

National Pollutant Discharge Elimination System Permit Factsheet

SECTION 1 FACILITY SUMMARY

APPLICANT	King Industries, Inc.
PERMIT NO.	CT0000841
APPLICATION NO.	202302698
DATE APPLICATION RECEIVED	March 27, 2023
LOCATION ADDRESS	Science Road, Norwalk, CT 06852
FACILITY CONTACT	Michael Bourgoin Office Phone: (203) 866-5551 Email: mbourgoin@kingindustries.com
MAILING ADDRESS	Science Road, Norwalk, CT 06852
DMR CONTACT	Michael Bourgoin Office Phone: (203) 866-5551 Email: mbourgoin@kingindustries.com
SECRETARY OF STATE BUSINESS ID	0088597
PERMIT TERM	5 Years
PERMIT CATEGORY	National Pollutant Discharge Elimination System ("NPDES") MINOR ("MI")
SIC & NAICS CODE(S)	2869 & 325199
APPLICABLE EFFLUENT GUIDELINES	None
PERMIT TYPE	Reissuance
OWNERSHIP	Private
RECEIVING WATER	Norwalk Harbor
WATERBODY SEGMENT ID'S	CT-W1_012-SB
WATERBODY CLASSIFICATION	SB
DISCHARGE LOCATIONS (LAT, LONG)	DSN 001-D/DSN 001-W: 41° 06' 30.5", - 73° 24' 43"
COMPLIANCE ACTIONS	Yes (Per- and Polyfluoroalkyl Substances (PFAS) sampling & wet weather discharge requirements)
DEEP STAFF ENGINEER	Oluwatoyin Fakilede (860-418-5986) Oluwatoyin.fakilede@ct.gov

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1.1 PERMIT FEES

Application Fee:

Filing Fee	Invoice No.: DEP403127	Amount: \$1,300	Date Paid: 3/27/2023
Processing Fee	Invoice No.: DEP404382	Amount: \$ 16,612.50	Date Paid: 5/2/2023

Annual Fee (per Regulations of Connecticut State Agencies (“RCSA”) Sec. 22a-430-7 and General Statutes of Connecticut (“CGS”) Sec. 22a-6f):

DISCHARGE CODE	WASTEWATER CATEGORY	FLOW CATEGORY (Gallons per day)	DSNs	ANNUAL FEE
1080000	Stormwater	Variable	001-W	\$2,912.50
102000b	Non-contact cooling water (“NCCW”)	17,000	001-D	\$ 660.00
121000a	Fire suppression testing wastewater	5,000	001-D	\$ 0
170000n	Boiler blowdown	15,000	001-D	\$ 0
TOTAL AMOUNT				\$3,572.50

1.2 APPLICATION SUBMITTAL INFORMATION

On March 27, 2023, the Department of Energy and Environmental Protection (“DEEP”) received an application (Application No. 202302698) from King Industries, Inc. (“Permittee”, “Applicant”) located in Norwalk, Connecticut, for the renewal of NPDES permit, CT0000841, expiring on September 30, 2023 (“the previous permit”).

Consistent with the requirements of Section 22a-6g of the Connecticut General Statutes (“CGS”), the Applicant published a Notice of Permit Application in The Norwalk Hour newspaper on March 17, 2023. On May 18, 2023, the application was determined to be timely and administratively sufficient.

The Permittee seeks authorization for the following in Application No. 202302698:

DSN	PROPOSED AVERAGE DAILY FLOW	PROPOSED MAXIMUM DAILY FLOW	PROPOSED WASTESTREAMS	TREATMENT TYPE	DISCHARGE TO
001-D	25,000 gallons per day (“gpd”)	47,000 gpd	NCCW, boiler blowdown and fire suppression testing wastewater.	pH adjustment, dechlorination, oil-water separation, and gravity settling.	Norwalk Harbor
001-W	Dependent on precipitation	Dependent on precipitation	Stormwater with commingled wastewater discharges identified in DSN 001-D.	Best management practices.	

1.3 OTHER PERMITS

Other discharges from the site are covered under the following permitting mechanisms:

- The stormwater from the site that is not permitted under NPDES permit No. CT0000841 is permitted under the “General Permit for the Discharge of Stormwater Associated with Industrial Activity” (GSI000628).
- Discharges to the City of Norwalk Water Pollution Control Facility comprising of process water from the manufacturing of organic chemicals are covered under Pretreatment Permit No. SP0000113.

1.4 FACILITY DESCRIPTION

King Industries is a specialty organic chemicals manufacturing facility located on Science Road on approximately 6.6 acres of land adjacent to the Norwalk River. The facility produces specialty organic chemicals such as corrosion inhibitors, coating catalysts, coating additives, and plasticizers. The facility operates for 24-hours per day for 5-6 days per week. Production occurs in Buildings #2, 3, 4 and 6; laboratories are in Buildings #2 and 10; and the two warehouses are in Buildings #1 and 9. Wastewater from the manufacturing process is discharged to the City of Norwalk Water Pollution Control Facility via Pretreatment Permit No. SP0000113. The proposed NPDES permit covers the following wet weather and dry weather wastewater discharges to the Norwalk River:

Dry weather discharge: This discharge is comprised of a maximum of 47,000 gallons per day of treated NCCW, steam condensate from boilers (boiler blowdown), fire suppression testing wastewater from the facility’s two boilers, main cooling tower, and Building #6 cooling tower. This discharge may also include residual stormwater that remains in the NPDES Basin Treatment System from the wet weather discharge. These discharges are considered “dry weather discharges” and are regulated under DSN 001-D when not commingled with stormwater. This discharge is treated through the NPDES Basin Treatment System before discharged to the Norwalk River.

Wet weather discharge: This discharge is comprised of stormwater from the facility’s loading and unloading dock, paved parking and materials transfer areas, and tank farm #1 – 4 containment areas. This stormwater commingles with NCCW, boiler blowdown, and fire suppression testing wastewater in the NPDES Basin Treatment System and discharges to the Norwalk River, regulated via DSN 001-W. The remainder of stormwater on the site drains directly to the Norwalk River through storm drains under the authority of the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

All drainage from areas containing bulk storage tanks flows to the NPDES Basin Treatment System. The tanks are in diked areas and/or are of double walled construction. All diked areas are sized to be at least 110% of the volume of the largest tank therein. The boiler condensate tank is not located in a diked area. In the event of a leak or spill from this tank, material would either be contained locally, or it would flow to the NPDES Basin Treatment System, where condensate is an authorized discharge.

1.5 FACILITY CHANGES

There were no recent or newly requested changes to the facility for this permit renewal.

