National Pollutant Discharge Elimination System Factsheet

SECTION 1 FACILITY SUMMARY

APPLICANT	Allnex USA Inc.
PERMIT NO.	CT0000086
APPLICATION NO.	201508943
DATE APPLICATION RECEIVED	11/18/2015
LOCATION ADDRESS	528 South Cherry Street, Wallingford, CT 06492
FACILITY CONTACT	Virginia Ryan, Safety, Health, and Environmental Manager Office Phone: 203-233-7967 Email: virginia.ryan@allnex.com
MAILING ADDRESS	528 South Cherry Street, Wallingford, CT 06492
DMR CONTACT	Virginia Ryan Office Phone: 203-233-7967 Email: virginia.ryan@allnex.com
SECRETARY OF STATE BUSINESS ID	1099389
PERMIT TERM	5 Years
PERMIT CATEGORY	Major NPDES
SIC & NAICS CODE(S)	2821, 325211
APPLICABLE EFFLUENT GUIDELINES	40 Code of Federal Regulations (CFR) Part 414
PERMIT TYPE	Reissuance
OWNERSHIP	Private
RECEIVING WATER	DSN 001 Quinnipiac River
WATERBODY SEGMENT ID'S	CT5200-00_02
WATERBODY CLASSIFICATION	Class B
DISCHARGE LOCATIONS	DSN 001 Latitude 41 26'04" Longitude 72 50'52"
COMPLIANCE ACTIONS	Yes
DEEP STAFF ENGINEER	Patrick Bieger, Environmental Engineer Patrick.bieger@ct.gov

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1.1 PERMIT FEES

***Application Fee**:*

Filing Fee	Invoice No.: DEP255635	Amount: $1,300	Date Paid: 11/18/2015
Processing Fee	Invoice No.: NA	Amount: NA	Date Paid: NA

Annual Fee:

	WASTEWATER CATEGORY (per RCSA Sec. 22a-430-7)	FLOW CATEGORY	DSN	ANNUAL FEE (per RCSA Sec. 22a-430-7 and CGS Sec. 22a-6f)
	Organic Chemicals Manufacturing	>50,000	001	$8,425
	Sanitary Sewage to Surface Water	20,000-999,999	001	$3,445
	Non-Contact Cooling Water	100,001-10,000,000	001	$2,290
	Groundwater Contamination Recovery Systems	----	001	$4,337.50
	Blowdown from Heating/Cooling Equipment	>5,000	001	$4,337.50
	Water Production Wastewaters	----	001	$660
	Fire Suppression Test Water	----	001	----
	Stormwater	----	001	$2,912.50
TOTAL				**$26,407.50**

1.2 OTHER PERMITS

Allnex USA Inc. has other water discharges that are covered under different permitting mechanisms as follows:

- Stormwater from the site is permitted under the General Permit for the Discharge of Stormwater Associated with Industrial Activity (GSI002603).

1.3 APPLICATION SUBMITTAL INFORMATION

On November 18, 2015, the Department of Energy and Environmental Protection ("DEEP") received an application (Application 201508943) from Allnex USA Inc. ("Permittee", "Applicant", "the Facility") (formerly Cytec Industries Inc.) in the Town of Wallingford for the renewal of its National Pollution Discharge Elimination System ("NPDES") Permit #CT0000086, which expired on May 16, 2016 ("the previous permit"). Consistent with the requirements of Section 22a-6g of the Connecticut General Statutes ("CGS"), the Applicant caused a Notice of Permit Application to be published in the Record-Journal on October 23, 2015. On December 29, 2015, the application was determined to be timely and administratively sufficient.

The Permittee seeks authorization for the following in Application 201508943:

DSN	PROPOSED AVERAGE DAILY FLOW (gpd)	PROPOSED MAXIMUM DAILY FLOW (gpd)	PROPOSED WASTESTREAMS	TREATMENT TYPE	DISCHARGE TO
001-1	1,190,000	2,809,000	Non-contact cooling water, cooling tower blowdown, cooling tower system maintenance drains, incidental system leakage, maintenance drains from cooling tower, condenser condensate, steam condensate, filtrates, laboratory wastewater, still bottoms, steam jet ejector condensates, steam jet ejector intercooler water, produced water, seal water, patty box drainage, sluice pelletizer, decant water, wash water, wet scrubber, building roof and containment structure water, sampling sink or valve drainage, maintenance sinks, eye wash and safety shower, boiler blowdown, water treatment wastewater, air compressor condensates, air conditioner condensate, activated carbon regeneration, boiler system drains, fire training water, sanitary sewage, fire suppression test water, fire water storage tank overflow, and engine cooling water for emergency diesel pump	Biological Treatment	Quinnipiac River

1.4 DESCRIPTION OF INDUSTRIAL PROCESS

Allnex USA Inc. is a business that performs organic chemical manufacturing of thermoplastic resins. Roehm America LLC ("Roehm") is an company co-located on the site that manufactures thermosetting resins. The Permittee has an agreement with Roehm to receive and treat their wastewater generated from OCPSF and non-OCPSF operations. Roehm is an independent company from Allnex USA Inc. that uses utilities from Allnex USA Inc. and discharges into the Permittee's wastewater treatment plant through internal DSN 001-I. Roehm is a business that also performs organic chemical manufacturing of thermosetting resins.

The facility has a wastewater treatment plant that is used to treat wastewater from organic chemical manufacturing, water treatment wastewater, non-process wastewaters, and sanitary sewage. This wastewater is discharged to the Quinnipiac River by way of DSN 001 under this proposed permit.

This permit also authorizes the discharge from a capped landfill historically used to manage the facility's solid wastes. The closed landfill onsite only received wastes from the Permittee's facility. This permit also authorizes the discharge of groundwater remediation wastewater from historic spill sites.

1.5 FACILITY DESCRIPTION

This facility has one external outfall, DSN 001, which discharges to the Quinnipiac River. There are five internal outfalls to evaluate compliance with the process and non-process wastewater at the facility. DSN 001-A is the influent to the wastewater treatment plant (process and non-process water); 001-B is the domestic sewage from the facility that flows into the aeration basin at the wastewater treatment plant (non-process water); 001-E is contaminated ground water (Acrylonitrile spill area) from Building A that enters into DSN 001-A (non-Organic Chemicals, Plastics and Synthetic Fibers ("OCPSF") categorical waters); 001-F is an internal outfall representing landfill leachate that enters the grit chamber (non-OCPSF waters); and 001-I is the discharge from Roehm (formerly Evonik, and Cyro).

DSN 002-1 represents fire water suppression systems that discharge into a stormwater basin. This DSN was requested to be removed from the permit during a site visit on March 21, 2024. During the inspection, DEEP was made aware that the wastewaters previously discharged under DSN 002 have either been rerouted to DSN 001, are being containerized and shipped off site, or are authorized under the Comprehensive General Permit for Discharges to Surface Water and Groundwater.

Building 30, 40, and 45 (cooling towers) (non-OCPSF) – The Facility has recirculating cooling towers that generate non-contact cooling water (NCCW). There are three towers at the facility labeled Building 30 (servicing Building 5B production), Building 40 (servicing Buildings 6, 6B, and 6C production) and Building 45 (servicing Evonik's production). The towers use groundwater as the source of water.

Building 2 (utility operations) (non-OCPSF waters) – Produces steam for the site and compressed air for operations.

Remediation Areas (non-OCPSF waters) – The facility has four remediation areas which have groundwater pumping systems. The first remediation area includes the Building 10 tank farm and offsite wells along Route 5, this area includes a system for the removal of various organic chemicals. The second remediation area is Building 2, which has a system for the removal of No. 6 Fuel Oil. The third remediation area is the methyl formcel area, with its system for the removal of formaldehyde and several alcohols. The final remediation area is the Building 5B tank farm, which has a system for removal of several organic chemicals. These remediation areas are independent of each other and operate on an as-needed basis. These four remediation areas discharge through DSN 001-E to the wastewater treatment plant.

