent the concentrations at which quantification must be achieved and verified during the chemical analyses for the parameters identified in Section 5 Tables A and B. Analyses for these parameters must include check standards within ten percent of the specified Minimum Level or calibration points equal to or less than the specified Minimum Level.

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

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

(B) Acute Aquatic Toxicity Test

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

- (a) Composite samples shall be chilled as they are collected. Grab samples shall be chilled immediately following collection. Samples shall be held at 4 degrees Centigrade until Aquatic Toxicity testing is initiated.
 - (b) Effluent samples shall not be dechlorinated, filtered, or, modified in any way, except for salinity adjustment, 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 and B shall be conducted on an aliquot of the same sample tested for Aquatic Toxicity.
 - (i) At a minimum, pH, specific conductance, salinity, total alkalinity, total hardness, and total residual 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 24 hours of sample collection.
- (2) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (invertebrate) above shall be conducted for 48-hours utilizing neonatal Mysidopsis bahia (1-5 days old with no more than 24-hours range in age)
 - (3) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (vertebrate) above shall be conducted for 48-hours utilizing larval Cyprinodon variegatus (1-14 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) Mysidopsis bahia shall be fed during the tests.
 - (c) Aquatic toxicity tests with saltwater organisms shall be conducted at a salinity of 20, plus or minus 2 parts per thousand.

- (i) Sodium lauryl sulfate or sodium dodecyl sulfate shall be used as the reference toxicant.
 - (ii) Synthetic seawater for use as dilution water or controls shall be prepared with deionized water and artificial sea salts as described in EPA/821-R-02-012.
 - (iii) If the salinity of the source water is more than 5 parts per thousand higher, or lower than the culture water used for rearing the organisms, a second set of controls matching the salinity of the culture water shall be added to the test series. Test validity shall be determined using the controls adjusted to match the source water salinity.
 - (iv) The actual effluent concentrations in definitive tests with saltwater organisms shall be used in calculating test results.
- (5) Compliance with limits on Aquatic Toxicity shall be determined as follows:
- (a) For limits expressed as a minimum LC50 value, compliance shall be demonstrated when the results of a valid definitive Aquatic Toxicity test indicates that the LC50 value for the test is greater than the Aquatic Toxicity Limit.
- (C) The Permittee shall annually monitor the chronic toxicity of the DSN 001-D in accordance with the following specifications.
- (1) Chronic toxicity testing of the discharge shall be conducted annually during July, August, or September of each year.
 - (2) Chronic toxicity testing shall be performed on the discharge in accordance with the test methodology established in "Short term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms" (EPA-821-R-02-014) as referenced in 40 CFR 136 for *Mysidopsis bahia* survival and reproduction and *Menidia beryllina* larval survival and growth.
 - (3) Chronic toxicity tests shall utilize a minimum of five effluent dilutions prepared using a dilution factor of 0.5 (100% effluent, 50% effluent, 25 % effluent, 12.5 % effluent, 6.25 % effluent, 0 % effluent).
 - (4) Norwalk Harbor water collected immediately upstream of the area influenced by the discharge shall be used as site water control (0% effluent) and dilution water in the toxicity tests.
 - (5) A laboratory water control consisting of synthetic saltwater prepared in accordance with EPA-821-R-02-014 at a hardness of 50±5 mg/l shall be included in the test protocol in addition to the site-water control.
 - (6) Daily composite samples of the discharge and grab samples of the Norwalk Harbor for use as site water control and dilution water shall be collected on: day 0, for test solution renewal on day 1 and day 2 of the test; day 2, for test solution renewal on day 3 and day 4 of the test; and day 4, for test solution renewal on day 5, 6, and 7 of the test. Samples shall not be dechlorinated, pH or hardness adjusted, or chemically altered in any way.
 - (7) All samples of the discharge and the Norwalk Harbor water used in the chronic toxicity test shall, at a minimum, be analyzed and results reported in accordance with the provisions listed in Section 6(A) of this permit for the following parameters:

pH	Copper (Total recoverable and dissolved)
Hardness	Nickel (Total recoverable and dissolved)
Alkalinity	Nitrogen, Ammonia (total as N)
Conductivity	Nitrogen, Nitrate (Total as N)
Chlorine, (Total residual)	Solids, Total Suspended
Zinc, (Total recoverable and dissolved)	

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 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) Submittal of *NetDMR Subscriber Agreement*

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

www.ct.gov/deep/netdmr. On or before ninety (90) days after issuance of this permit the Permittee shall submit a signed copy of the *Connecticut DEEP NetDMR Subscriber Agreement* to the Department.

(b) Submittal of Reports Using NetDMR

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

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

(c) Submittal of NetDMR Opt-Out Requests

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

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

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

SECTION 8: WET WEATHER REQUIREMENTS

The Permittee shall comply with the following terms and conditions.

(A) *Conditions Applicable to the wet weather discharge*

- (1) There shall be no distinctly visible floating scum, oil or other matter contained in the wet weather discharge. Excluded from this are naturally occurring substances, such as, leaves and twigs provided no person has placed such substances in or near the discharge.
- (2) The wet weather discharge shall not result in pollution due to acute or chronic toxicity to aquatic and marine life, impair the biological integrity of aquatic or marine ecosystems; or result in an unacceptable risk to human health.

- (3) The wet weather discharge shall not cause or contribute to an exceedance of the applicable Water Quality Standards in the receiving water.
- (4) Any new stormwater discharge to high quality waters (as defined in the Water Quality Standards) shall be discharged in accordance with the Connecticut Anti-Degradation Implementation Policy in the Water Quality Standards regulations.

(B) ***Control Measures***

Control Measures are required Best Management Practices (BMP) that the Permittee must implement to minimize the discharge of pollutants from the permitted facility. The term "minimize" means reduce and/or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.

(1) **Good Housekeeping**

The Permittee shall maintain a clean, orderly facility (e.g. sweeping at regular intervals, appropriate storage practices, proper garbage and waste management, dust control measures, etc.) in all areas that are exposed to rainfall and are potential sources of pollutants.

(2) **Vehicle or Equipment Washing**

The Permittee shall provide, at a minimum, that no washing or rinsing of equipment, buildings or vehicles shall be allowed at the site which would allow wash or rinse waters to enter any storm drainage system or surface waters of the State without a permit. Such discharges to groundwater are not authorized by this permit.

(3) **Floor Drains**

The Permittee shall provide that all floor drains have been sealed, authorized by a local authority to discharge to sanitary sewer or allowed by DEEP in accordance with the "Non-Stormwater Discharges" section (Section 8(B)(11)) of this permit.

(4) **Roof Areas**

The Permittee shall identify roof areas that may be subject to drippage, dust or particulates from exhausts or vents or other sources of pollution. The Permittee shall inspect such areas to determine if any potential sources of stormwater pollution are present. If so, the Permittee shall minimize such sources or potential sources of pollution.

(5) **Minimize Exposure**

The Permittee shall minimize exposure to stormwater of materials identified in the "Inventory of Exposed Materials" section (Section 8(C)(2)(d)(ii)) of this permit.

(6) **Sediment and Erosion Control**

The Permittee shall identify areas that have a potential for soil erosion due to topography, activities, or other factors, and shall implement measures to limit erosion and stabilize such areas. All construction activities on site shall be conducted in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (Guidelines) and the "Future Construction" section (Section 8(C)(2)(h)) of this permit.

(7) **Management of Runoff**

The Permittee shall investigate the need for stormwater management or treatment practices that shall be used to divert, infiltrate, reuse, or treat stormwater runoff in a manner that minimizes pollutants in

stormwater discharges from the site. Any evaluation, construction or modification of the design of a stormwater drainage system requires certification by a professional engineer licensed to practice in the State of Connecticut. The Permittee shall implement and maintain stormwater management or treatment measures determined to be reasonable and appropriate to minimize the discharge of pollutants from the site.

In implementing infiltration practices, care shall be taken to avoid ground water contamination. Any stormwater infiltration measures implemented by the Permittee and located within an aquifer protection area as mapped under section 22a-354b of the Connecticut General Statutes shall be conducted pursuant to sections 8(c) and 9(b) of the Aquifer Protection Regulations (section 22a-354i(1)-(10) of the Regulations of Connecticut State Agencies). The Permittee shall assure that stormwater run-off generated from the regulated activity is managed in a manner so as to prevent pollution of groundwater, and shall comply with all the requirements of this permit.

The Permittee shall consider the potential of various sources at the facility to contribute pollutants to stormwater discharges associated with industrial activity when determining reasonable and appropriate measures. Where feasible, the Permittee shall divert uncontaminated run-on to avoid areas that may contribute pollutants. Other appropriate stormwater management or treatment measures may include but are not limited to: vegetative swales or buffer strips, reuse of collected stormwater (such as for process water, cooling water or as an irrigation source), treatment technologies (e.g. swirl concentrators, sand filters, etc.), snow management activities, bioretention cells, green roofs, pervious pavement and wet detention/retention basins. The Permittee shall ensure that such measures are properly designed, implemented and maintained in accordance with the Stormwater Quality Manual.

(8) Preventive Maintenance

The Permittee shall implement a preventive maintenance program, which shall include but not be limited to: the inspection and maintenance of stormwater management devices (e.g. cleaning stormwater treatment devices, catch basins); the visual inspection and/or testing of on-site equipment and systems to identify conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters; and the appropriate maintenance of such equipment and systems. These areas shall be included in the Routine Inspections conducted under Section 8(D)(2) of this permit. If the Permittee maintains an existing preventive maintenance program that addresses the requirements of this control measure, they may use that program to meet this requirement. The existence of such a program and the location of its maintenance records shall be referenced in the Plan.

(9) Spill Prevention and Response Procedures

The Permittee shall minimize the potential for leaks and spills. This shall include clearly identifying areas where potential spills can occur and their accompanying drainage points. The Permittee shall plainly label containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides," etc.) that could be susceptible to spillage or leakage in areas that could contribute pollutants to stormwater runoff. The Permittee shall identify procedures for containing, reporting and cleaning up spills. These procedures shall be provided to the appropriate personnel through Employee Training (subsection 10, below) along with the necessary equipment to implement a cleanup.

(a) Containment

To prevent unauthorized discharges of liquid chemicals or wastewater from commingling with or polluting a facility's stormwater discharges, or otherwise causing pollution to the waters of the state, the Permittee shall comply with the following requirements, as applicable:

(i) Storage or Storage Areas

For the purposes of Section 8(B)(9)(a) of this permit only, storage area means an exterior area, which is or has the potential to be exposed to stormwater, that contains one or more

tanks or containers utilized for the storage of liquid chemicals or for the collection, storage or treatment of wastewater. Any stationary above-ground tank, container or storage area used: (1) for the storage of liquid chemicals as identified in the "Spills and Leaks" section (Section 8(C)(2)(d)(iv)) of this permit; or (2) for the collection, storage or treatment of wastewater shall, at a minimum, comply with one of the following types of secondary containment requirements:

- (1) A double-walled above-ground tank or container; or
- (2) For any storage area, tank or container installed prior to the date of issuance of this permit, an impermeable secondary containment area which will hold at least 100% of the volume of the largest tank or container or 10% of the total volume of all tanks and containers in the area, whichever is larger, without overflow from such secondary containment area; or
- (3) For any storage area, tank or container installed after the date of issuance of this permit, an impermeable secondary containment area which will hold at least 110% of the volume of the largest tank or container or 10% of the total volume of all tanks and containers in the area, whichever is larger, without overflow from such secondary containment area.