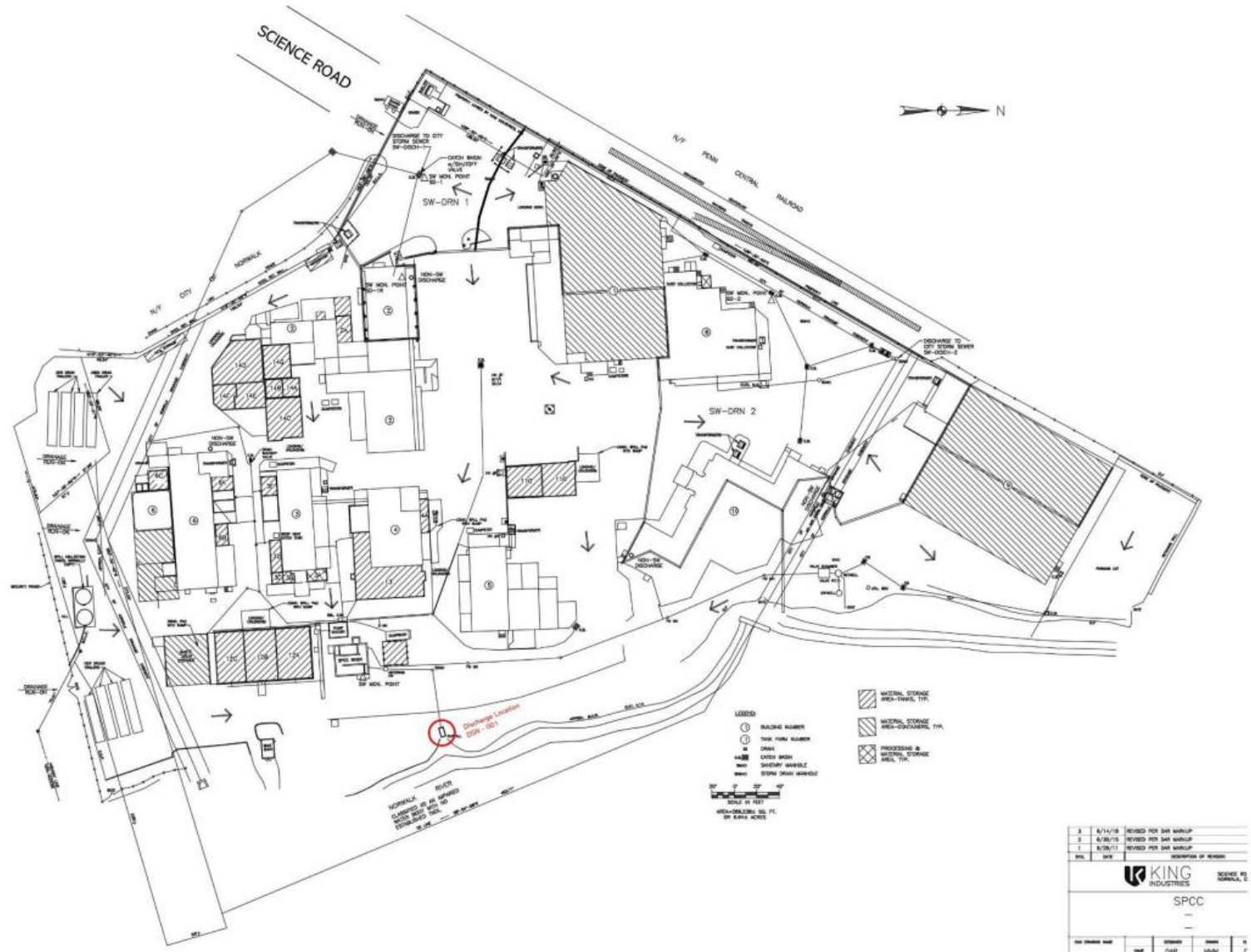
1.6 TREATMENT SYSTEM DESCRIPTION

The NPDES Basin Treatment System comprised of one 8,000-gallon concrete in-ground tank known as the lower basin, one 28,000-gallon concrete in-ground sedimentation basin known as the upper basin, temperature adjustment, pH adjustment, dechlorination, and an oil water separator.

Dry and wet weather discharges flow into the lower basin via gravity. Two 300 gallon per minute (gpm) and two 400 gpm pumps move wastewater from the lower basin to the upper basin. Following sedimentation in the upper basin, wastewater pH is adjusted, dechlorinated, and flows through an oil-water separator before discharging to the Norwalk Harbor via a 15" underground discharge pipe. The pipe is equipped with an air-controlled discharge ball valve. When the temperature of water in the lower basin is higher than the permitted temperature limit of 95°F, spray coolers are activated to cool the water to a temperature below 95°F. The system is monitored with influent and effluent pH probes and an effluent temperature probe at the upper basin.

The NPDES Basin Treatment System is designed to treat dry weather discharge flows. pH adjustment, chlorination, and spray coolers are not operated during wet weather discharges.

Figure 1.4. Image of Site Plan



1.7 COMPLIANCE HISTORY

Based on the Permittee's Discharge Monitoring Reports ("DMR") data evaluated from May 2019 to April 2024, the Permittee reported the following effluent violations.

EFFLUENT VIOLATIONS IN THE PAST 5 YEARS					
MONTH/ YEAR	DSN	PARAMETER	TYPE OF LIMIT	PERMITTED LIMIT	EXCEEDENCE
4/2021	DSN 001-D	Copper, Total	Average monthly limit	46 µg/l	130 µg/l
4/2021		Copper, Total	Maximum daily limit	77 µg/l	130 µg/l

1.7.1 ONGOING ENFORCEMENT ACTIONS

The Permittee is not subject to any ongoing enforcement action that pertain to the discharges covered under NPDES Permit No. CT0000841.

1.7.2 PREVIOUS PERMIT COMPLIANCE SCHEDULE

The previous permit had no compliance schedule.

1.7.3 SPILL HISTORY

Below is a list of spills that occurred at King Industries' site in the past five years.

Date	Material	Size (gal)	Location	Spill Report #
9/10/2019	Crude sulfonic acid	5	TF – B6 PP	
2/11/2020	dinonylnaphthalene	15	TF 4	2020-00376
8/4/2020	PFAS FOAM and Water	~620	TF4(18 gal foam/600 water)	2020-03172
8/5/2020	A-308 Resin Modifier	10	Front of Hotbox 903	2020-03182
9/15/2020	PFAS FOAM and Water	100	TF 4 (3 gal foam/97 gal water)	2020-04230
10/15/2020	KR008 alkylate	5	B6Pilot Plant	2020-04724
3/30/2021	Glycol and water	50	B3 roof	2021-01128
5/4/2021	DNN and heptane	5	Bldg 3 TF3E	2021-01644
5/28/2021	Formaldehyde 37%	5	Bldg 9 Warehouse	2021-02054
6/22/2021	Methanol	10	Bldg 4	2021-02461
7/6/2021	Zinc oxide	12	B9 warehouse	2021-02731
7/15/2021	PFAS FOAM - foamed spill	5	Bldg 9 Warehouse	2021-02895
7/15/2021	2077 Amine	30	Bldg 9 Warehouse	2021-02895
7/27/2021	NA-SUL ZS	7	Bldg 4	2021-03097
2/21/2022	PFAS FOAM	80	TF 6	2022-00761
2/28/2022	Barium Monohydrate	50 lbs	B9 Warehouse	2022-00839
3/2/2022	Nacure 1051	30	B6 west side	2022-00881
4/13/2022	KR 008C	10	Bldg 6	2022-01457
7/3/2022	Ethylene Glycol	50	Between Bldg 3 and 4	2022-02408
7/28/2022	GREEN FOAM	40	Bldg 9 Warehouse	2022-03342
8/8/2022	NA-LUBE KR-008	25	Bldg 6	2022-03470
2/24/2023	PFAS FOAM	48	S of Bldg 6	2023-00509
3/1/2023	KR 015C	40	Bldg 6	2023-00552
3/9/2023	Sulfuric Acid 66 Baume	25	SW of Bldg 3	2023-00636

The spills were contained and prevented from reaching the Norwalk River or the sanitary sewer, and immediately cleaned up.