The landfill leachate collection system includes the southern leachate interceptor, the north-south interceptor, and east-west interceptor. The landfill leachate system discharges through DSN 001-F to the wastewater treatment plant.

Buildings 15, 34, and 37 (ancillary operations) (non-OCPSF waters) – These buildings contain floor drains that are connected to the facility 's wastewater treatment plant. Operations in these buildings are not considered OCPSF categorical wastewaters.

Buildings 4, 7, 16, 26, and 32 (sanitary wastewater) (non-OCPSF waters) – These buildings do not perform industrial activities, but the sanitary wastewater from these buildings discharge to the onsite wastewater treatment plant.

Buildings 5B (resin manufacturing) (OCPSF waters) – This building uses reactor trains in kettle tanks for the manufacture of amino resins, acrylamide resins, coating catalysts, formaldehyde free resins, and urethane and acrylic-modified alkyd resins. Kettle tanks can be cleaned with washing alcohols which are then pumped back to wash tanks for reuse or discharged with wastewater that is piped to the wastewater treatment plant. All floor drains are hard piped inside the buildings and routed to the wastewater treatment plant.

Building 6 (resin manufacturing) (OCPSF waters) – This building is separated into three sections (6, 6B, and 6C). The building uses reactor trains for the manufacture of amino (methylated) resins (Building 6B and 6C), phenolic resins, and M-3 resins.

Buildings 5 and 6 are capable of producing other resins on an as-needed basis (OCPSF waters). Both buildings are supplied from storage tanks holding raw materials, intermediates, or final products. These tanks can be equipped with water scrubbers or condensers when required.

Building 2 (boiler house and air compression) (non-OCPSF waters) – This building contains two boilers to generate steam for on-site process and area heating. The air compressors in the building service both Allnex USA Inc. and Roehm. Adjacent to this building is a diesel-powered air compressor and generator for emergency use. Discharges from this building include boiler blowdown, compressor cooling water, boiler water treatment system clean ups, steam condensate, and water softener drainage.

Building 10 and 10A are used for manufacturing of methyl methacrylate-based polymers. These buildings contain product workshops, product development, and analytical laboratories. The laboratory is used for QA/QC purposes and no water from the laboratory comes into contact with the manufactured product. Therefore, those waters do not fall within the OCPSF categorical discharge definition. These buildings also produce acrylic polymer. The discharges from these buildings go through a latex screener and a fine-mesh vibrating screen separator prior to discharge to the Permittee's wastewater treatment plant. The application indicates Roehm discharges up to a maximum of 250,000 gallons per day. A review of the reported flows from October 2018 to September 2023 indicates the average discharge volume from Roehm to Allnex is 37,620 gallons per day.

Building 10 and 10A weir – The weir is an under and over covered weir that is vented to the atmosphere. The inlet chamber allows any organics that may have escaped from process upsets or spills to float the top of the weir. A low effluent level sensor in the vent line can detect when organics accumulate to an elevated concentration and triggers an alarm. The alarm triggers operating personnel to open the weir and remove the organic layer from the weir.

Building 10 is equipped with secondary containment. The diked area around the monomer blend tanks is designed with piping to convey spills to the secondary containment. The basin is a buried concrete vault with 20,000-gallon capacity. The system is not connected to the wastewater treatment plant.

Fire Fighting – Firefighting water, including foam used to suppress flammable liquid fires, can enter the wastewater treatment plant through collection and hauling to the treatment system. Additionally, the plant has a firefighting training area containment pad that is connected to the wastewater treatment plant. Training exercises are conducted monthly.

The facility's stormwater from both Roehm and Allnex USA Inc. is collected in a separate stormwater sewer system that drains by gravity to an unnamed tributary of the Quinnipiac River and authorized under the stormwater industrial general permit. The non-stormwater discharges have been removed from this outfall and have been rerouted to the treatment system or to ground (see discussion of DSN-002).

1.6 FACILITY CHANGES

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

The following are a list of 3(i) determinations since the previous permit:

3(i) Number	3(i) Description	Date Issued	Change Implemented
201816158	Authorize use of Hydrex 6521, Hydrex 6033, and Hydrex 9622.	1/24/2019	Yes
201911812	Authorize use of secondary butanol, ethylene glycol mono (2-ethylhexyl) ether, and ethylene glycol monoisopropyl ether.	10/31/2019	Yes
201810314	Authorize use of pentanol, octanol, methyl diethanolamine, and methyl carbitol, add chemical stabilizer butylated hydroxytoluene, and add new process for plasticizing ester resin. A duplicate 3(i) application #201810285 for this project was received on September 4, 2018.	9/07/2018	Yes
202206109	Authorize use of ethyl acid phosphate.	7/1/2022	Yes
202308134	Allow use of methyl amyl ketone and ZAY4335.	1/17/2024	Ongoing

The facility added a floating sphere cover to the equalization basin to decrease evaporation during the previous permit term.

1.7 TREATMENT SYSTEM DESCRIPTION

Wastewater enters the grit chamber. The grit chamber includes a rake and conveyor system to remove both floating and settled material as they enter the plant. An early warning system is in place in the chamber to alert personnel of any potential material that could impact the wastewater treatment plant operation. This system consists of an in-line total organic carbon sensor, pH sensor and temperature sensor. Ammonia or urea are added at the grit chamber when needed for treatment and a composite sampler takes samples at programmed intervals for analysis using an in-house lab.

Following the grit chamber, wastewater flows into the equalization basin. The equalization basin is a flow-through storage basin. It is covered with spheres across the entire surface to suppress evaporation. The basin equalizes flow and prevents slug load of organic chemicals into the aeration basin with the help of four mixers. The basin has a volume of about 2.4 million gallons. At the maximum previously permitted average flow, the average detention time was 48 hours. The lower volume in this draft permit will allow for greater retention time. At the basin outlet, a continuous ammonia and phosphorus analyzer are used to maintain proper nutrient levels for treatment. A composite sampler takes samples at programmed intervals. The pH and temperature are also monitored.

The activated sludge aeration basin follows the equalization basin and consists of six aerators. Phosphorus or alcohol distillate is added to the inlet when necessary to provide nutrients for the activated sludge. Nitrogen, phosphorus, dissolved oxygen, and pH are monitored in this basin. The domestic sewage flows through a septic tank before entering a chlorination basin. After the chlorination basin the wastewater discharges through DSN 001-B and into the aeration basin of the wastewater treatment plant.

Aeration basin effluent flows into two clarifiers where the activated sludge separates from the treated wastewater by settling. Cationic polymers are added at the splitter box and anionic polymers are added to the center wells of the clarifiers to assist in settling. The flocculation is aided by a slow-speed mixer in each clarifier . The settled sludge is returned from the clarifiers to the aeration basin or wasted to a gravity thickener tank. Treated wastewater overflows the effluent weirs. Any scum that escapes the center well is collected by surface skimmers and pushed into a trough and pumped into the thickener tank.

Solids from the thickener tank are pumped into chemical condition tanks for processing in the belt filter press. The dewatered sludge is pumped to roll off boxes and disposed off-site in a non-hazardous landfill.

Waters from the clarifiers flow thru the effluent chamber, where they are monitored for flow, pH, turbidity and dissolved oxygen. There are three composite samplers installed to provide samples for the final effluent testing for the NPDES permit. The wastewater then enters a pipe that discharges directly into the Quinnipiac River via DSN 001.

1.8 COMPLIANCE HISTORY

A violations report is included as Attachment A.