(ii) Mobile or Portable Storage

Any mobile or portable above-ground tank or container used for the collection or storage of wastewater shall comply with the secondary containment requirements of Section 8(B)(9)(a)(i) above, unless the following minimum requirements are met:

- (1) Such mobile or portable tank or container and related appurtenances (i.e., piping, fittings, valves, gauges, alarms, switches, etc.) are designed, operated and maintained in a manner to prevent releases of wastewater resulting from factors including, but not limited to, physical or chemical damage, tampering or vandalism, freezing and thawing; and
- (2) In addition to the requirements of Section 8(B)(9)(a)(ii)(1) above, for any mobile or portable tank or container and related appurtenances that are affixed to a trailer, such trailer shall be a registered motor vehicle designed, operated and maintained to be capable of on-road transport of wastewater at all times.

(iii) Additional Requirements

If an impermeable secondary containment area is required by 8(B)(9)(a)(i) or (ii) above, such containment area shall be roofed in a manner which minimizes stormwater entry to the containment area, except for a containment area which stores tanks or containers of 100 gallon capacity or more, in which case a roof is not required.

Stormwater that may accumulate in a containment area may be discharged only after the Permittee conducts testing to confirm that it contains none of the relevant pollutants stored therein. For petroleum storage containment areas, visual inspection for a sheen fulfills this requirement. If testing is not conducted or if it indicates the presence of a relevant pollutant, this containment water shall be treated and/or disposed of according to DEEP and federal regulations."

(b) Dumpsters

The Permittee shall ensure that all dumpsters, trash compactors, and "roll-off" containers used to store waste or recyclable materials are in sound watertight condition and have covers and drain plugs intact, or are in roofed areas that will prevent exposure to rainfall and will not allow

dumpster leakage to enter any stormwater drainage system. All covers on dumpsters not under a roof shall be closed when dumpsters are not being loaded or unloaded.

(c) Loading Docks

The Permittee shall ensure that all loading docks (excluding those that allow a vehicle to enter the building) shall be protected with a permanent roof or other structure that protects the loading dock from direct rainfall. Stormwater collection and drainage facilities adjacent to the loading dock shall be designed and maintained in a way that prevents any materials spilled or released at the loading dock from discharging to the storm sewer system.

(10) Employee Training

The Permittee shall ensure that all employees whose activities may affect stormwater quality receive training within ninety (90) days of employment and at least once a year thereafter to make them familiar with the components and goals of these control measures and the Plan. Training shall address topics such as emergency equipment location, spill response management, control measures, inspection requirements, good housekeeping and materials management practices. Training shall be conducted or supervised by a member of the Pollution Prevention Team or other qualified person and a written record shall be maintained in the Plan, including the date(s), employee name, employee responsibility and training agenda.

(11) Non-Stormwater Discharges

The Permittee shall eliminate non-stormwater discharges except as provided in "Non-Stormwater Discharge Certification" (Section 8(C)(2)(f)) or as authorized by this permit issued pursuant to section 22a-430 or a general permit issued pursuant to 22a-430b of the Connecticut General Statutes.

(12) Solid De-icing Material Storage

The Permittee shall ensure that storage piles of de-icing materials (including pure salt, salt alternatives or either of these mixed with other materials) used for deicing or other commercial or industrial purposes that are in place for more than 180 days shall be enclosed or covered by a rigid or flexible roof or other structural means. Such structure shall not allow for the migration or release of material outside of the structure through its sidewalls. As a temporary measure (not to exceed two years from the effective date of this permit), a waterproof cover may be used to prevent exposure to precipitation (except for exposure necessary to add or remove materials from the pile) until a structure can be provided. For temporary storage piles of de-icing materials in place for less than 180 days per year, a waterproof cover may be used to prevent exposure to precipitation (except for exposure necessary to add or remove materials from the pile). In areas with a groundwater classification of GA or GAA, an impervious liner shall be utilized under any de-icing material pile to prevent infiltration to groundwater.

In addition, no new road salt or de-icing materials storage facilities shall be located within a 100-year floodplain as defined and mapped for each municipality under 44 CFR 59 et seq. or within 250 feet of a well utilized for potable drinking water supply or within a Level A aquifer protection area as defined by mapping pursuant to section 22a-354c of the Connecticut General Statutes.

(C) *Stormwater Pollution Prevention Plan (Plan)*

(1) Development of Plan

- (a) The Permittee shall implement the Stormwater Pollution Prevention Plan ("Plan") for the site. The Permittee shall perform all actions required by the Plan in accordance with the schedule set forth in "Deadlines for Plan Preparation and Compliance" (Section 8(C)(3)) of this permit and including implementation of the Control Measures in Section 8(B), inspections in Section 8(D) and monitoring in Section 8(E). The Plan shall include records and documentation of

compliance with these elements and shall be kept on-site at all times along with a copy of this permit. The Permittee shall maintain compliance with the Plan thereafter.

- (b) The Permittee shall update the existing Plan in accordance with the "Contents of the Plan" (Section 8(C)(2)), "Control Measures" (Section 8(B)), and "Monitoring" (Section 8(E)) sections of this permit. The Plan shall be recertified by a professional engineer licensed to practice in the State of Connecticut or a Certified Hazardous Materials Manager in accordance with the "Plan Certification" (Section 8(C)(7)) and "Non-Stormwater Discharge Certification" (Section 8(C)(2)(f)) sections of this permit. The Permittee shall maintain compliance with such Plan thereafter.

(2) Contents of Plan

The Plan shall be representative of current site conditions and shall address, at a minimum, all the elements below. If an element is not applicable to the facility, the Plan shall identify it and provide an explanation as to why the element does not apply.

(a) Facility Description

Provide a description of the nature of the industrial activities at the facility.

(b) General location map

Provide a general location map (e.g., U.S. Geological Survey (USGS) quadrangle map) with enough detail to identify the location of the facility and all receiving waters to which stormwater discharges.

(c) Pollution Prevention Team

The Permittee shall identify a specific individual or individuals for the site who shall serve as members of a Stormwater Pollution Prevention Team ("team"). The team shall be responsible for implementing the Plan and assisting in the implementation, maintenance, and development of revisions to the Plan as well as maintaining control measures and taking corrective actions where required. At least one team member shall be present at the facility or on call during all operational shifts. The Plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the Plan. Each member of the stormwater pollution prevention team shall have ready access to either an electronic or paper copy of applicable portions of this permit and the Plan.

(d) Potential Pollutant Sources

The Plan shall map and describe the potential sources of pollutants that may reasonably be expected to affect stormwater quality at the site or that may result in the discharge of pollutants during dry weather from the site. The Plan shall identify all activities and materials that may be a source of stormwater pollution at the site. Accordingly, the Plan shall include, but not be limited to the following:

(i) Site Map

A site map (at a defined or approximate scale) shall be developed showing:

- 1) a north arrow and surveyed or approximate property lines including the total site acreage;
- 2) location of existing buildings and structures;

- 3) the overall site size and amount of impervious coverage as well as an outline of the drainage area, including the extent of impervious surface, for each stormwater outfall and direction of flow within the drainage area;
- 4) existing structural control measures installed to reduce pollutants in stormwater runoff;
- 5) locations of all stormwater conveyances including catchbasins, ditches, pipes, and swales as well as the location of any non-stormwater discharges;
- 6) the areal extent of any wetlands to which stormwater discharges;
- 7) the receiving surface water body or bodies to which the site discharges including the identification of any impaired waters and whether or not a TMDL has been established for them;
- 8) location where major spills or leaks (identified under Section 8(C)(2)(d)(iv) below) have occurred;
- 9) locations of all stormwater monitoring points including latitude and longitude, where available;
- 10) locations of discharges to a municipal storm sewer system;
- 11) locations of discharges to groundwater through an infiltration system;
- 12) locations where any drainage run-on enters the site; and
- 13) each location of the following activities and associated types of pollutants where such activities are exposed to precipitation:
 - fueling stations;
 - vehicle and equipment maintenance and/or cleaning areas;
 - loading/unloading areas;
 - locations used for the treatment, storage or disposal of wastes;
 - liquid storage tanks;
 - de-icing material storage areas;
 - processing areas;
 - storage areas;
 - areas with the potential for erosion that may impact surface waters or wetlands or may have off-site impacts; and
 - any other potential pollutant sources.

(ii) Inventory of Exposed Materials

A tabular inventory of non-gaseous materials at the site, including a description of potential pollutants associated with those materials that may be exposed to stormwater between the time of three years prior to the date of certification of the Plan and the present for the following areas:

- 1) loading and unloading operations;
- 2) roof areas;
- 3) outdoor storage activities;
- 4) outdoor manufacturing or processing activities;
- 5) dust or particulate generating processes; and
- 6) on-site waste disposal practices.

(iii) Summary of Potential Pollutant Sources

A narrative summary of each area of the site specified in "Inventory of Exposed Materials" (Section 8(C)(2)(d)(ii), above) of this permit and each associated potential source of pollution. Such summary shall include:

- 1) method and location of on-site storage or disposal;
- 2) materials management practices employed to minimize contact of materials with stormwater runoff between the time of three years prior to the effective date of this permit and the present;
- 3) the location and a description of existing structural and non-structural control measures to reduce pollutants in stormwater runoff; and
- 4) a description of any treatment the stormwater receives.

(iv) Spills and Leaks

A list of spills and leaks of five gallons or more of petroleum products, or of toxic or hazardous substances which could affect stormwater, as listed in section 22a-430-4 (Appendix B Tables II, III and V, and Appendix D) of the Regulations of Connecticut State Agencies, and 40 CFR 116.4, that occurred at the facility after the date of three years prior to the date of certification of the Plan.

(e) Control Measures

The Permittee shall document the location and type of control measures installed and implemented at the site in accordance with "Control Measures" (Section 8(B)). The Permittee shall discuss the appropriateness and priorities of control measures in the Plan and how they address identified potential sources of pollutants at the site. The Plan shall include a schedule for implementing such controls measures if not already implemented.

(f) Non-Stormwater Discharge Certification

The Plan shall include the following certification, signed by a professional engineer licensed to practice in the State of Connecticut or a Certified Hazardous Materials Manager:

"I certify that in my professional judgment, the stormwater discharge from the site consists only of stormwater, or of stormwater combined with wastewater authorized by an effective permit issued under section 22a-430 or section 22a-430b of the Connecticut General Statutes, including the provisions of this permit, or of stormwater combined with any of the following discharges provided they do not contribute to a violation of water quality standards:

- landscape irrigation or lawn watering;
- uncontaminated groundwater discharges such as pumped groundwater, foundation drains, water from crawl space pumps and footing drains;
- discharges of uncontaminated air conditioner or refrigeration condensate;
- water sprayed for dust control or at a truck load wet-down station;
- naturally occurring discharges such as rising groundwaters, uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20)), springs, and flows from riparian habitats and wetlands.

This certification is based on testing and/or evaluation of the stormwater discharge from the site. I further certify that all potential sources of non-stormwater at the site, a description of the results of any test and/or evaluation for the presence of non-stormwater discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the on-site drainage points that were directly observed during the test have been described in detail in the Stormwater Pollution Prevention Plan prepared for the site. I further certify that no

interior building floor drains exist unless such floor drain connection has been approved and permitted by the commissioner or otherwise authorized by a local authority for discharge as domestic sewage to sanitary sewer. I am aware that there may be significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.”