1.8 GENERAL ISSUES RELATED TO THE APPLICATION

1.8.1 FEDERALLY RECOGNIZED INDIAN LAND

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

1.8.2 COASTAL AREA/COASTAL BOUNDARY

The activity is located within a coastal boundary as defined in CGS 22a-94(b), but the Permittee is not proposing to modify the physical footprint of the subject activity.

1.8.3 ENDANGERED SPECIES

The activity is located within an area identified as a habitat for endangered, threatened or special concern species according to the June 2024 State and Federal Listed Species and Natural Communities Map, but the Permittee is not proposing to modify the physical footprint of the subject activity.

1.8.4 AQUIFER PROTECTION AREAS

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

1.8.5 CONSERVATION OR PRESERVATION RESTRICTION

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

1.8.6 PUBLIC WATER SUPPLY WATERSHED

As provided in the permit application, the site is not located within a public water supply watershed.

SECTION 2 RECEIVING WATER BODY

2.1 RECEIVING WATER BODY INFORMATION

The receiving waterbody, Norwalk Harbor, is identified as CT-W1_012-SB. The segment of the Norwalk Harbor is classified as “SB” and its designated uses include; 1) habitat for fish and other aquatic life and wildlife, 2) recreation, 3) industrial water supply, 4) navigation, and 5) commercial shellfish harvesting, where authorized.

[FINAL-2022-IWQR-Appendix-A-3-Connecticut-305b-Assessment-Results-for-Estuaries.pdf](#)

Figure 2.1. Image of discharge location



The Norwalk Harbor is on the State's 305(b) list of impaired waters. It is impaired for its designated uses of habitat for marine fish, other aquatic life, and wildlife due to lead, nitrogen, mercury, nutrients, and low dissolved oxygen levels. It is also impaired for recreation due to *Enterococcus*. [FINAL-2022-IWQR-Appendix-B-1-List-of-Impaired-Waters-for-Connecticut-EPA-Category-5.pdf](#)

Figure 2.2. Image of Applicable Section of 2022 Connecticut Integrated Water Quality Report

Waterbody Segment ID	Waterbody Name	Location	Square Miles	Aquatic Life	Recreation	Shellfish	Shellfish Class
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	See Map for Boundaries. Western portion of LIS, Inner Estuary, from SA/SB water quality line at mouth of Norwalk Harbor (Calf Pasture Point), US to saltwater limit at Wall Street Crossing (EXCLUDES eastern cove of Marvin Beach), Norwalk.	0.942	Not Supporting	Not Supporting	Not Supporting	Commercial Shellfish Harvesting Where Authorized

Figure 2.3. Image of Applicable List of Impaired Waters for Connecticut

Waterbody Segment ID	Waterbody Name	Cause	Impaired Designated Use
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	LEAD	Habitat for Marine Fish, Other Aquatic Life and Wildlife
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	NITROGEN, TOTAL	Habitat for Marine Fish, Other Aquatic Life and Wildlife
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	MERCURY	Habitat for Marine Fish, Other Aquatic Life and Wildlife
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	NUTRIENTS	Habitat for Marine Fish, Other Aquatic Life and Wildlife
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	ENTEROCOCCUS	Recreation
CT-W1_012-SB	LIS WB Inner - Norwalk Harbor, Norwalk	DISSOLVED OXYGEN	Habitat for Marine Fish, Other Aquatic Life and Wildlife

2.2 APPLICABLE TOTAL MAXIMUM DAILY LOAD (TMDL)

A TMDL for fecal coliform (impairment to shellfish harvesting) has been established for Norwalk Harbor, Segment ID CT-W1_012-SB. This TMDL is part of the “Statewide Total Maximum Daily Load for Bacteria-Impaired Waters” (September 2013). [FINAL-2022-IWQR-Appendix-B-2-Waterbodies-with-Adopted-TMDLs-EPA-Category-4a.pdf](#)

The CT Water Quality Standards for fecal coliform are a geometric mean less than 88/100ml and 90% of samples less than 260/100ml. Although end of pipe bacteria measurements can identify and help prioritize sources that require attention, compliance with this TMDL will be based on ambient water quality and not water quality at the point of discharge (i.e., end of pipe). Therefore, monitoring requirements to assess potential sources for fecal coliform and Enterococci are included in the discharge permit.

“A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound” (December 2000) also applies to this segment of Norwalk Harbor. However, the Permittee’s discharge has not been assigned a waste load allocation for nitrogen as part of this TMDL. [Tmdl.pdf \(longislandsoundstudy.net\)](#). Nitrogen monitoring is required in the permit.

Figure 2.4. Image of Applicable 2022 IWQR Waterbodies with Adopted TMDLs

Waterbody Segment ID	TMDL	Basin Number	Waterbody Name	Impaired Designated Use	Cause	EPA Approved	TMDL Link	Category/sub category
CT-W1_012-SB	CT Statewide Bacteria TMDL Estuary 1	N/A	LIS WB Inner Norwalk Harbor	Shellfishing	Fecal Coliform	2019	https://portal.ct.gov/-/media/DEEP/water/tmdl/CTFinalTMDL/estuary1norwalk	4a

SECTION 3 PERMIT CONDITIONS AND EFFLUENT LIMITATIONS

3.1 POLLUTANTS OF CONCERN

The following pollutants are included as monitoring pollutants in DSN 001-D of the permit for the reasons noted below:

POLLUTANT	REASON FOR INCLUSION		
	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Aluminum, Total		✓	
Biological Oxygen Demand		✓	
Chemical Oxygen Demand		✓	
Chlorine, Total Residual		✓	
Copper, Total		✓	
Enterococci		✓	
Fecal coliform		✓	
Iron		✓	
Lead		✓	
Nitrogen, Ammonia		✓	

POLLUTANT	REASON FOR INCLUSION		
	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Oil petroleum and total recoverable		✓	
Phosphorus, Total		✓	
Surfactants (MBAS)		✓	
Total Dissolved Solids		✓	
Total Organic Carbon		✓	
Total Suspended Solids		✓	
Total Toxic Organics			✓
Zinc, Total		✓	
Acute and chronic toxicity monitoring requirements are also included in the permit consistent with Section 22a-430-3(j)(3) of the RCSA. pH monitoring is included in the permit consistent with Section 22a-426-9(a)(1). Temperature monitoring is also included in the permit with a designated zone of influence.			

The following pollutants are included as monitoring pollutants in DSN 001-W of the permit for the reasons noted below:

POLLUTANT	REASON FOR INCLUSION		
	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Aluminum, Total		✓	
Biological Oxygen Demand		✓	
Chemical Oxygen Demand		✓	
Chlorine, Total Residual		✓	
Copper, Total		✓	
Enterococci		✓	
Fecal coliform		✓	
Iron		✓	
Lead		✓	
Nitrogen, Ammonia		✓	
Oil and grease, Total		✓	
Phosphorus, Total		✓	
Surfactants (MBAS)		✓	
Total Dissolved Solids		✓	
Total Organic Carbon		✓	
Total suspended Solids		✓	
Total Toxic Organics			✓
Zinc, Total		✓	
Acute toxicity monitoring requirements is included in the permit consistent with Section 22a-430-3(j)(3) of the RCSA. pH monitoring is included in the permit consistent with Section 22a-426-9(a)(1).			

3.2 TECHNOLOGY BASED EFFLUENT LIMITATIONS

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

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

None of EPA’s ELGs are applicable to these discharges. In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA § 402(a)(1)(B) and RCSA Section 22a-430-4(m) to establish effluent limitations on a case-by-case basis using best professional judgment (“BPJ”).