Is the Permittee subject to an ongoing enforcement action? ☑ Yes ☐ No

The Permittee is subject to the following recent enforcement actions:

Consent Order No.: COWRIN22001 3/31/2022

The Permittee completed steps of their previous compliance schedule, including studies and evaluations to reduce the phosphorus concentrations in the discharge. However, they were not able to reliably meet the average monthly limit specified in the Step 2 concentration limits for total phosphorus in the previous NPDES permit. Due to this, DEEP and the Permittee signed a consent order creating interim limits for the facility to follow, including decreased average and maximum effluent flow limits, and an increased average monthly phosphorus limit. This consent order will be closed after the issuance of this permit renewal because updated phosphorus limits incorporated into the new permit will supersede the interim limits published in the consent order. For additional information on the basis of why the phosphorus limit was changed in the consent order, see Section 10(H) below regarding the previous compliance schedule in this Section of the fact sheet.

Stipulated Judgment: HHD-CV-13-6039473-S 5/7/2014

The Permittee was subject to a stipulated judgement due to the frequency of spills at their site. On June 9, 2023, DEEP recognized that the Permittee completed all steps required under this stipulated judgement. No further action is required under the judgement in this permit.

Did the previous permit have a compliance schedule? ☑ Yes ☐ No

Section 10(A) of the previous permit required the Permittee to combine discharges DSN 001-G and DSN 001-H into one outfall, with a single representative monitoring point, known as DSN 001-I. This work was completed in 2011 and the permit condition was removed from the previous permit during the permit modification dated May 12, 2016.

Section 10(B) of the previous permit required the Permittee to submit a completed permit application Attachment O for the consolidated monitoring point. The information was provided, and the permit condition was removed from the previous permit during the permit modification dated May 12, 2016.

Section 10(C) of the previous permit required the Permittee to provide a list of materials that would be present in the discharge including final products, intermediates in the chemical processes, byproducts of production, chemical additives, or substances used to treat wastewater. The information was submitted for both Allnex USA Inc. and Roehm America LLC (previously Cytec and Cyro) and the permit condition was removed from the previous permit during the permit modification dated May 12, 2016.

Section 10(D) and (E) of the previous permit were superseded by stipulated judgement HHD-CV-13-6039473. The Permittee completed all actions required by the stipulated judgement and on June 9, 2023, DEEP transmitted a closure letter, documenting the completion of all permit conditions and compliance with this portion of the permit.

Section 10(F) of the previous permit required the Permittee to comply with the final limitations for acrylamide for DSN 001-1. In July 2011, the Permittee submitted a report entitled “Acrylamide Water Criteria Development”. On November 21, 2012, the Permittee submitted its plan to meet the permit effluent limit by discontinuing production of many acrylamide-based products and evaluating the treatment feasibility for acrylamide. The discontinuation of product lines has reduced the levels of acrylamide in the effluent. The plan was accepted by DEEP.

Section 10(G) of the previous permit required the Permittee to address the chronic toxicity in DSN 001-1. The Permittee addressed this requirement during the previous permit term with a TIE (“Toxicity Identification Evaluation”) report completed in 2014 to address toxicity at 26% effluent, as required in Section 10G(2). The Permittee currently uses three laboratories to analyze split samples for chronic toxicity. Split sample results demonstrate variability in toxicity data between the certified labs and the results indicate exceedances of the chronic toxicity limits. This permit includes a compliance schedule for the Permittee to build on previous TIE efforts and address the variance between the three laboratories.

Section 10(H) of the previous permit required the Permittee to submit a plan to reduce their phosphorus discharge pursuant to Public Act (PA) 12-155: An Act Concerning Phosphorus Reductions in State Waters and DEEP's Phosphorus Reduction Strategy for Inland Non-Tidal Waters. During the previous permit term, the Permittee completed several steps to determine what methods are available to achieve the Step 2 limits in the permit. The Permittee evaluated optimization of phosphoric acid to the wastewater treatment plant, using polyaluminum chloride, evaluating biological phosphorus removal, and testing several different flocculants. The most recent treatability evaluation was submitted on June 9, 2020, and evaluated ballasted flocculation and filtration. It was determined that these technologies could not reduce the phosphorus to below the Step 2 concentration limits consistently.

To help further reduce their total phosphorus discharge, the Permittee reduced the average and max flow of wastewater discharge from 2,298,333 gallons per day and 4,367,030 gallons per day, to 1,190,000 gallons per day and 2,809,000 gallons per day, respectively. With the flow reductions, the Permittee was able to meet the total phosphorus loading limits but could not consistently meet the concentration-based limits. To address the violations of the concentration-based limits, consent order no. COWRIN22001 was issued on March 31, 2022, requiring the Permittee to maintain the decreased flow of 1,190,000 gallons per day monthly average and 2,809,000 gallons per day maximum day, and to meet an interim seasonal monthly average phosphorus limit of 0.15 mg/l. They have been able to achieve this limit consistently.

Paragraph B.1. of the consent order established that the interim limits shall continue in effect until the NPDES permit is renewed, revoked, or otherwise modified. Paragraph B.3. establishes that the Permittee shall be considered in full compliance with the consent order when all actions required by the consent order have been completed as approved, or such time that the interim limits are no longer in effect, whichever is sooner. The renewal of this NPDES permit with phosphorus limits satisfies the provisions of B.1. and B.3. of the consent order and the consent order will be closed upon the issuance and effective date of the permit. Please refer to Section 3 of this fact sheet for information about the new total phosphorus limits.

Section 10(I) of the previous permit required the Permittee to relocate DSN 001-1 out of the unnamed tributary and into the Quinnipiac River. Additionally, the Permittee was required to perform a dye study after the completion of the relocation project to determine the zone of influence in the river. Both the relocation and dye study have been completed and this step was removed from the permit during the permit modification dated May 12, 2016.

1.9 GENERAL ISSUES RELATED TO THE APPLICATION

1.9.1 Federally Recognized Indian Land
As provided in the permit application, the site is not located on federally recognized Indian land.

1.9.2 Coastal Area/Coastal Boundary
The activity is not located within a coastal boundary as defined in CGS 22a-94(b).

1.9.3 Endangered Species
Based on the National Diversity Data Base and Fisheries Division review, there are no activities at the site that will impact endangered or protected species at this location.

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

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

1.9.6 Public Water Supply Watershed
As provided in the permit application, the site is not located within a public water supply watershed.

SECTION 2 RECEIVING WATER BODY INFORMATION

The receiving waterbody, the Quinnipiac River, is identified as CT5200-00_02. The segment of the Quinnipiac River is classified as B.

The Quinnipiac River is listed on the State's 303(d) list of impaired waters and is impaired for its designated uses of fish consumption and habitat for fish, other aquatic life and wildlife (FINAL-2022-IWQR-Appendix-B-1-List-of-Impaired-Waters-for-Connecticut-EPA-Category-5.pdf). Impairment of habitat for fish, other aquatic life, and wildlife are due to total phosphorus and other unknown causes. The facility is known to discharge phosphorus and has a wastewater treatment plant that can reduce phosphorus loading into the river. See Section 1.4 of this fact sheet for the discussion on phosphorus in the previous permit's compliance schedule.

There is a Total Maximum Daily Load (TMDL) for this section of the Quinnipiac River for *Escherichia coli* (A Total Maximum Daily Load Analysis for the Quinnipiac River Regional Basin). The discharge has sanitary sewage that is treated by chlorine before being treated in the wastewater treatment plant. A geometric mean limit for *Escherichia coli* of 126 col/100ml has been maintained to comply with the TMDL.

The Permittee is subject to *A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island* (December 2000) (Total Maximum Daily Load for Long Island Sound (ct.gov)). The TMDL requires a decrease in nitrogen loading to the Long Island Sound by 58.5 % by 2014. The Permittee received a waste load allocation (WLA) of 928 lbs/day Total Nitrogen under this TMDL. This WLA was implemented in the previous permit and the Permittee has met the reduction required by the TMDL. The effluent limit of 928 lbs/day is included in this renewal pursuant to the TMDL.

Outside of this river segment, the receiving water is impaired for fish consumptions due to polychlorinated biphenyls (PCBs).