(g) Consistency with Other Plans and Permits

The Plan may reference requirements contained in a Spill Prevention Control and Countermeasure (SPCC) plan or a plan prepared or approved under the Resource Conservation and Recovery Act (RCRA) and other plans required by state, federal or local law. A copy of the pertinent sections of any referenced plan shall be kept with the Plan. The Plan shall identify all general and individual permits issued by the DEEP for which the facility is authorized.

(h) Future Construction

Note that any construction activity that disturbs greater than one acre shall be conducted in accordance with the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (as amended). All construction activities, regardless of size, shall comply with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control during construction and the 2004 Connecticut Stormwater Quality Manual for the design and implementation of post-construction stormwater management measures. In addition, the Permittee shall avoid, wherever possible, the use of copper or galvanized roofing or building materials for any new building construction where these materials will be exposed to stormwater.

(i) Monitoring Program

A description of the monitoring program and sampling data for stormwater discharges at the site, in accordance with the “Monitoring” section (Section 8(E)) of this permit.

(j) Schedules and Procedures

The Permittee shall document in the Plan the schedules and procedures for implementation of control measures, monitoring and inspections. These include but are not limited to: sweeping, waste management practices and other good housekeeping measures; regular inspections, testing, maintenance, and repair of all industrial equipment and systems potentially exposed to stormwater; procedures for preventing and responding to spills and leaks; employee training; routine, semiannual and any other inspections; visual monitoring; and any quarterly, semiannual, effluent limitation and/or impaired waters monitoring.

(3) Deadlines for Plan Preparation and Compliance

For any stormwater discharges associated with industrial activity initiated after the effective date of this permit, the Plan shall be prepared at the time the activity is initiated. The Permittee shall perform all actions required by such Plan upon obtaining permit coverage, and shall maintain compliance with such Plan thereafter.

(4) Signature and Plan Review

(a) The Plan shall be signed as follows:

- (i) for a corporation, by a responsible corporate officer or a duly authorized representative thereof, as those terms are defined in section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies;

- (ii) for a partnership or a sole proprietorship, by a general partner or the proprietor, respectively.

When a Plan is signed by a duly authorized representative, a statement of authorization shall be included in the Plan. The Plan shall also be certified, in accordance with "Plan Certification" (Section 8(C)(7)) of this permit, by a professional engineer licensed in the State of Connecticut or a Certified Hazardous Materials Manager.

The Plan shall be retained on site at the facility that generates the stormwater discharge.

- (b) The Permittee shall make a copy of the Plan available to the following immediately upon request:
 - (i) the commissioner at his/her own request or as the result of a request from a member of the public;
 - (ii) in the case of a stormwater discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the operator of the municipal system;
 - (iii) in the case of a stormwater discharge associated with industrial activity which discharges to a water supply watershed, to the public water supply company.
- (c) The Commissioner may notify the Permittee at any time that the Plan does not meet one or more of the requirements of this section. Within 120 days of such notification unless otherwise specified by the commissioner in writing, the Permittee shall revise the Plan, perform all actions required by the revised Plan, and shall inform the commissioner in writing that the requested changes have been made and implemented, and such other information as the commissioner requires.

(5) Keeping Plan Current

The Permittee shall amend the Plan whenever;

- (a) there is a change at the site which has an effect on the potential to cause pollution of the surface waters of the state;
- (b) the actions required by the Plan fail to ensure or adequately protect against pollution of the surface waters of the state; or
- (c) the Commissioner requests modification of the Plan;
- (d) the Permittee is notified that they are subject to requirements because the receiving water to which the industrial activity discharges has been designated as impaired under Section 303(d) of the Clean Water Act and as identified in the most recent State of Connecticut Integrated Water Quality Report;
- (e) the Permittee is notified that a TMDL to which the Permittee is subject has been established for the stormwater receiving water;
- (f) necessary to address any significant sources or potential sources of pollution identified as a result of any inspection or visual monitoring;

The Plan shall be amended and all actions required by the Plan shall be completed within one hundred twenty (120) days (or within another interval as may be specified in this permit or as may be approved in writing by the Commissioner) of the date the Permittee becomes aware or should have become aware that any of the conditions listed above has occurred.

If significant changes are made to the site or to the Plan in accordance with paragraphs 5(a)-(f) above, the Plan shall be recertified in accordance with the "Non-Stormwater Discharges" (Section 8(B)(11)) and "Plan Certification" (Section 8(C)(7)) sections of this permit, by a professional engineer licensed to practice in the State of Connecticut or a Certified Hazardous Materials Manager. The Permittee shall maintain compliance with such Plan thereafter.

(6) Failure to Prepare or Amend Plan

In no event shall failure to complete or update a Plan in accordance with the "Development of Plan" (Section 8(C)(1)) and "Keeping Plan Current" (Section 8(C)(5)) sections of this permit relieve a Permittee of responsibility to implement actions required to protect the surface waters of the state, complete any actions that would have been required by such Plan, and to comply with all conditions of the permit.

(7) Plan Certification

The Plan shall contain the following certification, signed by a professional engineer licensed to practice in the State of Connecticut or a Certified Hazardous Materials Manager:

"I certify that I have thoroughly and completely reviewed the Stormwater Pollution Prevention Plan prepared for this site. I further certify, based on such review and site visit by myself or my agent, and on my professional judgment, that the Stormwater Pollution Prevention Plan meets the criteria set forth in Permit No. CT0000841. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."

(D) *Inspections*

(1) Semi-Annual Inspections

The Permittee shall identify in the Plan that qualified personnel conduct comprehensive site inspections at appropriate intervals specified in the Plan, but in no event less frequently than twice a year. Such evaluations shall, at a minimum, include:

- (a) Visual inspection of material handling areas and other potential sources of pollution identified in the Plan for evidence of, or the potential for, pollutants entering the stormwater drainage system. Structural stormwater management measures, erosion control measures, control measures and other structural pollution prevention measures identified in the Plan shall be observed to ensure that they are implemented and maintained properly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made. Inspections should be made during rainfall events if possible.
- (b) Preparation of a report summarizing the scope of the inspection, personnel making the inspection, the date(s) of the inspection, major observations relating to the Plan, actions taken, and updates made to the Plan shall be made and retained as part of the Stormwater Pollution Prevention Plan for at least five years. The report shall be signed by the Permittee.

(2) Routine Inspections

In addition to the Semi-Annual Inspections required above, the Permittee shall identify in the Plan qualified personnel to visually inspect designated equipment and specific sensitive areas of the site at least monthly. A written set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of routine inspections shall be maintained in the Plan kept on-site.

(E) **Monitoring Requirements**

(1) **Outfall Monitoring**

The Permittee shall conduct NPDES permit outfall (wet weather) monitoring under this permit. In addition, the Permittee may be required to modify their Plan and control measures based on their monitoring results.

(a) **Standard Monitoring Parameters**

The Permittee shall monitor for the standard parameters as specified in Table B of this permit.

(i) **Visual Monitoring**

Once each quarter for the entire permit term, the Permittee shall collect a stormwater sample from each outfall identified in Table B of this permit and conduct a visual assessment of each of these samples. These samples should be collected in such a manner that the samples are representative of the stormwater discharge. For monitoring purposes, quarters will begin on January 1, April 1, July 1 and October 1.

The visual assessment shall be made of a sample in a clean, clear glass, or plastic container, and examined in a well-lit area. The Permittee shall visually inspect the sample for the presence of the following water quality characteristics:

- Color;
- Odor;
- Clarity;
- Floating solids;
- Settled solids;
- Suspended solids;
- Foam;
- Oil sheen; and
- Other obvious indicators of stormwater pollution.

If, based on the above indicators, the visual assessment indicates the control measures for the facility are inadequate or are not being properly operated and maintained, the Permittee shall review and revise the selection, design, installation and implementation of the control measures to ensure that the condition is eliminated and will not be repeated in the future. The Permittee shall maintain documentation of these procedures in the Plan.

(ii) **General Monitoring Requirements**

Stormwater monitoring shall be conducted in accordance with Table B. Monitoring events shall be separated by at least 30 days. In addition to the list of parameters in Section 8(E)(1)(a) of this permit, uncontaminated rainfall pH shall be measured for the same rain event during which the runoff sample is taken.

(b) **Standard Monitoring Benchmarks**

The Permittee shall comply with the benchmarks for the standard parameters as specified in this subsection.

(i) **Schedule**

Benchmark monitoring shall be conducted semiannually, as specified in Section 8(E)(1)(a) upon the effective date of this permit. Benchmark monitoring may be conducted in conjunction with the quarterly "Visual Monitoring" in Section 8(E)(1)(a)(i), above.

(ii) Benchmarks

These benchmarks apply to the following parameters.

Chemical Oxygen Demand (mg/l)	75
Total Oil and Grease (mg/l)	5
Sample pH	5-9
Total Suspended Solids (mg/l)	90
Total Phosphorous (mg/l)	0.40
Total Kjeldahl Nitrogen (mg/l)	2.30
Nitrate as Nitrogen (mg/l)	1.10
Total Copper (mg/l)	0.059
Total Lead (mg/l)	0.076
Total Zinc (mg/l)	0.160

Regardless of the benchmarks, discharge monitoring data or other site specific information may demonstrate that a discharge is not protective of water quality. In such a case, the department may require additional measures to reduce the discharge of pollutants for any discharge specifically found to be causing or contributing to an exceedance of Water Quality Standards in the receiving water. Provided the Permittee complies with all requirements of this Standard Monitoring Benchmarks subsection, exceedance of the benchmarks is not, in itself, a violation of this permit.

(iii) Data exceeding benchmarks

Within 120 days of receiving the results of the fourth semiannual sample, if the average of the 4 semiannual monitoring values for any parameter exceeds the benchmark, the Permittee shall, in accordance with the "Keeping Plan Current" (Section 8(C)(5)) section, review the selection, design, installation and implementation of the control measures to determine if modifications are necessary to meet the benchmarks in this permit, and either:

- Make the necessary modifications to the control measures and Plan and continue semiannual monitoring until the Permittee has completed 4 consecutive semiannual monitoring events for which the average does not exceed the benchmark; or
- Make a determination that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice to implement additional control measures or meet the benchmarks. The Permittee shall also document the rationale for concluding that no further pollutant reductions are achievable and submit this documentation to the commissioner for written approval. The Permittee shall retain all records related to this documentation with the Plan.

If an exceedance of the 4 event average is mathematically certain, the Permittee shall review the control measures and perform any required corrective action immediately (or document why no corrective action is required), without waiting for the full 4 monitoring events, in accordance with the "Keeping Plan Current" (Section 8(C)(5)) section. If after modifying the control measures and conducting additional semiannual monitoring, the average of the most recent 4 monitoring events still exceeds the benchmark (or if an exceedance of the benchmark by the 4 event average is mathematically certain for the

most recent 4 monitoring events), the Permittee shall again review the control measures and take one of the two actions above.

(iv) Off-site and natural background pollutant levels

Following the first 4 semiannual samples of benchmark monitoring (or sooner if the exceedance is triggered by less than 4 monitoring events), if the average concentration of a pollutant exceeds a benchmark value, and the Permittee determines that exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background or in "run-on" entering from off-site, the Permittee is not required to perform corrective action or additional benchmark monitoring provided all of the following conditions are met:

- The average concentration of the benchmark monitoring results is less than or equal to the concentration of that pollutant in the natural background or off-site run-on;
- The Permittee documents and maintains with the Plan the supporting rationale for concluding that benchmark exceedances are in fact attributable solely to natural background or off-site pollutant levels. The Permittee shall include in the supporting rationale any data previously collected by them or others that describe the levels of natural background pollutants in the stormwater discharge;
- The Permittee demonstrates that the diversion of off-site run-on containing these pollutant levels is not feasible or practicable;
- The Permittee notifies the commissioner on the final semiannual benchmark monitoring report that the benchmark exceedances are attributable solely to natural background or off-site pollutant levels; and
- The commissioner issues a written approval of the Permittee's documentation demonstrating that the benchmark exceedances are attributable solely to natural background or off-site pollutant levels.