3.3 BASIS FOR LIMITS

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

3.4 ZONE OF INFLUENCE

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

The previously assigned ZOI of 104,166 gph (“gallons per hour”) was based on a 100:1 dilution factor. The dilution factor was carried forward, but the ZOI was corrected from 104,166 gph to 103,124 gph (see Section 3.6 of this fact sheet).

$$\text{Average discharge flow (AML)} = \frac{25,000 \text{ gpd}}{24} = 1,041.6 \text{ gph}$$

$$DF = 100 = \frac{AML + ZOI}{AML} = \frac{104,166 \text{ gph}}{1,041.6 \text{ gph}} = \frac{103,124 \text{ gph}}{1,041.6 \text{ gph}}$$

Therefore, upstream flow = 103,124 gph and downstream flow = 104,166 gpd.

3.5 RESONABLE POTENTIAL ANALYSIS

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

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

A reasonable potential analysis was conducted on the dry weather discharge from DSN 001-D. A reasonable potential analysis was not conducted on the wet weather discharge DSN 001-W because the wastewater discharge commingles with stormwater, see Section 3.13. The analysis below indicates that water quality-based limits are needed for copper and lead.

Table 3.5.1: Reasonable Potential Evaluation (This analysis compares the projected maximum concentration (PMC) in the receiving stream with the applicable water quality criteria (WQC). When the PMC is lower than the WQC, there is no potential for the discharge to exceed the WQC. When the PMC is higher than the WQC, there is a potential for the discharge to exceed the WQC and permit limits are therefore needed.)						
Q = Flow, C = Concentration, (QC) _u = Upstream data, (QC) _d = Downstream data, (QC) _e = Effluent data and Q _d = Q _u + Q _e . Q _e = 25,000 gpd = 1,041.6 gph ≈ 1,042 gph, Q _{u,ac/ch} = 103,124 gph, Q _{d,ac/ch} = 104,166 gph, Q _{u,he} = 206,248 gph, and Q _{d,he} = 207,290 gph						
Pollutants	PMC in effluent = Max. measured concentration X multiplier in Attachment 1	PMC in the waterbody C _d = $\frac{(QC)_u + (QC)_e}{Q_d}$	Connecticut Water Quality Criteria (WQC) (Freshwater)			Is there potential to exceed WQC?
			Aquatic Life (Acute) (µg/l)	Aquatic Life (Chronic) (µg/l)	Human Health (µg/l)	
Aluminum	1450 X 4.6 = 6,670	66.72	750	87	--	No
Ammonia	1300 X 2.1 = 2,730	27.31	12,060 ¹	1,810 ¹	--	No
Chlorine	7.5 X 4.0 = 30	0.3	13	7.5	--	No
Copper	130 X 3.1 = 403	4.03	4.8	3.1	--	Yes
Lead	157 X 4.8 = 753.6	7.54	210	8.1	--	No

Table 3.5.1: Reasonable Potential Evaluation (This analysis compares the projected maximum concentration (PMC) in the receiving stream with the applicable water quality criteria (WQC). When the PMC is lower than the WQC, there is no potential for the discharge to exceed the WQC. When the PMC is higher than the WQC, there is a potential for the discharge to exceed the WQC and permit limits are therefore needed.)						
Q = Flow, C = Concentration, (QC) _u = Upstream data, (QC) _d = Downstream data, (QC) _e = Effluent data and Q _d = Q _u + Q _e . Q _e = 25,000 gpd = 1,041.6 gph ≈ 1,042 gph, Q _{u,ac/ch} = 103,124 gph, Q _{d,ac/ch} = 104,166 gph, Q _{u,he} = 206,248 gph, and Q _{d,he} = 207,290 gph						
Pollutants	PMC in effluent = Max. measured concentration X multiplier in Attachment 1	PMC in the waterbody C _d = $\frac{(QC)_u + (QC)_e}{Q_d}$	Connecticut Water Quality Criteria (WQC) (Freshwater)			Is there potential to exceed WQC?
			Aquatic Life (Acute) (µg/l)	Aquatic Life (Chronic) (µg/l)	Human Health (µg/l)	
Zinc	500 X 2.7 = 1,350	13.50	90	81	26,000	No
EPA's National recommended water quality aquatic life chronic criterion for iron is 1,000 µg/l						
Iron	6940 X 2.8 = 19,432	194.38	--	1,000		No
¹ The number above were converted from un-ionized ammonia (acute criteria = 35 µg/l, chronic criteria = 233 µg/l).						

The acute (35 µg/l) and chronic (233 µg/l) saltwater criteria for ammonia are for un-ionized ammonia, as defined in Section 22a-426-9 of the RCSA. To conduct a reasonable potential analysis, the un-ionized ammonia criteria are converted to total ammonia using the equation from EPA document, "Ambient Water Quality Criteria for Ammonia (saltwater) 1989 (EPA 440/5-88-004)" as follows:

$$\%UIA = \frac{100}{\left(1 + 10^{\left(PKa + 0.0324(298-T) + 0.04159\frac{p}{T} - pH\right)}\right)}$$

where *P* is pressure = 1ATM, and *T* is temperature in kelvin.

$$PK_a = 9.245 + 0.116I \text{ (Model B regression equation – Whitfield, 1974}^1\text{)}$$

$$I = \frac{19.9273S}{(1000 - 1.005109S)} \text{ where } I \text{ is the molar ionic strength and } S \text{ is the salinity.}$$

¹ Whitfield, M., 1974. The hydrolysis of ammonia ions in sea water - a theoretical study. J. mar. biol. Ass. U.K., 54: 565-8

After converting the un-ionized ammonia criteria to total ammonia, it needs to be converted to total ammonia, as nitrogen. Therefore, total ammonia is converted to ammonia as nitrogen using the conversion factor of 0.822. The conversion is 14.00674 (molecular weight of nitrogen) divided by 14.00674 + 3(1.00794 (molecular weight of hydrogen)) = 0.822.

The acute and chronic water quality criteria for total ammonia (as nitrogen) are 1,810 µg/l and 12,060 µg/l, respectively using a temperature of 25°C, pH of 7.5 S.U. and salinity of 20 ppt.

Temp (deg C)	pH (su)	Salinity (ppt)	Pressure (ATM)	Molal Ionic Strength (not valid if >0.85)	pKa* @ 25 deg C	% Unionized:	Unionized WQC		Total NH3		Total NH3 as N	
							Acute	Chronic	Acute	Chronic	Acute mg/L	Chronic mg/L
25.0	7.5	20.0	1.0	0.407	9.292	1.588%	0.233	0.035	14.68	2.20	12.06	1.81

3.6 WATER QUALITY BASED EFFLUENT LIMITATIONS (WQBELs)

The CWA and federal regulations require that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water.

This is necessary when less stringent TBELs would interfere with the attainment or maintenance of water quality criteria in the receiving water. See CWA Section 301(b)(1)(C) and 40 CFR Parts 122.44(d)(1), 122.44(d)(5), 125.84(e) and 125.94(i).

The reasonable potential analysis in Section 3.6 showed that water quality-based limits are needed for copper. Therefore, the limits for copper are calculated below.