SECTION 3 PERMIT CONDITIONS AND EFFLUENT LIMITATIONS

3.1 EFFLUENT GUIDELINES

The following federal Effluent Limits Guidelines were reviewed to determine their applicability to the facility's industrial processes and discharge, DSN 001-1:

The Permittee manufactures thermoplastic resins and thermosetting resins including amino resins, acrylamide resins, coating catalysts, urethane and acrylic-modified alkyd resins, formaldehyde free resins, amino (methylated) resins phenolic resins, and m-3 amino resins. These processes subject the facility to the Effluent Limit Guidelines at 40 CFR Part 414: Organic Chemicals, Plastics, and Synthetic Fibers, Subpart D Thermoplastic Resins, and Subpart E Thermosetting Resins categorical standards. Additionally, the facility has a biological wastewater treatment plant, which is subject to Subpart I: Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment.

This permit also authorizes the discharge from a capped landfill historically used to manage the facility's solid wastes. The closed landfill onsite only received wastes from the Permittee's facility; therefore, it is not subject to the Landfill Point Source Category at 40 CFR 445.1. Specifically, 40 CFR 445.1(e) states, "the category does not apply to landfills operated in conjunction with other industrial or commercial operations when the landfill only receives wastes generated by the industrial or commercial operation directly associated with the landfill."

3.2 POLLUTANTS OF CONCERN

The following pollutants are included as monitoring requirements in the permit for the reasons noted below:

DSN 001

POLLUTANT	REASON FOR INCLUSION			
	POLLUTANT WITH AN APPLICABLE TECHNOLOGY - BASED LIMIT	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Acenaphthene	X			
Acenaphthylene	X			
Acrylonitrile	X			
Anthracene	X			
Benzene	X			
Benzo(a)anthracene	X			
3,4-Benzofluoranthene	X			
Benzo(k)fluoranthene	X			
Benzo(a)pyrene	X			
Bis(2-ethylhexyl) phthalate	X			
Carbon Tetrachloride	X			
Chlorobenzene	X			
Chloroethane	X			
Chloroform	X			
2-Chlorophenol	X			
Chrysene	X			
Di-n-butyl phthalate	X			
1,2-Dichlorobenzene	X			
1,3-Dichlorobenzene	X			
1,4-Dichlorobenzene	X			
1,1-Dichloroethane	X			
1,2-Dichloroethane	X			
1,1-Dichloroethylene	X			
1,2-trans-Dichloroethylene	X			
2,4-Dichlorophenol	X			
1,2-Dichloropropane	X			
1,3-Dichloropropylene	X			
Diethyl phthalate	X			
2,4-Dimethylphenol	X			
Dimethyl phthalate	X			
4,6-Dinitro-o-cresol	X			
2,4-Dinitrophenol	X			
2,4-Dinitrotoluene	X			
2,6-Dinitrotoluene	X			
Ethylbenzene	X			
Fluoranthene	X			
Fluorene	X			
Hexachlorobenzene	X			
Hexachlorobutadiene	X			

POLLUTANT	REASON FOR INCLUSION			
	POLLUTANT WITH AN APPLICABLE TECHNOLOGY - BASED LIMIT	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Hexachloroethane	X			
Methyl Chloride	X			
Methylene Chloride	X			
Naphthalene	X			
Nitrobenzene	X			
2-Nitrophenol	X			
4-Nitrophenol	X			
Phenanthrene	X			
Phenol	X			
Pyrene	X			
Tetrachloroethylene	X			
Toluene	X			
Total Chromium	X			
Total Copper	X			
Total Cyanide	X			
Total Lead	X			
Total Nickel	X			
Total Zinc	X			
1,2,4-Trichlorobenzene	X			
1,1,1-Trichloroethane	X			
1,1,2-Trichloroethane	X			
Trichloroethylene	X			
Vinyl Chloride	X			
Acetone			X	
Acetonitrile			X	
Acrylamide			X	
Alkalinity (as $CACO_3$)			X	
Aluminum, Total			X	
Ammonia			X	
Barium			X	
Benzoic Acid			X	
Biochemical Oxygen Demand (BOD_5)			X	
Bisphenol A				X
Boron, Total			X	
Butanol			X	
Butyl acetate				X
Chemical Oxygen Demand			X	
Chlorine, Total Residual			X	
Cresol, meta				X
Cresol, ortho				X
Cresol, para				X
Diethyl amine				X
Dimethyl amine				X

POLLUTANT	REASON FOR INCLUSION			
	POLLUTANT WITH AN APPLICABLE TECHNOLOGY - BASED LIMIT	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Di-n-octyl phthalate				X
Epichlorohydrin				X
Escherichia coli		X	X	
Ethanol			X	
Ethyl acrylate				X
Ethylene glycol				X
Formaldehyde			X	
Furfural				X
Iron, Total			X	
Isobutanol			X	
Isophorone				X
Isopropanol			X	
Isopropylamine				X
Kjeldahl Nitrogen, Total (as N)			X	
Magnesium, Total			X	
Methanol			X	
Methyl acrylate				X
Methyl ethyl ketone			X	
Methyl methacrylate			X	
Nitrate (as N)			X	
Nitrite (as N)			X	
Nitrogen, Total			X	
Nitrogen, Total (Annual Loading)			X	
Nonylphenol				X
Oil & Grease, Total			X	
Organic Nitrogen (as N)			X	
Orthophosphate (as P)			X	
Oxygen, Dissolved			X	
PCBs (Polychlorinated Biphenyls as Aroclors)				X
pH			X	
Phosphorus, Total			X	
Propylene glycol				X
Silver, Total			X	
Styrene				X
Tetrahydrofuran			X	
Tert-Butyl alcohol				X
Tin, Total			X	
Titanium, Total			X	
Total Suspended Solids			X	
Triethylamine				X
Xylenes, Total (o, m, p)			X	

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 405 – 471 (EPA's Effluent Limitation Guidelines) and in RCSA Section 22a-430-4(s)(2). Water quality-based effluent limits ("WQBELs") are designed to protect water quality and are determined using the procedures set for 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

A dye study was completed in 2015 after DSN 001 was relocated to the Quinnipiac River. The dye study showed the previous allowable dilution ration of 3.8 to 1 was met within 70 feet of the discharge. Complete mixing was achieved within 270 feet of the discharge. Therefore, the zone of influence from the previous permit of 269,450 gph is maintained in this permit. The instream waste concentration at the zone of influence at the new reduced permitted flow of 1,100,000 gpd is 15.5%.

3.5 RESONABLE POTENTIAL ANALYSIS

Pursuant to CWA Part 301(b)(1)(C) and 40 CFR Part 122.44(d)(1), NPDES permits must contain any requirements in addition to TBELs that are necessary to achieve water quality standards established under Part 303 of the CWA. *See also* 33 U.S.C. Part 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 Part 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 Part 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 Part 122.44(d)(1)(i).

A reasonable potential analysis was completed using data from the Permittee from October 2018 to September 2023. Based on the analysis, there is a reasonable potential to exceed the water quality standards for the following parameters: Total ammonia nitrogen, aluminum, barium, copper, lead, zinc, chlorine, silver, acetone, trichlorobenzene 1,2,4, acrylonitrile, anthracene, benzo(a)anthracene, benzo(a)pyrene, 3,4-benzofluoranthene, benzo(k)fluoranthene, bis(2-ethylhexl)phthalate, di-n-butyl phthalate, dinitrophenol 2,4, hexachlorobenzene, fluorene, methanol, phenanthrene, and propylene glycol. Limits will be included for these parameters in the permit for DSN 001.

DSN 001-1

See Attachment B for the reasonable potential analysis calculations for DSN 001-1.