Natural background pollutants include those substances that are naturally occurring in rainfall, soils or groundwater. Natural background pollutants do not include legacy pollutants from earlier activity on the site.

(2) Stormwater Monitoring Procedures

- (a) All samples shall be collected from discharges resulting from a storm event that occurs at least 72 hours after any previous storm event generating a stormwater discharge. Any sample containing snow or ice melt shall be identified on the Discharge Monitoring Report (DMR).

The sample shall be taken at the discharge from the sedimentation basin. If no discharge that meets the conditions of the previous paragraph occurs during a monitoring period, a DMR shall still be submitted in accordance with the "Reporting Requirements" of section 7(C) of this permit. In such a case, a notation of "no discharge" shall be made on the DMR.

Grab samples shall be used for all monitoring and shall not be combined. Collection of grab samples shall begin during the first thirty (30) minutes of a storm event discharge (flow at sampling location) and shall be completed as soon as possible. Samples shall be taken at the outfall or nearest feasible location representative of the discharge. The uncontaminated rainfall pH measurement shall also be taken, when required, at this time. All discharge samples at a facility shall be taken during the same storm event, if feasible.

(b) Storm Event Information

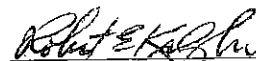
The following information shall be collected for the storm events monitored:

- (i) The date, discharge temperature, time of the start of the discharge, time of sampling, and magnitude (in inches) of the storm event sampled;
- (ii) The pH of the uncontaminated rainfall (before it contacts the ground); and
- (iii) The duration between the storm event sampled and the end of the most recent storm event that produced a discharge.

SECTION 9: 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.

This permit is hereby issued on *September 12, 2018*



Robert E. Kaliszewski
Deputy Commissioner
Department of Energy and Environmental Protection

RK/OF

WASTEWATER DISCHARGE PERMIT: DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: King Industries, Inc.

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #: CT0000841

APPLICATION #: 201410659

<u>Mailing Address:</u>					<u>Location Address:</u>						
Street:	Science Road				Street:	Science Road					
City:	Norwalk	ST:	CT	Zip:	06852	City:	Norwalk	ST:	CT	Zip:	06852
Contact Name:	Dennis Rayburn				DMR Contact	Dennis Rayburn					
Phone No.:	(203) 866-5551				Phone No.:	(203) 866-5551					
Contact e-mail:	drayburn@kingindustries.com				DMR Contact e-mail:	drayburn@kingindustries.com					

PERMIT INFORMATIONDURATION 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) ____

NPDES SIGNIFICANT MINOR or PRETREAT SIU (SI) ____

NPDES or PRETREATMENT MINOR (MI) X

PRETREAT SIGNIFICANT INDUS USER (SIU) ____

PRETREAT CATEGORICAL (CIU) ____

SIC Code: 2869

POLLUTION PREVENTION MANDATE ____ ENVIRONMENTAL EQUITY ISSUE ____

COMPLIANCE SCHEDULECOMPLIANCE SCHEDULE YES ____ NO X

POLLUTION PREVENTION ____ TREATMENT REQUIREMENT ____ WATER CONSERVATION ____

WATER QUALITY REQUIREMENT ____ REMEDIATION ____ OTHER ____

RECENT ENFORCEMENT HISTORYIS THE PERMITTEE SUBJECT TO A PENDING ENFORCEMENT ACTION? YES ____ NO X**OWNERSHIP CODE**Private X Federal ____ State ____ Municipal (town only) ____ Other public ____DEEP STAFF ENGINEER: Oluwatoyin Fakilede

PERMIT FEES

<i>Discharge Code</i>	<i>DSN Number</i>	<i>Annual Fee</i>
102000b	DSN 001-D and DSN 001-W	\$ 660.00
1080000	DSN 001-D and DSN 001-W	\$ 2,912.50

FOR NPDES DISCHARGES

Drainage basin Code: W1_012-SB

Water Quality Standard: SB

NATURE OF BUSINESS GENERATING DISCHARGE

King Industries, Inc. manufactures organic chemicals such as corrosion inhibitors, coating catalysts, coating additives, and plasticizers. This permit is for the discharge of cooling tower blowdown, steam condensate from boiler operations, stormwater, fire response testing, and maintenance wastewaters. Other wastewaters from the site are permitted as follows:

- Pretreatment Permit No. SP000113 covers wastewater discharges to the sanitary sewer from chemical production activities.
- Stormwater Industrial Activities General Permit No. GSI000628 covers stormwater not covered under this individual permit.
- Miscellaneous Sewer Discharges General Permit No. CTMIU0046 covers miscellaneous wastewater (compressor condensate, non-contact cooling water, minor boiler blowdown) discharges to sanitary sewer.

PROCESS AND TREATMENT DESCRIPTION (by DSN)

DSN 001-D: During dry weather (Table A), the discharge is comprised of 47,000 gallons per day of treated cooling tower blowdown, steam condensate from boilers, fire response system testing and maintenance wastewaters, and residual stormwater that has accumulated in the basin from tank farm pump outs.

DSN 001-W: During wet weather (Table B), the composition of water within the basin is expected to be mostly stormwater from the facility's loading/unloading dock, paved parking and materials transfer areas, and tank farm containment areas. This discharge is expected to contribute a maximum flow of 160,000 gallons of pretreated stormwater to the Norwalk Harbor per inch of rain received during a storm event, based on reasonable estimates provided by the applicant in its prior permit application. The NPDES stormwater volume is based on facility area of 4.2 acres.

DSN 001-D and DSN 001-W: Treatment consists of pH adjustment (as necessary), oil-water separation, and gravity settling within a 28,000-gallon in-ground sedimentation basin. The tank farm pump out occurs after a rain event. The Permittee conducts pH, TOC and visual check for oil sheen prior to tank farm pump outs and maintains records of such monitoring onsite in accordance with the submittal dated March 18, 2010.

RESOURCES USED TO DRAFT PERMIT

- ___ Federal Effluent Limitation Guideline
- ___ Performance Standards
- ___ Federal Development Document
- ___ Treatability Manual
- X Department File Information
- X Connecticut Water Quality Standards

X Anti-degradation Policy

X Coastal Management Consistency Review Form

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.

— Other — Explain

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

X Case by Case Determination using Best Professional Judgment
Ammonia-N, BOD (5-day), Copper (MIL), Iron, MBAS, Oil petroleum-total recoverable, Phosphorous, TOC, Toxic Pollutants, COD, TSS (MDL, MIL), TDS, Total Residual Chlorine (MIL)

X In order to meet in-stream water quality (See General Comments)
Copper (AML, MDL), Total Residual Chlorine (AML, MDL)

X Section 22a-430-4(l)4(A)(xxiii) of the Regulations of Connecticut State Agencies
Temperature (MIL)

AML: Average Monthly Limit

MDL: Maximum Daily Limit

MIL: Maximum Instantaneous Limit

GENERAL COMMENTS

The need for inclusion of water quality based discharge limitations in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). 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 reasonable potential statistical procedures outlined in the EPA Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001) were employed to calculate the need for such limits. Comparison of monitoring data and its inherent variability with the calculated water quality based limits indicates a statistical probability of exceedance of such limits for total residual chlorine and copper (see Appendix A). Therefore, water quality based limits for total residual chlorine and copper are included in the permit. The sample type for total residual chlorine was changed from grab to grab sample average for better representation of the discharge quality.

Average dry weather flow was used to calculate the water quality-based limits for copper and total residual chlorine. The proposed permit requires the Permittee to maintain a record of the average and maximum daily flow for both dry weather and wet weather events for each month and report this flow data for each dry weather and wet weather sampling event. Limits are included for total suspended solids based on best professional judgment. Wet weather monitoring (DSN 001-W), Table B in the permit, does not have a flow limit because wet weather events are a function of storm magnitude, which is highly variable.

For the dry weather discharge, continuation of total iron monitoring is proposed in this permit renewal because the expanded storm sewer system utilizes cast iron piping to convey storm water runoff to the sedimentation basin. Monitoring requirements for aluminum and oil petroleum, total recoverable are also continued. Monitoring for Total Organic Carbon (TOC) is required in this permit consistent with the existing permit as an indicator of aliphatic hydrocarbons in the discharge. Semi-Annual aquatic toxicity monitoring with LC50 limit and annual chronic toxicity testing is proposed in this permit for Table A (Dry weather discharge sampling).

Wet weather monitoring (DSN 001-W) is included in the permit for the following parameters: chemical oxygen demand, copper, enterococci, fecal coliform, flow, total oil and grease, pH, total suspended solids, phosphorous, total kjeldahl nitrogen, nitrate as nitrogen, lead, total organic carbon and zinc. Semi-Annual aquatic toxicity monitoring is proposed

in this permit under wet weather discharge monitoring Table B.

A review of May 2013 – May 2018 DMR data showed that there was an exceedance of pH limit in October of 2016. The pH was 5.8 S.U. instead of the limitation range of 6.0 – 9.0 S.U. The Permittee stated that the alarm controller low set point had drifted down to 5.7 from the original 6.1. The Permittee did not discover this because the pH of the wastewater in the basin was almost always 6.2 or greater. The set point on the alarm transmitter was adjusted, the alarm transmitter was removed from service, re-wired to perform all alarm and interlock control functions through the process control computer system, and the calibration procedures was modified to include a check of the alarm and interlock points. Thereafter, the Permittee has been compliant with its permit.

OTHER COMMENTS

The previous permit had the receiving stream as Norwalk River but this was changed to Norwalk Harbor based on GIS information. During the 2010 chronic toxicity testing, the Permittee discovered that the salinities of the Norwalk River samples taken were 26 ppt, 21 ppt and 19 ppt, which are much higher than the salinities of typical freshwaters. When Permit No. CT0000841 was modified in 2014, the chronic toxicity testing requirements were changed from that of freshwater to saltwater. In this permit renewal, the aquatic toxicity testing requirements are based on saltwater and the water quality criteria for saltwater were used for the water quality based limits calculation.

This permit renewal is for an existing discharge and doesn't propose an increase in volume or concentration of constituents. Therefore, only the Tier 1 Antidegradation Evaluation and Implementation Review was conducted to ensure that existing and designated uses of surface waters and the water quality necessary for their protection are maintained and preserved, consistent with Connecticut Water Quality Standards, Sec. 22a-426-8(a)(1). All narrative and numeric water quality standards, criteria and associated policies contained in the Connecticut Water Quality Standards are the basis for the evaluation considering the discharge or activity both independently and in the context of other discharges and activities in the affected water body and considering any impairment listed pursuant to Section 303d for the federal Clean Water Act or any TMDL established for the water body. The Department has determined that the discharge or activity is consistent with the maintenance, restoration, and protection of existing and designated uses assigned to the receiving water body by considering all relevant available data.