Table 3.6.1: Permit Limits Calculation					
Determine Waste Load Allocation					
WLA = Waste load allocation, (QC) _d = Downstream data, (QC) _u = Upstream data, Q _e = Discharge flow (see Table 3.6.1 for flow data).					
	$WLA_{ac} = \frac{(QC)_d - (QC)_u}{Q_e}$	$WLA_{ch} = \frac{(QC)_d - (QC)_u}{Q_e}$		$WLA_{he} = \frac{(QC)_d - (QC)_u}{Q_e}$	
Copper	479.84	309.90		---	
Determine Long term averages and permit limits					
LTA = Long term average, AML = Average monthly limit and MDL = Maximum daily limit					
Pollutants	LTA _{acute} = WLA _{ac} X 99th percentile multiplier in Attachment 2	LTA _{chronic} = WLA _{ch} X 99th percentile multiplier in Attachment 2	Governing LTA	AML = LTA X 95th percentile multiplier in Attachment 3	MDL = LTA X 99th percentile multiplier in Attachment 3
Copper	479.84 X 0.153 = 73.42	309.90 X 0.281 = 87.08	73.42	73.42 X 1.75 = 128.49	73.42 X 4.01 = 294.41

3.7 WHOLE EFFLUENT TOXICITY

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

If toxicity is suspected in the effluent, DEEP may require the Permittee to perform acute or chronic whole effluent toxicity testing.

The Permittee's previous permit required semiannual acute toxicity testing using *Mysidopsis bahia* and *Cyprinodon variegatus* and annual chronic toxicity testing using *Mysidopsis bahia* and *Menidia beryllina*. The previous permit also had acute toxicity limits of LC₅₀ > 20% and no chronic toxicity limit. During the last permit cycle, the Permittee had no exceedance of its acute toxicity limit. Based on the review of DMR data (May 2019 – April 2024) for acute toxicity tests, the permittee reported 100% survival of test organisms.

Reasonable Potential Analysis

Acute toxicity shall be assumed to occur at any discharge concentration which exceeds the LC50 (lethal concentration to 50% of the test organisms during a specific period) determined in an acute toxicity test multiplied by an application factor of 0.33. The projected maximum toxicity ("PMT") is determined by multiplying the maximum toxicity with the multiplier from Appendix C (based on 10 samples) and the dilution factor. A default coefficient of variation of 0.6 is assumed.

$$Acute\ toxic\ unit\ (TU_a) = \frac{100}{LC_{50}}$$

$$TU_a = \frac{100}{100} = 1TU_a$$

$PMT = 1TU_a$ (highest observed toxicity data) \times 3.0 (multiplier in Appendix A) \times

0.01 (dilution factor) = $0.03TU_a$

$0.03TU_a$ is lower than EPA's TSD recommended whole effluent toxicity criteria for protection against acute effects: $0.3TU_a$. Therefore, there is no reasonable potential of causing toxicity and a limit is not needed. However, based on anti-backsliding regulations, the previous limit of $LC50 \geq 20\%$ is being maintained.

3.8 STORMWATER BENCHMARKS

The following benchmarks are applicable to the stormwater discharge DSN 01W-1.

Chemical Oxygen Demand (mg/l)	75.0
Total Copper (mg/l)	0.059
Total Oil and Grease (mg/l)	5.0
Sample pH (S.U.)	5.0 – 9.0
Total Suspended Solids (mg/l)	90.0
Total Phosphorus (mg/l)	0.40
Total Kjeldahl Nitrogen (mg/l)	2.30
Nitrate as Nitrogen (mg/l)	1.10
Total Lead (mg/l)	0.076
Total Zinc (mg/l)	0.160

Benchmark thresholds for chemical oxygen demand, total oil and grease, sample pH, total suspended solids, nitrate as nitrogen, total phosphorus, and total Kjeldahl nitrogen are based upon 80th percentiles of the cumulative relative frequency graphs developed from stormwater results reported under the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

Benchmark thresholds for copper, lead, and zinc are based upon state Water Quality Standards and have been determined to be protective of water quality at typical dilution rates. However, 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 Commissioner 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.

3.9 COMPARISON OF LIMITS

After preparing and evaluating applicable technology-based effluent limitations and water quality-based effluent limitations, the most stringent limits are applied in the permit. Pollutants of concern that only require monitoring without limits are not included in the below table.

Parameters	Table 3.9.1: Comparison of Limits Based on Different Criteria	
	Water quality Limits Based on EPA/505/2-90-001 (mg/l) (See Table 3.7.1)	Previous permit limits
Acute toxicity	---	MDL = LC50 \geq 20% MIL = LC50 > 6.7%
Total Residual Chlorine	---	AML = 7.6 μ g/l MDL = 16.2 μ g/l MIL = 24.3 μ g/l
Copper, total	AML = 0.128 mg/l MDL = 0.294 mg/l	AML = 46 μ g/l MDL = 77 μ g/l MIL = 115 μ g/l
pH, minimum	6.8	6.0
pH, maximum	8.5	9.0
Note: The highlighted numbers represent the most stringent effluent limits. AML: Average Monthly Limit MDL: Maximum Daily Limit MIL: Maximum Instantaneous Limit		

3.10 SAMPLING FREQUENCY, TYPE, AND REPORTING

RCSA Section 22a-430-3(j) prescribes quarterly acute toxicity monitoring. To comply with the acute toxicity monitoring requirement, semi-annual monitoring is required for both wet weather and dry weather discharges. This results in a total of four acute toxicity monitoring events per year.

Daily composite and grab sample average sample types are incorporated into the permit consistent with RCSA Sections 22a-430-3(j)(3) and 430-4(c)(20) respectively. Grab sample types are incorporated for the stormwater discharge.

3.11 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

POLLUTANTS	LIMIT	BASIS FOR LIMIT	MONITORING/ REPORTING FREQUENCY
DSN 001-D:			
Aluminum, total	Monitoring only requirement	No RP to cause exceedance of WQC & Case-by-case determination	Quarterly
Ammonia, total (as Nitrogen)	Monitoring only requirement	Dissolved oxygen TMDL	Quarterly
LC50 Static 48 Hr Acute Toxicity, <i>Mysidopsis bahia</i>	\geq 20%	Anti-backsliding regulations	Semiannually
LC50 Static 48 Hr Acute Toxicity <i>Cyprinodon variegatus</i>	\geq 20%	Anti-backsliding regulations	Semiannually
Chronic Aquatic Toxicity (Survival) <i>Mysidopsis bahia</i>	Monitoring only requirement	Case-by-case determination using BPJ	Annually
Chronic Aquatic Toxicity (Reproduction) <i>Mysidopsis bahia</i>	Monitoring only requirement	Case-by-case determination using BPJ	Annually