Total Ammonia Nitrogen:

The freshwater acute and chronic water quality criteria for Ammonia were determined using equations, as specified in Section 22a-426-9 of the WQS. The values for pH and Temperature were found using the USGS gage stations along the Quinnipiac River. The temperature and pH data from Jan 2013- Jan 2024 were used to create ammonia criteria for the whole waterbody. The criteria were calculated based on each month's pH and Temperature data and presence of salmonids and early life stages. The most stringent criteria was used in the reasonable potential analysis. Below are the calculated ammonia criteria. The derivation of the ammonia criteria can be found in Attachment C. The results of the reasonable potential analysis are present in Attachment B.

Calculated Ammonia Criteria (mg/l)

Waterbody: Quinnipiac River, Freshwater Segments

Months	Acute	30 Day Average	4 Day Average
April - October	3.83	2.10	5.24
November - March	3.83	3.98	9.94

3.6 WATERBODY AMBIENT CONDITIONS

Parameter	Value
7Q10	33.6 CFS (determined in the dye study from 2015 using data from the USGS gage 01196500)
Temperature	0.2-27.8 C
pH	6.2-8.7 S.U.

A review of the Quinnipiac River chemistry that was collected with chronic toxicity tests between October 2018 and December 2023 showed detections for ammonia (average concentration 154 ug/l), cyanide (average concentration 0.15 ug/l), chromium (average concentration 0.58 ug/l), copper (average concentration 4.1 ug/l), lead (average concentration 0.27 ug/l), zinc (average concentration 15.6 ug/l), silver (average concentration 0.09 ug/l), and barium (average concentration 119 ug/l). The ambient data was considered in determining WQBELs.

3.7 WHOLE EFFLUENT TOXICITY

The Permittee shall comply with effluent standards or prohibitions established by CWA Part 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.

A reasonable potential analysis was performed for DSN 001 using toxicity sampling data from October 2018 to December 2023 and the analysis concluded there was reasonable potential for the discharge to cause toxicity to the river. The estimated toxic units for both acute and chronic toxicity were above the action levels for those parameters. As a result of the evaluation this permit renewal will include toxicity testing and numeric limits for both acute and chronic toxicity.

Summary Table for DSN 001 Toxicity Reasonable Potential Analysis:

	Most Toxic Sample	CV	Toxic Units	Estimated Max Toxic Units (Accounting for Dilution)	Action Level
Acute	85%	0.065	1.54	0.47	0.3
Chronic*	12.5%	NA	15.4	4.7	1.0

* For Chronic Toxic Units EPA Guidance of an acute to chronic ration ("ACR") of 10 was used. TUa*ACR=TUc

The limits for acute and chronic toxicity will be maintained from the previous permit. The limits for acute toxicity will be LC50 ≥ 100% for a Minimum Daily Limit and a Minimum Instantaneous Limit of LC50 ≥ 33%.
The limits for Chronic Toxicity will be C-NOEC ≥ 26%.

3.8 WATER QUALITY BASED EFFLUENT LIMITATIONS

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 Part 301(b)(1)(C) and 40 CFR Part 122.44(d)(1),122.44(d)(5), 125.84(e) and 125.94(i).

See Attachment B for the WQBELs calculations and effluent limits for DSN 001-1.

Total Phosphorus

The "Recommendations for Phosphorus Strategy Pursuant to PA 12-155 Final Report," (CT DEEP, February 16, 2017) (Phosphorus Plan) establishes a state-wide strategy to reduce phosphorus loading for inland non-tidal waters in order to comply with water quality standards established by the EPA. The analysis determined that the Permittee is required to reduce its phosphorus discharge by 92.30% (from 2014 discharge levels) to meet the maximum allowable enrichment factor ("EF") target necessary to achieve water quality standards (see "Interim Phosphorus Reduction Strategy for Connecticut Freshwater Non-Tidal Waste-Receiving Rivers and Streams Technical Support Document," (CT DEEP, April 24, 2014)). To achieve these reductions, this permit incorporates a seasonal monthly average total phosphorus discharge limitation of 1.49 lbs/day, effective between April and October. The Permittee completed work pursuant to the previous permit's compliance schedule to enable compliance with these mass based effluent limitations (see Section 1.8 of this fact sheet). This loading limit is maintained in this permit as it is protective of the river, it's uses, and complies with the state of CT Phosphorus Strategy.

3.9 TECHNOLOGY BASED EFFLUENT LIMITATIONS

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

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

In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA Part 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").

This facility is required to meet NSPS for both thermosetting and thermoplastic resins. The NSPS for both of these Sections require the discharge to achieve limits based on Subpart I of 40 CFR 414. See Section 3.2 for the full list of pollutants of concern and associated TBELs. See Section 3.10 for a list of all limits calculated using TBELs.

In the case of chromium, copper, lead, zinc, and total cyanide, the mass limits were determined by only using the metal-bearing waste stream flows and cyanide bearing waste stream flows, consistent with 40 CFR Part 414.91 (b). Both metal-bearing and cyanide bearing waste stream volumes are 591,069 gpd.

Due to the comingling of non-process wastewaters at DSN 001-1, the combined waste stream formula was used to calculate end of pipe limits. The limits were found using the process flow volume of 591,069 gallons per day. Due to the batch operation of the facility and because several processes contain metals and cyanide, the same flow was used to calculate the metal and cyanide bearing limits. The average permitted flow was used for the combined waste stream formula to calculate end of pipe limits.

3.10 COMPARISON OF LIMITS

After preparing and evaluating applicable TBELs and WQBELs, the most stringent limits are applied in the permit. Pollutants of concern that only require monitoring without limits with are not included in the below table. A summary of the calculations used to determine the reasonable potential and water-quality based effluent limitations can be found as an attachment to this document.

PARAMETER	UNITS	LIMITS							
		TECHNOLOGY (40 CFR 414.91)		WATER QUALITY *Water Quality Standards*			PREVIOUS PERMIT		
		Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limit	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limits
Acenaphthene	ug/l	5.8	15				6.1	8.9	13.3
Acenaphthene	g/d	26	71				53	77	
Acenaphthylene	ug/l	5.8	15				9	24	36
Acenaphthylene	g/d	26	71				79	211	
Acrylonitrile	ug/l	25	64	19.8	39.7		0.25	0.36	0.55
Acrylonitrile	g/d	115	292				2.2	3.2	
Anthracene	ug/l	5.8	15	0.105	0.211	0.316	4.92	7.18	10.77
Anthracene	g/d	26	71	0.475	0.953		43	62	
Benzene	ug/l	9.9	36				15	56	84
Benzene	g/d	44	164				132	486	
Benzo(a)anthracene	ug/l	5.8	15	4.89	9.82		0.018	0.026	0.039
Benzo(a)anthracene	g/d	26	71	22	44		0.16	0.23	
3,4-Benzofluoranthene	ug/l	6.1	16				0.018	0.026	0.039
3,4-Benzofluoranthene	g/d	27	73				0.16	0.23	
Benzo(k)fluoranthene	ug/l	5.8	15	4.89	9.82		0.018	0.026	0.039
Benzo(k)fluoranthene	g/d	26	71	22	44		0.16	0.23	
Benzo(a)pyrene	ug/l	6.1	16	0.052	0.10		0.018	0.026	0.039
Benzo(a)pyrene	g/d	27	73	0.237	0.476		0.16	0.23	
Bis(2-ethylhexyl) phthalate	ug/l	27	74	5.27	10.6		2.2	4.4	6.6