The receiving stream, Norwalk Harbor has been assessed and is listed on the State's 305(b) list as being impaired for its designated uses (see the table below for impairments and causes). The causes of impairment include fecal coliform, enterococcus, dissolved oxygen saturation, lead, mercury, nitrogen, nutrient/eutrophication biological indicators. Final total maximum daily loads (TMDL) have been developed for enterococci and fecal coliform. A review of DMR and permit renewal application showed high levels of fecal coliform in the discharge. It appears that the source of these bacteria are the seagulls in the vicinity of the discharge. Monitoring requirements for enterococci and fecal coliform have been included in this permit renewal.

The reasonable potential analysis referenced in the "General Comments" section of this fact sheet indicated that limits are not needed for lead. Therefore, limits were not included, but quarterly monitoring for lead is included. Quarterly monitoring requirements were also included for phosphorus and nitrogen in the permit. Mercury is not expected to be present in the discharge. This was confirmed by the analytical data in the Attachment O of the permit renewal application which shows that mercury is non-detect in the discharge. Therefore, monitoring for mercury is not required in this permit.

Table 3-4. Connecticut Impaired Waters List (EPA Category 5)

Waterbody Segment ID	Waterbody Name	Waterbody Type	Waterbody Size	Units	Impaired Designated Use	Cause	Comment
CT-W1_007	LIS WB Inner - Sasco Brook, Westport	Estuary	0.022	Square Miles	Shellfish Harvesting for Direct Consumption Where Authorized	Fecal Coliform	
CT-W1_009	LIS WB Inner - Grays Creek, Westport	Estuary	0.036	Square Miles	Shellfish Harvesting for Direct Consumption Where Authorized	Fecal Coliform	Point source include industrial point source discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater contamination
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Commercial Shellfish Harvesting Where Authorized	Fecal Coliform	Point source include industrial point source discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater contamination
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Habitat for Marine Fish, Other Aquatic Life and Wildlife	Dissolved oxygen saturation	Point source include industrial point source discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater contamination
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Habitat for Marine Fish, Other Aquatic Life and Wildlife	Lead	Point source include industrial point source discharges, municipal discharges, landfills, illicit discharges, remediation sites, groundwater contamination
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Habitat for Marine Fish, Other Aquatic Life and Wildlife	Mercury	
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Habitat for Marine Fish, Other Aquatic Life and Wildlife	Nitrogen (Total)	
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Habitat for Marine Fish, Other Aquatic Life and Wildlife	Nutrient/Eutrophication Biological Indicators	
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Habitat for Marine Fish, Other Aquatic Life and Wildlife	Oxygen, Dissolved	
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	Estuary	0.942	Square Miles	Recreation	Enterococcus	

Section 316(a) Determination

Section 316(a) of the Federal Water Pollution Control Act, U.S.C. § 1326(a) provides that the thermal component of any discharge will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving water body. In order to confirm that King Industries' discharge is consistent with Section 316(a) of the Federal Water Pollution Control Act, Section 10 of modified NPDES Permit No. CT0000841 issued on August 18, 2014 required the Permittee to perform a thermal verification study. A final report on thermal plume characterization study was submitted to the department on October 3, 2014. An approval of the study was issued on June 5, 2018. The readings for the thermal study were taken at a depth of one foot. A review of the report showed that there was no discernable thermal plume observed in the receiving stream from the discharge. Therefore, thermal zone of influence was determined as shown in

Appendix B. The report which demonstrates that King Industries' discharge does not have any significant thermal influence beyond the allocated thermal zone of influence, satisfies the requirements of Section 10(A) of the modified permit.

This permit has the following narrative temperature requirement "The temperature of any discharge shall not increase the temperature of the receiving stream above 83°F, or, in any case, raise the temperature of the receiving stream by more than 4°F beyond the approved thermal zone of influence. The incremental temperature increase in coastal and marine waters is limited to 1.5°F during the period including July, August and September beyond the approved thermal zone of influence."

Based on temperature data from the discharge monitoring report, DEEP staff conducted a thermal assessment using a thermal zone of influence of a depth of 3 feet and radial distance of 120 feet extending outward from the location of the discharge into the receiving water body and actual highest recorded temperature of Norwalk River from data between May 2015 to September 2015 in a report titled "Water Quality Data Report For The Norwalk River Watershed". The Department then concluded that the thermal effects of the discharge are consistent with the water quality standards as long as the Permittee meets a maximum instantaneous temperature of 98°F. However, since the previous permit had a temperature limit of 95°F and the Permittee has been able to comply with the limit, a permit limit of 95°F is recommended in accordance with the anti-backsliding rule of Section 22a-430-4(l)(A)(xxiii) of the Regulations of Connecticut State Agencies (RCSA) (see Appendix B).

SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC NOTICE PERIOD AND THE DEPARTMENT'S RESPONSES

The tentative decision for this permit issuance was published in the Norwalk Hour on June 7, 2018. On July 12, 2018, the Department received written comments from Dr. John Pinto, Chairman, Application Review Committee, Norwalk Harbor Management Commission. Although Norwalk Harbor Management Commission's submittal was untimely, the Bureau of Materials Management and Compliance Assurance staff has reviewed the written comments and does not feel that the tentative determination should be modified. Comments by Norwalk Harbor Management Commission are in italics followed by DEEP's response).

Dr. John Pinto on behalf of Norwalk Harbor Management Commission stated that they found the applicant's proposal to be consistent with the Harbor management plan provided all wastewater is treated by the applicant to meet the applicable effluent limitations and periodic monitoring by the applicant is required to demonstrate that the discharge will not cause adverse impacts on environmental quality, including water quality in the harbor. The Commission also stated that DEEP's public notice stated that "for each inch of rain received during a storm event, the applicant collects approximately 160,000 gallons of stormwater prior to treatment and discharge to Norwalk Harbor", but the applicant informed them that the amount of stormwater collected is actually approximately 100,000 gallons. The e-mail print-out is attached.

In an e-mail sent to Dr. Pinto on July 13, 2018, DEEP staff reiterated that the proposed wastewater discharge permit requires appropriate treatment of the wastewater prior to discharge. Moreover, the discharge permit imposes effluent limits that are protective of water quality, including precipitation events, and monitoring of the discharge to demonstrate compliance with the effluent limits. This discharge is expected to contribute a maximum flow of 160,000 gallons of pretreated stormwater to the Norwalk Harbor per inch of rain received during a storm event, based on reasonable estimates provided by the applicant in its prior permit application. The NPDES stormwater volume is based on facility area of 4.2 acres. DEEP staff attached the permit and fact sheet to the e-mail for more information about the proposed permit. In a response e-mail, Dr. Pinto thanked DEEP staff for the information.

APPENDIX A: WATER QUALITY BASED LIMITS CALCULATION

King industries discharges to Norwalk Harbor which is tidal. A zone of influence was allocated to King Industries based on a 100:1 dilution.

$$\text{Dilution Factor (DF)} = \frac{\text{AML} + \text{ZOI}}{\text{AML}}$$

$$\text{DF} = \frac{25,000 + 2,500,000}{25,000} = 101$$

$$\text{IWC} = \frac{1}{\text{DF}} \times 100\% = 0.99\% \approx 1.0\% \text{ for acute and chronic criteria}$$

The maximum daily limit for toxicity is based on the concentration that will prevent toxicity within the receiving stream as specified in section 22a-430-3(j)(7)(B)(i) of the RCSA.

Chronically toxic LC50 = Acceptable LC50 X 0.05

I.e. toxicity test LC50/0.05 = non-chronically toxic effluent % at ZOI border

Therefore, chronic toxicity limit: LC50 = IWC X 20 = 1.0% X 20 = 20%.

TABLE A: DMR data for DSN 001D (April 2012 – January 2017)

Date	Aluminum (µg/l)	Chlorine (µg/l)	Copper (µg/l)	Iron (µg/l)	Lead (µg/l)	Temperature(°F)	Zinc(µg/l)
4/30/2012	37.2	20	12.6	762	3.16	90.3	200
7/31/2012	292	ND	15.9	4330	2.77	90	248
10/31/2012	110	20	22	990	ND	78	260
1/31/2013	110	10	22	930	5	72	210
4/30/2013	150	10	17	790	5	80.1	130
7/31/2013	520	30	37	1130	5	82.8	150
10/31/2013	140	20	60	1100	5	80.8	170
1/31/2014	150	20	20	1010	5	82	130
4/30/2014	200	10	22	1430	5	81.7	210
7/31/2014	200	10	36	1710	5	84.9	220
10/31/2014	280	10	31	1160	5	82	240
1/31/2015	260	10	23	1060	5	88	270
4/30/2015	330	10	28	1070	35	92.5	280
7/31/2015	480	1	22	1180	5	87	340
10/31/2015	200	10	25	1410	5	89.6	260
1/31/2016	220	50	18	1320	5	88.1	300
4/30/2016	220	10	22	1420	5	88.3	300
7/31/2016	280	10	22	1580	5	90	690
10/31/2016	390	10	23	1090	5	81	490
1/31/2017	110	20	12	1120	5	81.1	220
$C_v = \frac{SD}{Mean}$	0.5	0.7	0.4	0.6	1.1		0.5

TABLE B: DMR data for DSN 001W (March 2012 – March 2017)

Date	Copper (µg/l)	Lead (µg/l)	Zinc (µg/l)
3/31/2012	12.3	ND	257
6/30/2013	13	26	180
7/31/2013	50	6	310
3/31/2014	30	5	250
9/30/2014	23	5	230
3/31/2015	20	5	230
8/31/2015	25	5	220
10/31/2015	38	6	460
8/31/2016	30	50	990
3/31/2017	90	8	820

TABLE C: AVERAGE OF THE NORWALK HARBOR CONCENTRATION IS BASED ON DATA FROM CHRONIC TOXICITY TESTING RESULTS (2010 – 2015)	
Aluminum	49.8 µg/l
Chlorine	12 µg/l (2011 – 2015)
Copper (dissolved)	2.76 µg/l
Iron	245 µg/l
Lead	3.5 µg/l
Zinc	23.7 µg/l

TABLE D: REASONABLE POTENTIAL EVALUATION (DSN 001D)						
(This analysis compares the projected concentration in the receiving stream after discharge with the applicable water quality criteria. When the projected maximum concentration is lower than the water quality criteria, there is no potential for the discharge to exceed the water quality criteria. When the projected maximum concentration is higher than the water quality criteria, there is a potential for the discharge to exceed the water quality criteria and therefore limits are needed in the permit.)						
C_d = Downstream concentration, $(QC)_d$ = Downstream data, $(QC)_e$ = Effluent data and $Q_d = Q_u + Q_e$, $Q_e = 0.025$ MGD, $Q_{u,acute/chronic} = 2.5$ MGD, $Q_{u,health} = 5.0$ MGD, $Q_{d,acute/chronic} = 2.525$ MGD and $Q_{d,health} = 5.025$ MGD						
	Maximum projected concentration in effluent = Maximum measured concentration in effluent X multiplier in Table 3 – 1 below	$C_d = \frac{(QC)_u + (QC)_e}{Q_d}$ (µg/l)	CONNECTICUT WATER QUALITY CRITERIA (WQC) (SALTWATER)			Is there reasonable potential to exceed WQC?
			Aquatic Life (Acute) (µg/l)	Aquatic Life (Chronic) (µg/l)	Human Health (µg/l)	
Aluminum	520 X 2.0 = 1040	59.6	---	---	---	NA
Chlorine	50 X 2.6 = 130	13.19	13	7.5	---	Yes
Copper	60 X 1.8 = 108	3.8	4.8	3.1	---	Yes
Iron	4330 X 2.3 = 9959	341.18	---	---	---	NA
Lead	35 X 3.8 = 133	4.78	210	8.1	---	No
Zinc	690 X 2.0 = 1380	37.13	90	81	26,000	No