POLLUTANTS	LIMIT	BASIS FOR LIMIT	MONITORING/ REPORTING FREQUENCY
Chronic Aquatic Toxicity (Survival) <i>Cyprinodon variegatus</i>	Monitoring only requirement	Case-by-case determination using BPJ	Annually
Chronic Aquatic Toxicity (Growth) <i>Cyprinodon variegatus</i>	Monitoring only requirement	Case-by-case determination using BPJ	Annually
Biochemical Oxygen Demand (5-day)	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
Chemical Oxygen Demand	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
Chlorine, total residual	AML = 7.5 µg/l MDL = 16.2 µg/l MIL = 24.3 µg/l	Anti-backsliding regulations Anti-backsliding regulations Anti-backsliding regulations	Quarterly
Copper, total	AML = 0.046 mg/l MDL = 0.077 mg/l MIL = 0.115 mg/l	RP to cause exceedance of WQC & Anti-backsliding regulations	Quarterly
Enterococci	Monitoring only requirement	Statewide Bacteria TMDL	Quarterly
Extractable Total Petroleum Hydrocarbon	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
Fecal coliform	Monitoring only requirement	Case-by-case determination using BPJ & Statewide Bacteria TMDL	Quarterly
Flow rate (Average daily)	25,000 gpd	Permitted discharge flow per application	Continuous/ Quarterly
Flow, Maximum during 24 hr. period	47,000 gpd	Permitted discharge flow per application	Continuous/ Quarterly
Iron, total	Monitoring only requirement	No RP to cause exceedance of WQC & case-by-case determination using BPJ	Quarterly
Lead, total	Monitoring only requirement	No RP to cause exceedance of WQC & case-by-case determination using BPJ	Quarterly
Kjeldahl Nitrogen, total	Monitoring only requirement	Dissolved oxygen TMDL	Quarterly
Nitrates, (as N)	Monitoring only requirement	Dissolved oxygen TMDL	Quarterly
Nitrites, (as N)	Monitoring only requirement	Dissolved oxygen TMDL	Quarterly
Nitrogen, total	Monitoring only requirement	Dissolved oxygen TMDL	Quarterly
Oil petroleum, total recoverable, total	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
pH	6.8 – 8.5	WQC	Quarterly
Phosphorus, total	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
Solids, total dissolved	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly

POLLUTANTS	LIMIT	BASIS FOR LIMIT	MONITORING/ REPORTING FREQUENCY
Solids, total suspended	MDL = 30 mg/l MIL = 30 mg/l	Case-by-case determination using BPJ	Quarterly
Surfactants (methylene blue active substances (MBAS))	Monitoring only requirement.	Case-by-case determination using BPJ	Quarterly
Temperature	95°F	In-stream WQS with ZOI.	Continuous/ Quarterly
Total Organic Carbon	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
Total Toxic Organics	Monitoring only requirement	Case-by-case determination using BPJ	Quarterly
Zinc, total	Monitoring only requirement	No RP to cause exceedance of WQC & Case-by-case determination using BPJ	Quarterly
DSN 001-W:			
Aluminum, total	Monitoring only requirement	Case-by-case determination using BPJ to obtain effluent data from wet weather discharges allowing an evaluation to be performed to determine the impacts on instream water quality	Quarterly
Ammonia, total (as Nitrogen)	Monitoring only requirement		Quarterly
LC50 Static 48 Hr Acute Toxicity, <i>Mysidopsis bahia</i>	Monitoring only requirement		Semiannually
LC50 Static 48 Hr Acute Toxicity <i>Cyprinodon variegatus</i>	Monitoring only requirement		Semiannually
Chemical Oxygen Demand	Monitoring only requirement		Quarterly
Chlorine, total residual	Monitoring only requirement		Quarterly
Copper, total	Monitoring only requirement		Quarterly
Enterococci	Monitoring only requirement		Quarterly
Extractable Total Petroleum Hydrocarbon	Monitoring only requirement		Quarterly
Fecal coliform	Monitoring only requirement		Quarterly
Flow rate (Average daily)	Monitoring only requirement		Quarterly
Flow, Maximum during 24 hr. period	Monitoring only requirement		Quarterly
Lead, total	Monitoring only requirement		Quarterly
Nitrate (as N)	Monitoring only requirement		Quarterly
Nitrite (as N)	Monitoring only requirement		Quarterly
pH	Monitoring only requirement		Quarterly

POLLUTANTS	LIMIT	BASIS FOR LIMIT	MONITORING/ REPORTING FREQUENCY
Oil and grease, total	Monitoring only requirement		Quarterly
Phosphorus	Monitoring only requirement		Quarterly
Total Kjeldahl Nitrogen	Monitoring only requirement		Quarterly
Nitrogen, total	Monitoring only requirement		Quarterly
Total Organic Carbon	Monitoring only requirement		Quarterly
Total Suspended Solids	Monitoring only requirement		Quarterly
Total Toxic Organics	Monitoring only requirement		Quarterly
Zinc, total	Monitoring only requirement		Quarterly
DSN 01W-1:			
Aluminum, total	Monitoring only requirement	Case-by-case determination using BPJ for the purposes of determining compliance with established industrial stormwater benchmarks pre and post SWPPP and control measures implementation.	Quarterly
Chemical Oxygen Demand	Monitoring only requirement		Quarterly
Copper, total	Monitoring only requirement		Quarterly
Iron, total	Monitoring only requirement		Quarterly
Lead, total	Monitoring only requirement		Quarterly
Nitrate (as N)	Monitoring only requirement		Quarterly
Oil and Grease	Monitoring only requirement		Quarterly
pH, Minimum	Monitoring only requirement		Quarterly
pH, Maximum	Monitoring only requirement		Quarterly
Phosphorus, total	Monitoring only requirement		Quarterly
Total Suspended Solids	Monitoring only requirement		Quarterly
Zinc, total	Monitoring only requirement		Quarterly
AML: Average Monthly Limit BPJ: Best Professional Judgment RP: Reasonable potential			
MDL: Maximum Daily Limit MIL: Maximum Instantaneous Limit BPT: Best Practicable Control Technology Currently Available WQC: Water quality criteria			

3.12 OTHER PERMIT CONDITIONS

The permit contains special conditions related to the Permittee's industrial stormwater discharge from DSN 001-W and DSN 01W-1, including the requirement to implement control measures and develop and implement a stormwater pollution prevention plan ("SWPPP") to control discharges of stormwater consistent with 40 CFR 122.44(k) and CT DEEP's General Permit for the Discharge of Stormwater Associated with Industrial Activity. These stormwater requirements apply to the stormwater discharge at DSN 01W-1, prior to commingling with wastewater and discharging to the receiving water via DSN 001-W.

The permit also requires that the Permittee implement the Spill Prevention and Control Plan revised on February 7, 2024, and submitted to DEEP on May 22, 2024.

3.13 COMPLIANCE SCHEDULE

The permit has the following compliance schedules in accordance with 40 CFR Part 122.47 and RCSA Section 22a-430-4(1)(3).

- DEEP is requiring effluent monitoring for Per- and polyfluoroalkyl substances ("PFAS") in certain discharges to support further regulatory evaluations regarding the identification of contributing sources of such substances to the state's surface waters. The Permittee operates under SIC codes 3351 and 3316 and has been identified as a potential source of PFAS in accordance with DEEP's Industrial NPDES and Pretreatment PFAS Roadmap ([NPDES and Pretreatment PFAS Roadmap \(ct.gov\)](#)). In addition, several spills of PFAS containing material have occurred on the site. As such, this permit contains a compliance schedule requiring the Permittee to develop, submit for approval, and implement a PFAS monitoring and sampling plan to ensure data is representative and undergoes proper quality control and assurance. The industrial classification has been identified as a potential source of PFAS, and the effluent from DSN 001-D and DSN 001-W will be sampled to characterize the discharge.
- At the time of permit issuance, the Permittee is unable to separate its comingled discharges of stormwater and wastewater sources (NCCW, cooling tower blowdown, steam condensate from boiler operations, and fire suppression testing wastewaters). As such, the comingled discharge is regulated via DSN 001-W. DEEP is including a compliance schedule for the Permittee to evaluate and identify methods to ensure wastewater sources comply with DSN 001-D effluent limits during wet weather discharges. This includes evaluating (1) the treatment system's capacity to treat wastewater sources during wet weather discharges; (2) efficiency of the treatment system and options for segregating the comingled stormwater and wastewater sources; and (3) options for expanding the treatment system to ensure wastewater effluent limits are achieved consistently during both wet and dry weather discharges

- The previous permit pH limits were changed from 6.0 – 9.0 S.U. to 6.8 – 8.5 S.U. consistent with the water quality criteria for a class “SB” waterbody. A review of discharge monitoring data shows the Permittee may not be able to immediately comply with the proposed limits. As such, this permit contains a compliance schedule requiring the Permittee to evaluate alternate actions to achieve compliance with the proposed pH limits.