PARAMETER	UNITS	LIMITS							
		TECHNOLOGY (40 CFR 414.91)		WATER QUALITY *Water Quality Standards*			PREVIOUS PERMIT		
		Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limit	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limits
Bis(2-ethylhexyl) phthalate	g/d	124	336	23.7	47.6		19	38	
Carbon Tetrachloride	ug/l	4.8	10				1.6	2.3	3.5
Carbon Tetrachloride	g/d	21	45				14	20	
Chlorobenzene	ug/l	4.0	7.5				6	11	17
Chlorobenzene	g/d	18	33				54	100	
Chloroethane	ug/l	27	71				43	110	165
Chloroethane	g/d	125	323				372	958	
Chloroform	ug/l	5.6	12				9	19	28
Chloroform	g/d	25	55				75	164	
2-Chlorophenol	ug/l	8.3	26				13	40	60
2-Chlorophenol	g/d	37	118				111	350	
Chrysene	ug/l	5.8	15				0.018	0.026	0.039
Chrysene	g/d	26	71				0.16	0.23	
Di-n-butyl phthalate	ug/l	7.2	15	21.1	42.3		11	23	35
Di-n-butyl phthalate	g/d	32	68	95	191		97	204	
1,2-Dichlorobenzene	ug/l	20	43				32	67	100
1,2-Dichlorobenzene	g/d	92	196				275	583	
1,3-Dichlorobenzene	ug/l	8.3	11				13	18	27
1,3-Dichlorobenzene	g/d	37	53				111	157	
1,4-Dichlorobenzene	ug/l	4.0	7.5				6	11	17
1,4-Dichlorobenzene	g/d	18	33				54	100	
1,1-Dichloroethane	ug/l	5.8	15				9	12	36
1,1-Dichloroethane	g/d	26	71				79	211	
1,2-Dichloroethane	ug/l	18	56				28	54	81
1,2-Dichloroethane	g/d	82	254				243	470	
1,1-Dichloroethylene	ug/l	4.2	6.7				3.2	4.7	7.0
1,1-Dichloroethylene	g/d	19	30				28	41	
1,2-trans-Dichloroethylene	ug/l	5.6	14				9	22	33
1,2-trans-Dichloroethylene	g/d	25	65				75	193	
2,4-Dichlorophenol	ug/l	10	30				16	46	69
2,4-Dichlorophenol	g/d	47	135				139	400	
1,2-Dichloropropane	ug/l	41	61				57	83	125
1,2-Dichloropropane	g/d	184	277				496	724	
1,3-Dichloropropylene	ug/l	7.7	11				12	18	27
1,3-Dichloropropylene	g/d	35	53				104	157	
Diethyl phthalate	ug/l	21	54				33	83	125
Diethyl phthalate	g/d	97	245				290	726	
2,4-Dimethylphenol	ug/l	4.8	9.6				7	15	22
2,4-Dimethylphenol	g/d	21	43				64	129	
Dimethyl phthalate	ug/l	5.0	12				8	19	29

PARAMETER	UNITS	LIMITS							
		TECHNOLOGY (40 CFR 414.91)		WATER QUALITY *Water Quality Standards*			PREVIOUS PERMIT		
		Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limit	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limits
Dimethyl phthalate	g/d	22	56				68	168	
4,6-Dinitro-o-cresol	ug/l	20	74				32	114	171
4,6-Dinitro-o-cresol	g/d	94	334				279	990	
2,4-Dinitrophenol	ug/l	19	32	116	233		29	51	76
2,4-Dinitrophenol	g/d	85	148	522	1020		254	440	
2,4-Dinitrotoluene	ug/l	30	76				3.4	5.0	7.4
2,4-Dinitrotoluene	g/d	136	344				30	43	
2,6-Dinitrotoluene	ug/l	68	171				105	263	395
2,6-Dinitrotoluene	g/d	307	773				912	2292	
Ethylbenzene	ug/l	8.5	28				13	44	67
Ethylbenzene	g/d	38	130				114	386	
Fluoranthene	ug/l	6.7	18				1.28	1.87	2.80
Fluoranthene	g/d	30	82				11	16	
Fluorene	ug/l	5.8	15	20.5	41.2		9	24	36
Fluorene	g/d	26	71	92.6	186		79	211	
Hexachlorobenzene	ug/l	4.0	7.5	0.0231	0.0463		0.00026	0.00042	0.00063
Hexachlorobenzene	g/d	18	33	0.104	0.209		0.003	.004	
Hexachlorobutadiene	ug/l	5.3	13				8	20	30
Hexachlorobutadiene	g/d	24	59				71	175	
Hexachloroethane	ug/l	5.6	14				3.3	4.8	7.2
Hexachloroethane	g/d	25	65				29	42	
Methyl Chloride	ug/l	23	50				35	78	117
Methyl Chloride	g/d	103	229				307	679	
Methylene Chloride	ug/l	10	23				16	37	55
Methylene Chloride	g/d	48	107				143	318	
Naphthalene	ug/l	5.8	15				9	24	36
Naphthalene	g/d	26	71				79	211	
Nitrobenzene	ug/l	7.2	18				11	28	42
Nitrobenzene	g/d	32	82				97	243	
2-Nitrophenol	ug/l	10	18				17	28	43
2-Nitrophenol	g/d	49	83				147	247	
4-Nitrophenol	ug/l	19	33				30	51	76
4-Nitrophenol	g/d	86	149				257	443	
Phenanthrene	ug/l	5.8	15	12.1	24.3		9	24	36
Phenanthrene	g/d	26	71	54.6	110		79	211	
Phenol	ug/l	4.0	6.9				6	11	16
Phenol	g/d	18	31				54	93	
Pyrene	ug/l	6.7	17				10	28	41
Pyrene	g/d	30	80				89	240	
Tetrachloroethylene	ug/l	5.8	15				9	18	27
Tetrachloroethylene	g/d	26	67				79	159	
Toluene	ug/l	6.9	21				11	33	49
Toluene	g/d	31	96				93	286	

PARAMETER	UNITS	LIMITS							
		TECHNOLOGY (40 CFR 414.91)		WATER QUALITY *Water Quality Standards*			PREVIOUS PERMIT		
		Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limit	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limits
Total Chromium	ug/l	297	742				131	262	393
Total Chromium	g/d	1,340	3,344				1,138	2,282	
Total Copper	ug/l	388	906	52.4	143		48.7	97.7	146
Total Copper	g/d	1,750	4,080	236	644		424	850	
Total Cyanide	ug/l	112	321				15	32.5	48.7
Total Cyanide	g/d	507	1,448				130	283	
Total Lead	ug/l	85.7	184.9	5.11	10.2		3.7	7.5	11
Total Lead	g/d	386	833	23	46.2		33	65	
Total Nickel	ug/l	453	1,066				90	180	271
Total Nickel	g/d	2,040	4,805				783	1,571	
Total Zinc	ug/l	281	699	185	418		123	247	371
Total Zinc	g/d	1,267	3,151	832	1,890		1,072	2,150	
1,2,4-Trichlorobenzene	ug/l	18	37	26.3	52.8	79.2	28	57	86
1,2,4-Trichlorobenzene	g/d	82	169	119	238		263	500	
1,1,1-Trichloroethane	ug/l	5.6	14				9	22	33
1,1,1-Trichloroethane	g/d	25	65				75	193	
1,1,2-Trichloroethane	ug/l	5.6	14				9	22	33
1,1,2-Trichloroethane	g/d	25	65				75	193	
Trichloroethylene	ug/l	5.6	14				9	22	33
Trichloroethylene	g/d	25	65				75	193	
Vinyl Chloride	ug/l	27	71				2.4	3.5	5.3
Vinyl Chloride	g/day	125	323				21	30	
Acetone	mg/l			8.9	18	27			
Acetonitrile	mg/l						----	----	
Acrylamide	ug/l						10.0	20.1	30.1
Acrylamide	g/d						44.4	89.1	
Alkalinity (as $CACO_3$)	mg/l						----	----	
Aluminum, Total	mg/l			0.347	1.02	1.53	0.271	0.543	0.815
Aluminum, Total	kg/day			1.56	4.59		1.20	2.41	
Ammonia (as N)	mg/l			4.39	12.7		2.33	9.66	14.5
Ammonia (as N)	kg/day			19.8	57.1		10.35	42.89	
Barium, Total	mg/l			0.637	1.23	1.84	----	----	
Benzoic Acid	ug/l						----	----	
Biochemical Oxygen Demand (BOD_5)	mg/l						25	50	75
Biochemical Oxygen Demand (BOD_5)	kg/day						222	435	
Bisphenol A	ug/l						----	----	
Boron, Total	mg/l						----	----	
Butanol	mg/l						----	----	
Butyl acetate	ug/l						----	----	
Chemical Oxygen Demand	mg/l						----	----	