TABLE E: PERMIT LIMIT CALCULATION (DSN 001D)			
WLA = Waste load allocation, $(QC)_d$ = Downstream data, $(QC)_u$ = Upstream data and Q_e = the discharge flow (Refer to the ZOI calculation above for the downstream and effluent flow data)			
	$WLA_{acute} = \frac{(QC)_d - (QC)_u}{Q_e}$	$WLA_{chronic} = \frac{(QC)_d - (QC)_u}{Q_e}$	$WLA_{health} = \frac{(QC)_d - (QC)_u}{Q_e}$
Chlorine	113	- 442	NA
Copper	208.8	37.1	NA

TABLE F: CONTINUATION OF PERMIT LIMITS CALCULATION (DSN 001D)					
** LTA = Long term average, AML = Average monthly limit and MDL = Maximum daily limit					
	$LTA_{acute} = WLA_{acute} \times 99th \text{ percentile multiplier in the attached Table 5 – 1 (µg/l)}$	$LTA_{chronic} = WLA_{chronic} \times 99th \text{ percentile multiplier in the attached Table 5 – 1 (µg/l)}$	Governing LTA	$AML = LTA \times 95th \text{ percentile multiplier in the attached Table 5 – 2 (µg/l)}$	$MDL = LTA \times 99th \text{ percentile multiplier in the attached Table 5 – 2 (µg/l)}$
Chlorine	Since background concentration is higher than the WQC (chronic), WQC (chronic) will apply at the point of discharge.			7.5	$7.5 \times \frac{3.56}{1.65} = 16.18$
Copper	$208.8 \times 0.440 = 91.87$	$37.1 \times 0.643 = 23.85$	23.85	$23.85 \times 1.36 = 32.44$	$23.85 \times 2.27 = 54.14$
Dissolved copper is 70.65% of total copper based on King Industries and Norwalk Harbor analytical data for dissolved and total copper. The background data used for copper was that of dissolved copper and the permit limits calculated above are for dissolved copper. Since the permit has monitoring requirement for total copper, the limits calculated above will be converted to limits for total copper as shown below.					
$AML = \frac{32.44}{0.7065} = 45.92 \approx 46$, $MDL = \frac{54.14}{0.7065} = 76.63 \approx 77$					

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

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

Table 5-1. Back Calculations of Long-Term Average

CV	WLA Multipliers	
	$e^{[0.5 \sigma^2 - z \sigma]}$	
	95th Percentile	99th Percentile
0.1	0.653	0.787
0.2	0.736	0.843
0.3	0.844	0.927
0.4	0.971	0.946
0.5	0.914	0.973
0.6	0.468	0.321
0.7	0.432	0.281
0.8	0.403	0.249
0.9	0.379	0.224
1.0	0.350	0.204
1.1	0.344	0.187
1.2	0.330	0.174
1.3	0.319	0.162
1.4	0.310	0.153
1.5	0.302	0.144
1.6	0.296	0.137
1.7	0.290	0.131
1.8	0.285	0.125
1.9	0.281	0.121
2.0	0.277	0.117

Acute

$$LTA_{AC} = WLA_{AC} \cdot e^{[0.5 \sigma^2 - z \sigma]}$$

where $\sigma^2 = \ln [CV^2 + 1]$,
 $z = 1.645$ for 95th percentile occurrence probability, and
 $z = 2.326$ for 99th percentile occurrence probability

CV	WLA Multipliers	
	$e^{[0.5 \sigma^2 - z \sigma]}$	
	95th Percentile	99th Percentile
0.1	0.922	0.691
0.2	0.833	0.787
0.3	0.791	0.715
0.4	0.736	0.643
0.5	0.687	0.581
0.6	0.644	0.527
0.7	0.606	0.481
0.8	0.571	0.440
0.9	0.541	0.404
1.0	0.514	0.373
1.1	0.490	0.345
1.2	0.468	0.321
1.3	0.448	0.300
1.4	0.432	0.281
1.5	0.417	0.264
1.6	0.403	0.249
1.7	0.390	0.236
1.8	0.379	0.224
1.9	0.369	0.214
2.0	0.360	0.204

Chronic
(4-day average)

$$LTA_C = WLA_C \cdot e^{[0.5 \sigma^2 - z \sigma]}$$

where $\sigma^2 = \ln [CV^2 + 1]$,
 $z = 1.645$ for 95th percentile occurrence probability, and
 $z = 2.326$ for 99th percentile occurrence probability

Table S-2. Calculation of Permit Limits

CV	LTA multipliers		
	$g [2\sigma - 0.5\sigma^2]$		
	95th Percentile	99th Percentile	
0.1	1.37	1.25	Maximum Daily Limit $MDL = LTA = g [2\sigma - 0.5\sigma^2]$ where $\sigma^2 = n [CV^2 + 1]$ $z = 1.645$ for 95th percentile occurrence probability, and $z = 2.325$ for 99th percentile occurrence probability
0.2	1.36	1.55	
0.3	1.55	1.90	
0.4	1.75	2.27	
0.5	1.95	2.68	
0.6	2.13	3.11	
0.7	2.31	3.55	
0.8	2.48	4.01	
0.9	2.64	4.48	
1.0	2.79	4.96	
1.1	2.91	5.34	
1.2	3.03	5.76	
1.3	3.13	6.17	
1.4	3.23	6.59	
1.5	3.31	6.99	
1.6	3.38	7.29	
1.7	3.45	7.63	
1.8	3.51	7.99	
1.9	3.56	8.28	
2.0	3.60	8.59	

Average Monthly Limit	CV	LTA Multipliers									
		$g [z\sigma_n - 0.5\sigma_n^2]$									
		95th Percentile					99th Percentile				
		n=1	n=2	n=4	n=10	n=30	n=1	n=2	n=4	n=10	n=30
$AML = LTA = g [z\sigma_n - 0.5\sigma_n^2]$ where $\sigma_n^2 = n [CV^2 / n + 1]$ $z = 1.645$ for 95th percentile, $z = 2.325$ for 99th percentile, and $n = \text{number of samples/month}$	0.1	1.17	1.12	1.08	1.06	1.03	1.25	1.18	1.12	1.08	1.04
	0.2	1.36	1.25	1.17	1.12	1.06	1.55	1.37	1.25	1.15	1.09
	0.3	1.55	1.38	1.26	1.18	1.09	1.90	1.59	1.45	1.34	1.13
	0.4	1.75	1.52	1.36	1.25	1.12	2.27	1.83	1.55	1.39	1.18
	0.5	1.95	1.66	1.45	1.31	1.18	2.66	2.09	1.72	1.42	1.23
	0.6	2.13	1.80	1.55	1.38	1.19	3.11	2.37	1.90	1.62	1.38
	0.7	2.31	1.94	1.65	1.45	1.22	3.66	2.66	2.09	1.82	1.53
	0.8	2.48	2.07	1.78	1.52	1.26	4.01	2.95	2.27	1.73	1.59
	0.9	2.64	2.20	1.93	1.53	1.29	4.40	3.20	2.40	1.84	1.69
	1.0	2.79	2.33	1.95	1.66	1.33	4.80	3.59	2.65	1.96	1.80
	1.1	2.91	2.45	2.04	1.73	1.36	5.34	3.91	2.90	2.07	1.86
	1.2	3.03	2.56	2.13	1.80	1.38	5.76	4.23	3.14	2.19	1.92
	1.3	3.13	2.67	2.23	1.87	1.43	6.17	4.55	3.34	2.32	1.98
	1.4	3.23	2.77	2.31	1.94	1.47	6.55	4.86	3.56	2.45	1.74
	1.5	3.31	2.86	2.40	2.00	1.50	6.93	5.17	3.78	2.58	1.90
	1.6	3.38	2.95	2.48	2.07	1.54	7.29	5.47	4.01	2.71	1.87
	1.7	3.45	3.03	2.58	2.14	1.57	7.63	5.77	4.23	2.84	1.93
	1.8	3.51	3.10	2.64	2.20	1.61	7.95	6.00	4.46	2.96	2.00
	1.9	3.56	3.17	2.71	2.27	1.64	8.26	6.24	4.68	3.12	2.07
	2.0	3.60	3.23	2.76	2.33	1.68	8.55	6.51	4.90	3.26	2.14

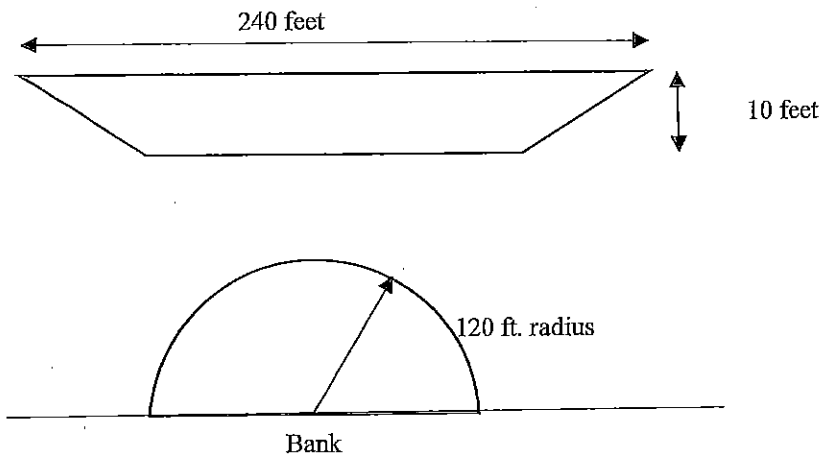
APPENDIX B: THERMAL CALCULATIONS FOR KING INDUSTRIES

In accordance with Connecticut Water Quality Standards 22a-426-9(a)(1), Section 4(C) of Permit No. CT0000841 has the following limitations:

- 1) The temperature of the discharge shall not increase the temperature of the receiving stream above 83°F.
- 2) The temperature of the discharge shall not raise the temperature of the receiving stream by more than 4°F.
- 3) During the period including July, August, and September, the temperature of the discharge shall not raise the temperature of the receiving water by more than 1.5°F unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected.

Determination of thermal zone of influence based on physical dimensions of the receiving stream (See Attachment 1)

Norwalk River/Harbor: 240 feet wide and 10 feet deep in channel



Assume thermal zone of influence of 120 feet radius at pipe and 3 feet depth.

Assume that the thermal discharge impacts the receiving stream 120 feet radially and to a depth of 3 feet (See Attachment 1). This is less than 25% of the cross sectional area of the receiving stream in accordance with Section 22a-426-4(l)(2)(L)(8) of the Connecticut Water Quality Standards (CTWQS).