3.14 ANTIDegradation

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

This discharge is an existing discharge, and the Permittee does not propose an increase in volume or concentration of constituents. Therefore, only the Tier 1 Antidegradation Evaluation and Implementation Review was conducted to 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, RCSA Sec.22a-426-8(a)(1).

The Tier I review, as documented in Section 3.3 – 3.11 of this fact sheet, involved the following:

- An evaluation of narrative and numeric water quality standards, criteria and associated policies;
- Consideration of the discharge activity both independently and in the context of other dischargers in the affected waterbodies; and
- Consideration of any impairment listed pursuant to Section 303d of the federal Clean Water Act or any TMDL established for the waterbody.

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

3.15 SECTION 316(a) EVALUATION

Section 316(a) of the Federal Water Pollution Control Act, U.S.C. § 1326(a) requires that the thermal component of any discharge assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving water body. The segment of Norwalk Harbor where the discharge is located is classified as a class "SB" under the WQS. The applicable WQS for a class “SB” surface water is: "There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this class and, no case exceed 83°F, or in any case raise the temperature of surface water more than 4°F. During the period including July, August, and September, the temperature of the receiving water shall not be raised more than 1.5°F" (Section 4(C) of this permit renewal).

The Permittee discharges a heat load to the Norwalk Harbor comprising of NCCW, boiler blowdown, and steam condensate (DSN 001-D). The Permittee requested an alternative temperature limit from 83°F, the water quality criteria for temperature, and submitted a report titled “Final Report Thermal Plume Characterization Study” dated October 3, 2014, prepared by Ocean Surveys, Inc. The report demonstrated that King Industries’ discharge did not have significant thermal influence beyond the allocated thermal ZOI (507,785 gpd = 21,158 gph), and was approved on June 5, 2018, during the processing of the previous permit. A review of DMR data from 2019 – 2024 showed a temperature range of 67.8 °F – 90.1°F.

Commissioner’s Proposed Decision on Thermal Variance Request: RCSA Section 22a-430-4(q)(2)(A)(ii) allows the Commissioner to grant or deny variances for alternative effluent limits for thermal discharges which are made in accordance with the criteria and procedures specified in 40 CFR Part 125 Subpart H. The Applicant must demonstrate to the satisfaction of the Commissioner that thermal effluent limitations required under Section 301 or 306 of the Clean Water Act and WQS are more stringent than necessary to assure the protection and propagation of a balanced, indigenous, population of fish, shellfish, and wildlife in and on the waterbody receiving the discharge.

The 2014 thermal plume study referenced above is still representative of King Industries’ thermal impact and the discharge temperature from 2019 – 2024; therefore, the temperature limit of 95°F in the previous permit has been carried forward.

3.16 ANTI-BACKSLIDING

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

3.17 VARIANCES AND WAIVERS

The Permittee requested alternative effluent limits for thermal discharges consistent with RCSA Section 22a-430-4(q)(2)(A)(ii), see Section 3.14

3.18 E-REPORTING

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

SECTION 4 SUMMARY OF NEW PERMIT CONDITIONS AND LIMITS FROM THE PREVIOUS PERMIT

The changes made to the permit are as noted below.

- MIL for pH was changed from 6.0 – 9.0 S.U. to 6.8 – 8.5 S.U. consistent with the water quality criteria for a class “SB” waterbody. A compliance schedule was added to the permit to give the permittee 12-months to comply with the new pH effluent limits.
- Stormwater monitoring requirements were added to DSN 01W-1 upstream of the treatment system for the purpose of determining compliance with stormwater benchmarks prior to commingling with wastewater sources.
- Stormwater control measures and SWPPP requirements are applicable to the stormwater discharge from DSN 01W-1, prior to commingling with the wet weather wastewater discharge of DSN 001-W.

- Total toxic organics monitoring was added for both the wet and dry weather discharges to characterize the presence and variability of organic compounds due to the number of spills that have occurred at the site.
- A special condition was added to require the Permittee to implement the Spill Prevention and Control Plan, revised on February 7, 2024, and submitted to DEEP on May 22, 2024.
- A compliance schedule was added to the permit to address the comingled discharge of wastewater with stormwater.
- A compliance schedule to conduct PFAS sampling was added to the permit due to the frequency of spills containing PFAS.

A review of the discharge monitoring reports from 2019 to 2024 showed that the Permittee should be able to meet the proposed effluent limits, with the exception of pH as described in the last paragraph of Section 3.13 of this fact sheet.

SECTION 5 PUBLIC PARTICIPATION PROCEDURES

5.1 INFORMATION REQUESTS

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

APPLICATION NO. 202302698

PERMIT ID NO. CT0000841

Interested persons may obtain copies of the application from Michael Bourgoin, King Industries, Inc., 1 Science Road, Norwalk, CT 06852, mbourgoin@kingindustries.com, Phone No.: 203-866-5551.

The application is available for inspection by contacting Oluwatoyin Fakilede at 860-424-3025 or oluwatoyin.fakilede@ct.gov, at the Department of Energy and Environmental Protection, Bureau of Materials Management and Compliance Assurance, 79 Elm Street, Hartford, CT 06106 5127 from 8:30-4:30, Monday through Friday.

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

5.2 PUBLIC COMMENT

Prior to making a final decision to approve or deny any application, the Commissioner shall consider written comments on the application from interested persons that are received within 30 days of this public notice. Written comments should be directed to Oluwatoyin Fakilede, Environmental Engineer 3, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127 or DEEP.IndustrialNPDESPublicComments@ct.gov and should indicate the Permit ID No. CT0000841 in the subject line.

The Commissioner may hold a public hearing prior to approving or denying an application if in the Commissioner's discretion the public interest will be best served thereby, and shall hold a hearing upon receipt of a petition signed by at least twenty five (25) persons. Notice of any public hearing shall be published at least thirty (30) days prior to the hearing.