PARAMETER	UNITS	LIMITS							
		TECHNOLOGY (40 CFR 414.91)		WATER QUALITY *Water Quality Standards*			PREVIOUS PERMIT		
		Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limit	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limits
Chemical Oxygen Demand	kg/day						----	----	
Chlorine, Total Residual	ug/l			58	116	174	34	69	103
Chlorine, Total Residual	g/day						151	306	
Cresol, meta	ug/l						----	----	
Cresol, ortho	ug/l						----	----	
Cresol, para	ug/l						----	----	
Diethyl amine	mg/l						----	----	
Dimethyl amine	mg/l						----	----	
Di-n-octyl phthalate	ug/l						----	----	
Epichlorohydrin	ug/l						----	----	
Escherichia coli	cfus/100 ml						126**		400
Ethanol	mg/l						----	----	
Ethyl acrylate	ug/l						----	----	
Ethylene glycol	mg/l						----	----	
Formaldehyde	mg/l						0.703	1.77	2.66
Formaldehyde	mg/l						3.12	7.86	
Furfural	mg/l						----	----	
Iron, Total	mg/l						----	----	
Isobutanol	mg/l						----	----	
Isophorone	mg/l						3.65	5.32	7.98
Isophorone	kg/day						13.2	23.6	
Isopropanol	mg/l						----	----	
Isopropylamine	mg/l						----	----	
Kjeldahl Nitrogen, Total (as N)	mg/l						----	----	
Magnesium, Total	mg/l						----	----	
Methanol	mg/l			1.57	3.85	5.77	----	----	
Methyl acrylate	ug/l						----	----	
Methyl ethyl ketone	ug/l						----	----	
Methyl methacrylate	ug/l						----	----	
Nitrate (as N)	mg/l						----	----	
Nitrite (as N)	mg/l						----	----	
Nitrogen, Total	lb/day			----			928	----	
Nitrogen, Total (Annual Loading)	lb/day			928			----	----	
Nonylphenol	ug/l						----	----	
Oil & Grease, Total	mg/l						----	----	
Organic Nitrogen (as N)	mg/l						----	----	
Orthophosphate (as P)	mg/l						----	----	
Oxygen, Dissolved	mg/l								----

PARAMETER	UNITS	LIMITS							
		TECHNOLOGY (40 CFR 414.91)		WATER QUALITY *Water Quality Standards*			PREVIOUS PERMIT		
		Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limit	Average Monthly Limit or pH Minimum	Maximum Daily Limit or pH Maximum	Instantaneous Limits
PCBs (Polychlorinated Biphenyls as Aroclors)	ng/l						0.64	0.093	0.14
PCBs (Polychlorinated Biphenyls as Aroclors)	g/day						0.00028	0.00041	
pH	S.U.			6.5	8.0		6.0	9.0	
Phosphorus, Total (Effective from November 1st to March 31st)	mg/l						----	----	
Phosphorus, Total (Effective from November 1st to March 31st)	lb/day						----	----	
Phosphorus, Total (April 1st to October 31st)	mg/l			----	----		0.15*	0.31*	
Phosphorus, Total (April 1st to October 31st)	lb/day						1.49	----	
Propylene glycol	mg/l			0.374	0.750	1.12	----	----	
Silver, Total	ug/l			0.316	0.634	0.951	1.93	3.88	5.81
Silver, Total	g/day			1.42	2.86		8.57	17.2	
Styrene	ug/l						----	----	
Tetrahydrofuran	mg/l						34.1	68.5	102.8
Tetrahydrofuran	kg/day						151.4	304.1	
Tert-Butyl alcohol	mg/l						----	----	
Tin, Total	mg/l						----	----	
Titanium, Total	mg/l						----	----	
Total Suspended Solids	mg/l						30	50	75
Total Suspended Solids	kg/day						264	435	
Triethylamine	mg/l						----	----	
Xylenes, Total (o,m,p)	ug/l						----	----	

*These limits will not be implemented into the permit see. Section 3.15 for additional information.

** Expressed as a geometric mean.

---- In the table above means there is a monitoring only requirement for that parameter.

Acrylamide: The acrylamide limit is being carried forward from the previous permit. This limit was created through the previous permit's compliance schedule, where the Permittee was required to create a WQC for acrylamide following the EPA's guidance on water criteria development.

3.11 SAMPLING FREQUENCY, TYPE, AND REPORTING

Sample Type	Sample Frequency		Parameter	Reason
Composite Sample RCSA Section 22a-430-3(j) (7)	Monthly		Diethyl phthalate, phenol, napthalene, phenol, chromium, copper, nickel, lead, aluminum, barium, benzoic acid, bisphenol a, boron, meta cresol, ortho cresol, para cresol, di-n-octyl phthalate, iron, isophorone, magnesium, nonylphenol, PCBs, silver, tin, titanium	RCSA Sections 22a-430-4(l)(4)(A) and 22a-430-4(m) Source: Process Water
	Weekly		zinc, alkalinity, ammonia, BOD_5, COD, formaldehyde, kjeldahl nitrogen, nitrate, nitrite, nitrogen, organic nitrogen, orthophosphate, phosphorus, total suspended solids	RCSA Section 22a-430-4(l)(4)(A) and 22a-430-4(m) Source: Process Water
	Annually		chrysene, di-n-butyl phthalate, phenanthrene, pyrene, 2,4-dichlorophenol, 2,4-dimethylphenol, dimethyl phthalate, 4,6-dinitro-o-cresol, 2,4-dinitrophenol, 2,4-dinitrotoluene, 2,6-dinitrotoluene, fluoranthene, fluorene, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, pyrene, nitrobenzene, 2-nitrophenol, 4-nitrophenol, phenanthrene, 1,2,4-trichlorobenzene	RCSA Section 22a-430-4(l)(4)(A) and 22a-430-4(m) Source: Process Water
Grab Sample Average	Monthly		ethylbenzene, methylene chloride, tetrachloroethylene, toluene, cyanide, 1,1,1-trichloroethane,	RCSA Section 22a-430-4(l)(4)(A) and 22a-430-4(m) Source: Process Water

			trichloroethylene, acetone, acetonitrile, butyl acetate, diethyl amine, epichlorohydrin, ethyl acrylate, ethylene glycol, furfural, isobutanol, isopropanol, isopropylamine, methyl acrylate, methyl ethyl ketone, methyl methacrylate, oil & grease, propylene glycol, styrene, tetrahydrofuran, tert-butyl alcohol, triethlamine	
	Annually		1,2-dichlorobenzene, 1,3 dichlorobenzene, 1,4 dichlorobenzene, 1,1 dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-trans-dichloroethylene, 1,2-dichloropropane, 1,3-dichlroopropylene, methyl chloride, 1,1,2-trichloroethane, vinyl chloride,	RCSA Section 22a-430-4(l)(4)(A) and 22a-430-4(m) Source: Process Water
	Weekly		acrylamide, butanol, chlorine, ethanol, methanol, xylenes	RCSA Section 22a-430-4(l)(4)(A) and 22a-430-4(m) Source: Process Water
Grab	Weekly		*Escherichia coli*, Dissolved Oxygen	Source: Domestic Sewer Water
Toxicity	Quarterly		Acute/Chronic Toxicity	Source: Process Water

3.12 OTHER PERMIT CONDITIONS

E. coli is required to be monitored between March and September 30th. The limit applies during this time period.

Aluminum Optimization Plan: This segment of the Quinnipiac River receives point source discharges of aluminum from multiple dischargers, including the Town of Wallingford Water Pollution Control Facility, Nucor Steel Connecticut, Inc., and the former Alleghany Ludlum Corporation (permit terminated on May 5, 2017). Elevated concentrations of aluminum have been observed within ambient monitoring data provided by the Permittee as part of their whole effluent toxicity testing requirements. Recognizing that wastewater treatment chemicals containing aluminum are used, as necessary, for the Permittee to comply with their phosphorus limitations, the permit will include a requirement for the Permittee to develop and implement an Aluminum Optimization Plan to minimize the discharge of aluminum to the receiving water, to the maximum extent practicable. This requirement will include a schedule for the Permittee to create an Aluminum Optimization Plan and submit annual reports as an attachment to the December DMR.