Volume of the receiving stream = $\frac{1}{2}$ volume of a cylinder

$$\text{Volume } V = \frac{1}{2}\pi r^2 h$$

$$\text{Volume } V = \frac{1}{2}\pi \times 120 \times 120 \times 3 = 67,885.7 \text{ Cubic feet per day} = 507,785 \text{ gpd } (1 \text{ ft}^3 = 7.48 \text{ gallons})$$

Discharge volume = 47,000 gpd

$$\text{Dilution ratio} = 507,785/47,000 = 10.8:1 \text{ dilution}$$

Determination of thermal zone of influence based on low flow conditions of the receiving stream

Based on USGS data, the drainage area of the receiving stream (Norwalk River at Science Road in Norwalk) = 61 mi²

Closest gage station to the discharge location is Gage no. 01209700 (Norwalk River at Wilton)
7Q10 for Norwalk River at gage station 01209700 is 1.6 cfs (See Attachment 2)

Drainage area = 30 mi² (USGS data, See Appendix C)

$$\text{ZOI at 01209700} = \frac{1.6 \times 61}{30} = 3.253 \text{ cfs}$$

7Q10 of the receiving stream = 3.253 cfs

Connecticut surface water quality standards allow a maximum of 25% of the 7Q10 as the thermal zone of influence
 Therefore, ZOI = 25% of 3.253 cfs = 0.813 cfs.
 Discharge at King Industries = 47,000 gpd
 Maximum discharge (Table A of the permit) = 47,000 gpd/646,316.883 = 0.0727 cfs (1 cfs = 646,316.883 gpd)
 Dilution ratio = 0.813/0.0727 = 11.2:1 dilution

NOTE: The thermal zone of influence based on physical dimensions of the receiving stream is applied for the calculation of the King Industries' temperature limit. This is because the thermal zone of influence based on physical dimensions of the receiving stream is more limiting than the thermal zone of influence based on low flow conditions of the receiving stream.

Mixing equation

Based on actual Norwalk River monitoring data, maximum temperature of receiving stream (May 2015 – September 2015)¹ = 27°C = 80.6°F (See Attachment 3)
 Average discharge temperature = 84.5°F (See Table A)

$QT = Q_1T_1 + Q_2T_2$
 Where Q is the new river flow rate, ($Q = Q_1 + Q_2$)
 T is the new river temperature,
 Q_1 is the effluent volume,
 T_1 is the effluent temperature,
 Q_2 is the thermal ZOI and
 T_2 is the background river temperature

1st thermal requirement in the permit

- The temperature of the discharge shall not increase the temperature of the receiving stream above 83°F.

$$\text{Effluent temperature } T_1 = \frac{QT - Q_2T_2}{Q_1} = \frac{(554785)(83) - (507785)(80.6)}{47000} = \frac{46,047,155 - 40,927,471}{47000} = 108.9^\circ\text{F} \approx 109^\circ\text{F}$$

2nd thermal requirement in the permit

- The temperature of the discharge shall not raise the temperature of the receiving stream by more than 4 °F.

$$\text{Effluent temperature } T_1 = \frac{QT - Q_2T_2}{Q_1} = \frac{(554785)(84.6) - (507785)(80.6)}{47000} = \frac{46,934,811 - 40,927,471}{47000} = 127.8^\circ\text{F} \approx 128^\circ\text{F}$$

3rd thermal requirement in the permit

- During the period including July, August, and September, the temperature of the discharge shall not raise the temperature of the receiving water by more than 1.5 °F.

$$\text{Effluent temperature } T_1 = \frac{QT - Q_2T_2}{Q_1} = \frac{(554785)(82.1) - (507785)(80.6)}{47000} = \frac{45,547,848.5 - 40,927,471}{47000} = 98.3^\circ\text{F} \approx 98^\circ\text{F}$$

Using the most stringent of the three temperatures, a discharge temperature of 98°F will be protective of the waters of the State. However, since the previous permit had a temperature limit of 95°F and the Permittee has been able to comply with the limit, a permit limit of 95°F is recommended in accordance with the anti-backsliding rule of Section 22a-430-4(l)(A)(xxiii) of the Regulations of Connecticut State Agencies (RCSA).

¹ Water Quality Data Report for Norwalk River Watershed May through September 2015

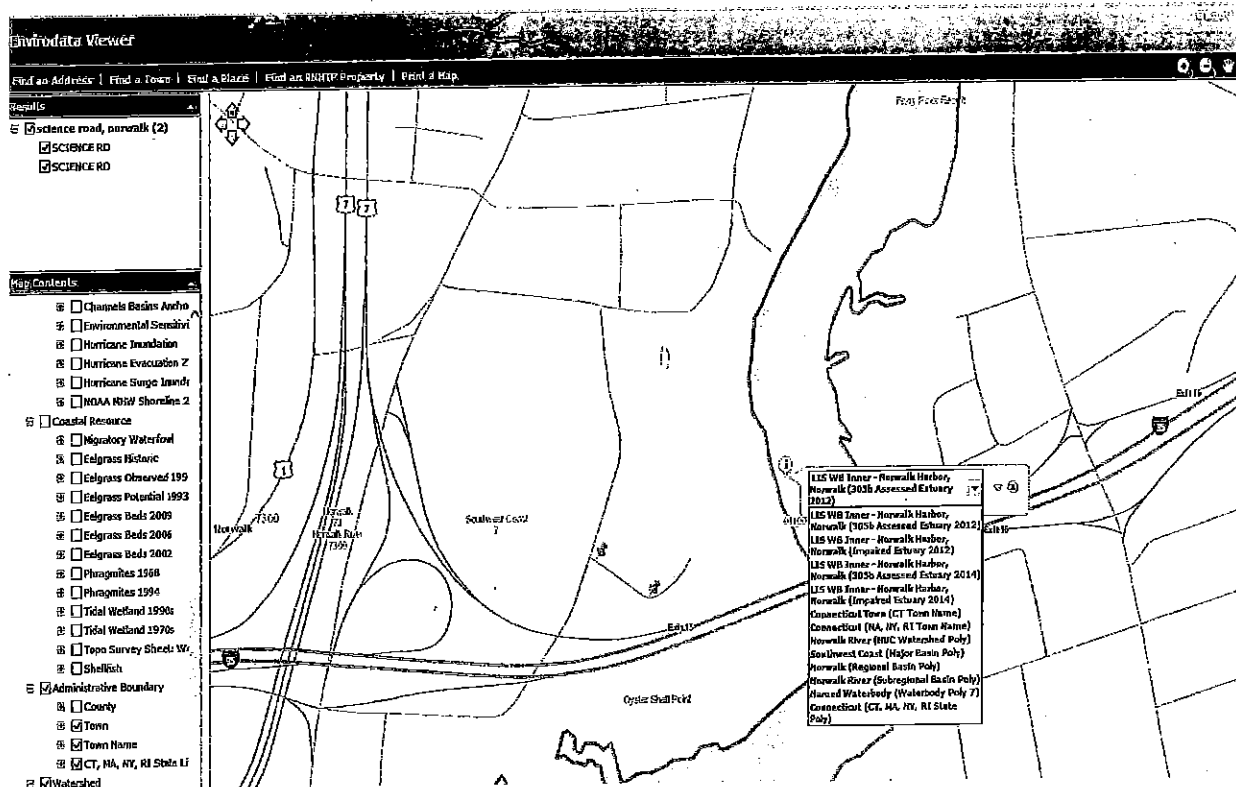
The screenshot displays the ArcView desktop environment. At the top, the title bar reads "ArcView Data". Below it, the menu bar includes "File", "Edit", "View", "Map", "Tools", "Window", and "Help". The toolbar contains icons for opening files, saving, printing, and navigating the map.

The main map area shows a geographic view of Norwalk, CT. A road network is visible, including Route 1 and Route 7. A pop-up information window is open over a specific location, displaying details for "OBJECTID: 158". The window includes a "Connecticut Town (CT Town Name)" dropdown menu and a "Legend" section. The legend lists various categories and their corresponding symbols, such as "Channel Basins And/or", "Environmental Scenarios", "Hurricane Foundation", "Hurricane Evacuation 2", "Hurricane Surge Inundation", "NOAA 100' Shoreline 7", "Coastal Resource", "Migratory Waterfowl", "Eelgrass Historic", "Eelgrass Observed 199", "Eelgrass Potential 1993", "Eelgrass Beds 2009", "Eelgrass Beds 2005", "Eelgrass Beds 2002", "Phragmites 1968", "Phragmites 1994", "Tidal Wetland 1990s", "Tidal Wetland 1970s", "Topo Survey Sheet: W", "Shellfish", "Administrative Boundary", "County", "Town", "Town Name", "CT, RI, NY, RI State LI", and "Watershed".

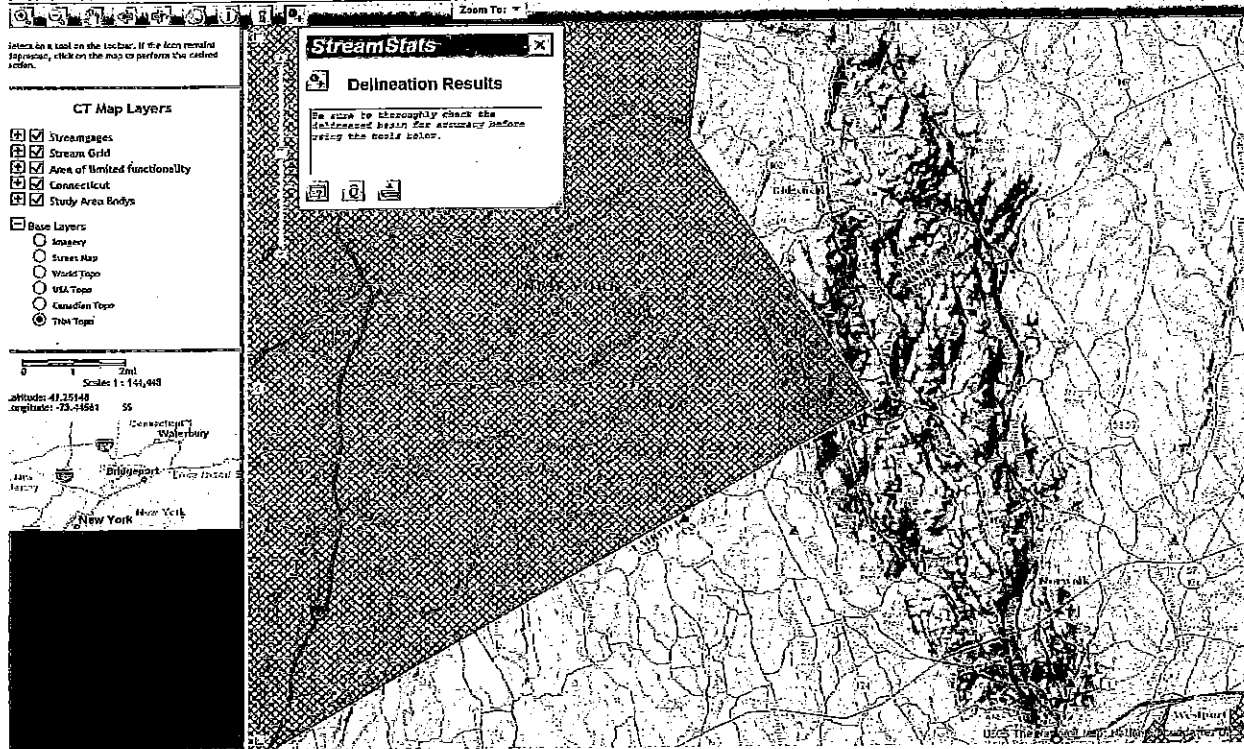
The pop-up window also displays a table of data for the selected object (OBJECTID: 158). The table includes columns for "OBJECTID", "TOWN_POLY", "AV_LEGEND", and "IMS_LEGEND". The data for the selected object is as follows:

OBJECTID	TOWN_POLY	AV_LEGEND	IMS_LEGEND
158	Connecticut Town	Connecticut Town	Town

The map also shows a "Legend" window on the left side, which lists the same categories as the pop-up window. The "Legend" window is currently set to "Show All" and displays a list of categories with their corresponding symbols.