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

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

ATTACHMENT 1

Reasonable Potential Statistical Multiplier (Table 3-1 of TSD EPA/505/2-90-001)

Table 3-1. Reasonable Potential Multiplying Factors: 99% Confidence Level and 99% Probability Basis																				
Number of Samples	Coefficient of Variation																			
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1	1.6	2.5	3.9	6.0	9.0	13.2	18.9	26.5	36.2	48.3	63.3	81.4	102.8	128.0	157.1	190.3	227.8	269.9	316.7	368.3
2	1.4	2.0	2.9	4.0	5.5	7.4	9.8	12.7	16.1	20.2	24.9	30.3	36.3	43.0	50.4	58.4	67.2	76.6	86.7	97.5
3	1.4	1.9	2.5	3.3	4.4	5.6	7.2	8.9	11.0	13.4	16.0	19.0	22.2	25.7	29.4	33.5	37.7	42.3	47.0	52.0
4	1.3	1.7	2.3	2.9	3.8	4.7	5.9	7.2	8.7	10.3	12.2	14.2	16.3	18.6	21.0	23.6	26.3	29.1	32.1	35.1
5	1.3	1.7	2.1	2.7	3.4	4.2	5.1	6.2	7.3	8.6	10.0	11.5	13.1	14.8	16.6	18.4	20.4	22.4	24.5	26.6
6	1.3	1.6	2.0	2.5	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.8	11.1	12.4	13.8	15.3	16.8	18.3	19.9	21.5
7	1.3	1.6	2.0	2.4	2.9	3.6	4.2	5.0	5.8	6.7	7.7	8.7	9.7	10.8	12.0	13.1	14.4	15.6	16.9	18.2
8	1.2	1.5	1.9	2.3	2.8	3.3	3.9	4.6	5.3	6.1	6.9	7.8	8.7	9.6	10.6	11.6	12.6	13.6	14.7	15.8
9	1.2	1.5	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.7	6.4	7.1	7.9	8.7	9.6	10.4	11.3	12.2	13.1	14.0
10	1.2	1.5	1.8	2.2	2.6	3.0	3.5	4.1	4.7	5.3	5.9	6.6	7.3	8.0	8.8	9.5	10.3	11.0	11.8	12.6
11	1.2	1.5	1.8	2.1	2.5	2.9	3.4	3.9	4.4	5.0	5.6	6.2	6.8	7.4	8.1	8.8	9.4	10.1	10.8	11.5
12	1.2	1.4	1.7	2.0	2.4	2.8	3.2	3.7	4.2	4.7	5.2	5.8	6.4	7.0	7.5	8.1	8.8	9.4	10.0	10.6
13	1.2	1.4	1.7	2.0	2.3	2.7	3.1	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.1	7.6	8.2	8.7	9.3	9.9
14	1.2	1.4	1.7	2.0	2.3	2.6	3.0	3.4	3.9	4.3	4.8	5.2	5.7	6.2	6.7	7.2	7.7	8.2	8.7	9.2
15	1.2	1.4	1.6	1.9	2.2	2.6	2.9	3.3	3.7	4.1	4.6	5.0	5.4	5.9	6.4	6.8	7.3	7.7	8.2	8.7
16	1.2	1.4	1.6	1.9	2.2	2.5	2.9	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.1	6.5	6.9	7.3	7.8	8.2
17	1.2	1.4	1.6	1.9	2.1	2.5	2.8	3.1	3.5	3.8	4.2	4.6	5.0	5.4	5.8	6.2	6.6	7.0	7.4	7.8
18	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.4	3.7	4.1	4.4	4.8	5.2	5.6	5.9	6.3	6.7	7.0	7.4
19	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.0	3.3	3.6	4.0	4.3	4.6	5.0	5.3	5.7	6.0	6.4	6.7	7.1
20	1.2	1.3	1.6	1.8	2.0	2.3	2.6	2.9	3.2	3.5	3.8	4.2	4.5	4.8	5.2	5.5	5.8	6.1	6.5	6.8

ATTACHMENT 2

WLA Statistical Multipliers from (Table 5-1 of TSD EPA/505/2-90-001)

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

CV	WLA Multipliers		Acute $LTA_{a,c} = WLA_{a,c} \cdot e^{[0.5 \sigma^2 - z \sigma]}$ where $\sigma^2 = \ln [CV^2 + 1]$, $z = 1.645$ for 95th percentile occurrence probability, and $z = 2.326$ for 99th percentile occurrence probability
	$e^{[0.5 \sigma^2 - z \sigma]}$		
	95th Percentile	99th Percentile	
0.1	0.853	0.797	
0.2	0.736	0.643	
0.3	0.644	0.527	
0.4	0.571	0.440	
0.5	0.514	0.373	
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	0.360	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	0.126	
1.9	0.281	0.121	
2.0	0.277	0.117	

<p>Chronic (4-day average)</p> $LTA_c = WLA_c \cdot e^{[0.5 \sigma_c^2 - z \sigma_c]}$ <p>where $\sigma_c^2 = \ln [CV^2 / 4 + 1]$, $z = 1.645$ for 95th percentile occurrence probability, and $z = 2.326$ for 99th percentile occurrence probability</p>	CV	WLA Multipliers	
		$e^{[0.5 \sigma_c^2 - z \sigma_c]}$	
		95th Percentile	99th Percentile
	0.1	0.822	0.891
	0.2	0.853	0.797
	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	0.449	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

ATTACHMENT 3

LTA Statistical Multipliers from (Table 5-2 of TSD EPA/505/2-90-001)

Table 5-2. Calculation of Permit Limits

CV	LTA multipliers	
	$e^{[z\sigma - 0.5\sigma^2]}$	
	95th Percentile	99th Percentile
0.1	1.17	1.25
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	3.56
0.8	2.48	4.01
0.9	2.64	4.46
1.0	2.78	4.90
1.1	2.91	5.34
1.2	3.03	5.76
1.3	3.13	6.17
1.4	3.23	6.56
1.5	3.31	6.93
1.6	3.38	7.29
1.7	3.45	7.63
1.8	3.51	7.95
1.9	3.56	8.26
2.0	3.60	8.55

Maximum Daily Limit

$$MDL = LTA \cdot e^{[z\sigma - 0.5\sigma^2]}$$

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

Average Monthly Limit	CV	LTA Multipliers									
		$e^{[z\sigma_n - 0.5\sigma_n^2]}$									
		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 • e^[zσ_n - 0.5σ_n²] where $\sigma_n^2 = \ln [CV^2 / n + 1]$. $z = 1.645$ for 95th percentile, $z = 2.326$ for 99th percentile, and n = number of samples/month	0.1	1.17	1.12	1.06	1.06	1.03	1.25	1.18	1.12	1.06	1.04
	0.2	1.36	1.25	1.17	1.12	1.06	1.55	1.37	1.25	1.16	1.09
	0.3	1.55	1.36	1.26	1.16	1.09	1.90	1.59	1.40	1.24	1.13
	0.4	1.75	1.52	1.36	1.25	1.12	2.27	1.83	1.55	1.33	1.18
	0.5	1.95	1.66	1.45	1.31	1.16	2.68	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	1.52	1.28
	0.7	2.31	1.94	1.65	1.45	1.22	3.56	2.66	2.08	1.62	1.33
	0.8	2.48	2.07	1.75	1.52	1.26	4.01	2.96	2.27	1.73	1.39
	0.9	2.64	2.20	1.85	1.59	1.29	4.46	3.28	2.46	1.84	1.44
	1.0	2.78	2.33	1.95	1.66	1.33	4.90	3.59	2.68	1.96	1.50
	1.1	2.91	2.45	2.04	1.73	1.36	5.34	3.91	2.90	2.07	1.56
	1.2	3.03	2.56	2.13	1.80	1.39	5.76	4.23	3.11	2.19	1.62
	1.3	3.13	2.67	2.23	1.87	1.43	6.17	4.55	3.34	2.32	1.68
	1.4	3.23	2.77	2.31	1.94	1.47	6.56	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	1.80
	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	2.56	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	6.06	4.46	2.98	2.00
	1.9	3.56	3.17	2.71	2.27	1.64	8.26	6.34	4.68	3.12	2.07
	2.0	3.60	3.23	2.78	2.33	1.68	8.55	6.61	4.90	3.26	2.14