DRAINAGE AREA OF THE RECEIVING STREAM



StreamStats Flow Statistics Report - Internet Explorer

http://streamstats.cr.usgs.gov/v3_beta/FRreport.htm?rcode=CT&work=pecel0=CT20161102085937925000&includeflowtypes=PeakFlows,DurationFlows,Salmonid,DurationFlows,Winter,DurationFlow

USGS **StreamStats Version 3.0**
Flow Statistics Ungaged Site Report

Date: Wed Nov 2, 2016 11:02:02 AM GMT-4
Study Area: Connecticut
NAD 1983 Latitude: 41.1094 (-41 06 34)
NAD 1983 Longitude: -73.4113 (-73 24 41)
Drainage Area: 61 mi2

Peak Flows Region Grid Basin Characteristics		
100% Statewide Multiparameter (61 mi2)		
Parameter	Value	
Drainage Area (square miles)	61	
24 Hour 2 Year Precipitation (inches)	3.682	
24 Hour 10 Year Precipitation (inches)	5.244	
24 Hour 25 Year Precipitation (inches)	6.414	
24 Hour 50 Year Precipitation (inches)	7.475	
24 Hour 100 Year Precipitation (inches)	8.710	
Mean Basin Elevation (feet)	421	

SALMONID SPAWNING Basin Characteristics		
100% Duration Flow 2010 5052 (61 mi2)		
Parameter	Value	
Drainage Area (square miles)	61	
Mean November Precipitation (inches)	4.5	
Percent Coarse Stratified Drift (percent)	9.47	
Mean Annual Winter Precipitation (inches)	3.8	
Percent Wetlands (percent)	0.76	
Mean Basin Elevation (feet)	421	

Memorandum

To: File

From: Art Mauger *Art Mauger*

Date: 7/23/11

Re: KING INDUSTRIES - NORWALK - THERMAL IMPACT - CT0000841

I have evaluated the thermal plume from King Industries to determine a zone of influence, and to establish a maximum temperature limit for the discharge. I used the information recently submitted by King Industries to come to the assumptions. I made the following assumptions: a zone of influence 3 feet deep with a circular radius of 120 feet around the outfall. Using these dimensions, and mixing in the entire daily flow of 47,000 gallons per day, the final effluent temperature should be less than 95 degrees F. in order to limit the temperature increase in the mixing zone to less than 1.5 degrees F. This is a conservative analysis that does not take into account the tidal exchange which would increase the amount of dilution.

The Connecticut Water Quality Standards for Class SB waters for allowable temperature increase (outside of a mixing zone) is "in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F.. During the period including July, August, and September, the temperature of the receiving water shall not be raised more than 1.5 degrees F. unless it can be shown the spawning and growth of indigenous organisms will not be significantly affected." The limited temperature data available shows a plume approximately 60 feet wide which is less than 25% of the river width. A thermal plume typically floats in the top of the water column, so I would conclude that this thermal plume would be less than 25% of the cross sectional area of the river as referenced in the WQS. In terms of the 1.5 degrees summer limitation, the spawning and growth of organisms for most species is on the river bottom. Also, this thermal plume will shift with each tide, so that the same zone is not steadily affected. With a floating thermal plume, I would conclude that the spawning and growth of indigenous organisms would not be significantly affected.

Attachment 2: 7Q10 of some streams in Connecticut

Table 3. Low-flow frequency statistics for 91 streamgaging stations with 10 or more years of record in Connecticut.—Continued

[Low-flow frequency statistics are based on the climatic year, which begins on April 1 and ends on March 31, and on flow record through March 31, 2001. USGS, U.S. Geological Survey; mi², square miles; ft³/s, cubic feet per second; —, no data; bold indicates Index Station]

Map reference number (fig. 1)	USGS station number	River name	Town	Years of record	Drainage area (mi ²)	Low-flow frequency statistics			
						7Q ₁₀ (ft ³ /s)	7Q ₅ (ft ³ /s)	30Q ₁ (ft ³ /s)	Number of days and dates of zero flow
108	01196620	Mill River	Hamden	29	24.5	1.37	5.34	6.93	—
109	01198500	Blackberry River	North Canaan	23	45.9	2.99	6.66	9.79	—
114	01199000	Housatonic River	Salisbury	93	634	110	189	238	—
115	01199050	Salmon Creek	Salisbury	44	29.4	3.22	6.60	9.05	—
116	01199200	Guinea Brook	Sharon	21	3.5	0.10	0.16	0.19	(141 total)—(5) 1962, (30) 1964, (38) 1965, (26) 1966, (8) 1968, (7) 1970, (1) 1974, (24) 1980
117	01200000	Tenmile River	Windsor, NY	71	203	12.7	27.3	35.8	—
118	01200500	Housatonic River	New Milford	65	996	158	203	336	—
119	01201100	West Aspetuck River	New Milford	19	23.8	0.77	1.59	2.54	—
120	01201500	Skill River	New Milford	35	67.5	14.4	20.7	26.0	—
122	01201900	Marshpoag River	Goshen	14	9.34	0.44	1.27	2.05	—
124	01203000	Shawang River	Roxbury	41	132	6.23	11.5	16.5	—
126	01203600	Naugatuck River	Woodbury	19	17.7	0.65	1.70	2.80	—
129	01204000	Pomperaug River	Southbury	73	75.1	6.16	11.3	15.7	—
130	01204800	Copper Mill Brook	Moorsee	18	2.45	0.08	0.19	0.35	—
131	01205500	Housatonic River	Oxford	77	1,544	128	307	479	(1) 10/12/1930
132	01205600	West Branch Naugatuck River	Torrington	40	33.6	1.33	4.04	6.11	—
133	01205700	East Branch Naugatuck River	Torrington	41	13.6	1.53	2.40	3.73	—
134	01206000	Naugatuck River	Thomaston	29	71	15.6	21.8	25.4	—
135	01206400	Leadmine Brook	Harwinton	13	19.6	0.41	1.15	2.26	—
136	01206500	Leadmine Brook	Thomaston	29	24.3	0.36	1.18	2.18	—
137	01206900	Naugatuck River	Thompson	45	99.8	11.6	18.5	26.5	—
138	01206913	Branch Brook	Watertown	15	20.8	0.45	2.14	3.88	—
139	01206920	Hop Brook	Naugatuck	20	16.5	0.44	1.28	2.61	—
140	01208500	Naugatuck River	Deacon Falls	83	260	61.7	89.1	110	—
141	01208873	Rosier River	Thimble	28	10.6	1.00	1.92	3.07	—
143	01208925	Mill River	Fairfield	33	28.6	1.14	2.67	4.50	(1) 11/11/1979
144	01208950	Sussex Brook	Fairfield	41	7.38	0.04	0.32	0.76	—
145	01208990	Naugatuck River	Redding	41	21	0.27	1.27	2.44	—
147	01209300	Songstad River	Westport	35	79.8	2.25	7.81	10.7	—
148	01209700	Norwalk River	Willton	43	30	1.60	3.72	5.43	—

* Post-reservoir record 1940–1987.

Note: NR1 is the closest monitoring site to King Industries' discharge.

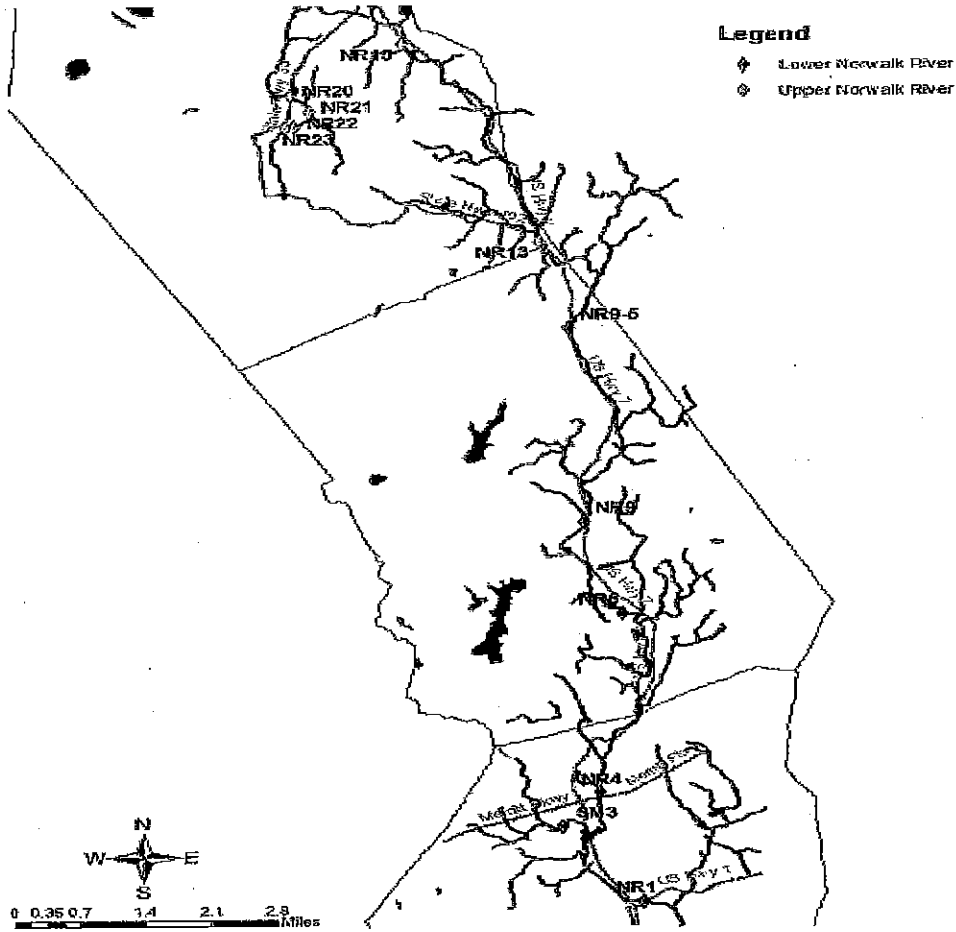


Figure 1. Location of 12 monitoring sites in the Norwalk River Watershed.

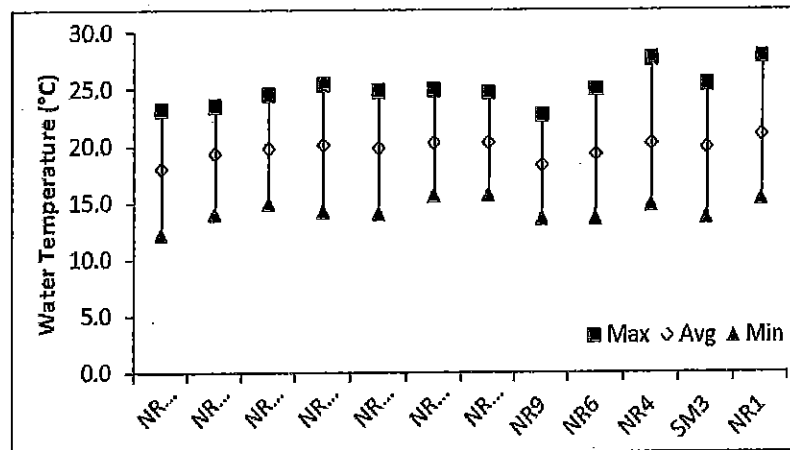


Figure 5. Maximum, average, and minimum water temperature values for twelve sites in the Norwalk River watershed from May through September 2015.