3.13 COMPLIANCE SCHEDULE

The permit has a compliance schedule that follows the requirements found under 40 CFR 122.47 and RSCA Section 22a-430-4(l)(3).

Does the Permit contain a compliance schedule? ☑ Yes ☐ No

Per- and polyfluoroalkyl substances: Monitoring is required in this permit for per- and polyfluoroalkyl substances (PFAS), consistent with DEEP's Industrial NPDES and Pretreatment PFAS Roadmap, dated September 30, 2023. This facility falls under SIC code 2821, which is an industry with the potential to utilize PFAS. In this permit term, the Permittee is required to: retain a professional to prepare, implement and oversee actions required under this compliance schedule; develop and submit a sampling plan for PFAS for a minimum of two separate and distinct samples; and submit sample results to DEEP.

Whole Effluent Toxicity: The permit requires the Permittee to review its discharge and processes to characterize and reduce the toxicity of their discharge. The compliance schedule requires a scope of study and a final report describing the corrective actions implemented during the compliance timeframe.

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). This review involved:

- An evaluation of narrative and numeric water quality standards, criteria and associated policies;
- 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.

The facility has reduced their flows and pollutant loading from the last permit issuance leading to a lower permitted flow and a reduction of mass pollutants discharged. By following the limits and conditions set forth in this permit, the Permittee will not independently or with influence of the surrounding discharges cause an excursion outside of the water quality standards in the receiving river. The limits and conditions in this permit are protective of the Quinnipiac River's designated uses.

3.15 ANTI-BACKSLIDING

Except for total phosphorus, this permit has effluent limitations, standards and 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).

The total phosphorus concentration limits from the previous permit have been removed from this permit, but the mass limitations have been maintained, consistent with phosphorus reduction goals, established in the Recommendations for Phosphorus Strategy Pursuant to PA 12-155 Final Report (CT DEEP, February 16, 2017).

The original concentration limit from the Phosphorus Strategy was based on the available technology at the time for phosphorus reduction for municipal water pollution control facilities. All wastewater treatment facilities reviewed in the Phosphorus Plan except for the Permittee's, have domestic sewage as the main source of phosphorus. The Permittee's main source of phosphorus is from industrial resin manufacturing processes. Unlike municipal wastewater treatment facilities, these industrial phosphorus sources include larger concentrations of non-reactive phosphorus and phosphate complexes. In this case, the best achievable technology is not feasible for a system that receives industrial strength wastewater. In response to this, the concentration limits were reduced as part of the Consent Order No.: COWRIN22001 and Stipulated Judgment: HHD-CV-13-6039473-S.

There have been significant alterations to the facility since the Phosphorus Plan was released and the previous permit was issued. The Permittee reduced its flow from an average of 1.7 million gallons per day to 1 million gallons per day, made material substitutions to reduce phosphorus in its processes, and has removed processes from its facility to reduce phosphorus loading and concentration in their discharge. Pursuant to 40 CFR Section 122.44 (L)(2)(i)(A) and RCSA Section 22a-430-4(l)(4)(B)(vi)(1), this permit will remove phosphorus concentration limits under the basis that there have been substantial changes to the facility since the limit was put into place, and consistent with the Phosphorus Plan, the mass limitations will ensure attainment of water quality standards. See Sections 1.4, 3.8 and 3.14 for additional discussions on phosphorus.

3.16 CATEGORICAL DISCHARGE CONDITIONS

There are no special conditions in 40 CFR Part 414 that apply to this facility. The categorical standards for this facility can be found here: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N/part-414.

3.17 VARIANCES AND WAIVERS

The facility did not request a variance or a waiver.

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

This permit requires PFAS sampling through a compliance schedule. Additionally, a compliance schedule for whole effluent toxicity has been included in the permit.

The permit now requires Allnex to perform acrylonitrile sampling when Roehm is processing and has the potential to discharge acrylonitrile.

The limits for pH have been changed to match the water quality criteria for a Class B waterbody.

The total nitrogen limit of 928 lbs/day has been changed from an average monthly limit to an annual mass loading limitation (annual average), consistent with *A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound*.

The requirement to notify the local health department if an exceedance of *E.coli* has been removed from the permit.

The frequency of monitoring for DSN 001-A has been decreased for the following parameters to match the frequency found in DSN 001-1: acetonitrile, benzene, butyl acetate, chlorobenzene, ethylbenzene, isobutanol, methylene chloride, methyl methacrylate, styrene, toluene, trichloroethylene, and volatiles method 624.

The wastewater description for DSN 001-E has been updated to include all waters that flow through it.

Methanol and methyl methacrylate have been added as required monitoring with acute and chronic toxicity sampling. Dissolved organic carbon sampling of the Quinnipiac River have been added to the chronic toxicity sampling requirements. Additionally, chronic toxicity samples are required to be performed using lab water as dilution water. Additional analyses shall be performed at 26% and 0% effluent using receiving water as dilution water. Historically, the receiving water has contributed to toxicity measured in the chronic WET test. Therefore, lab water will be used to determine compliance with the effluent limits by measuring the absolute toxicity of the effluent without influence from upstream water quality.

Additionally the following limits have been changed since the last permit: acenaphthene, acenaphthylene, benzene, anthracene, fluorene, chlorobenzene, chloroethane, chloroform, 2-chlorophenol, di-n-butyl phthalate, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, 1,2-trans-dichloroethylene, 2,4-dichlorophenol, 1,2-dichloropropane, 1,3-dichloropropylene, diethyl phthalate, 2,4-dimethylphenol, dimethyl phthalate, 4,6-dinitro-o-cresol, 2,4-dinitrophenol, 2,6-dinitrotoluene, ethylbenzene, polypropylene glycol, hexachlorobutadiene, hexachloroethane, methyl chloride, methylene chloride, naphthalene, nitrobenzene, 2-nitrophenol, 4-nitrophenol, phenanthrene, phenol, pyrene, tetrachloroethylene, toluene, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, methanol, chlorine, silver, barium, copper, and acetone.

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. 201508943 PERMIT ID NO. CT0000086

Interested persons may obtain copies of the application from Virginia Ryan, Allnex USA Inc. 528 South Cherry Street, Wallingford, CT 06492, or 203-233-7967 virginia.ryan@allnex.com.

The application is available for inspection by contacting Patrick Bieger at Patrick.bieger@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 Patrick Bieger Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 061065127 or Patrick.bieger@ct.gov. 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 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 A

End Date	Param	Parameter Desc	Loc	Type	Stat Base Code	Limit Value	DMR Value	Units	Vio Code
02/28/2022	01105	Aluminum, total [as Al]	1	C2	MO AVG	0.2710	0.2780	mg/L	E90
02/28/2022	01105	Aluminum, total [as Al]	1	C3	DAILY MX	0.5430	0.5450	mg/L	E90
02/28/2023	TPP3B	NOEC Sub-Lethal Static Renewal	1	C1	MINIMUM	26.0000	12.5000	%	E90
03/31/2023	00610	Nitrogen, ammonia total [as N]	1	C3	DAILY MX	9.6600	14.0000	mg/L	E90
03/31/2023	00610	Nitrogen, ammonia total [as N]	1	Q2	DAILY MX	42.8900	54.6000	kg/d	E90
12/31/2023	34215	Acrylonitrile	1	C2	MO AVG	0.2500	1.2000	ug/L	E90
12/31/2023	34215	Acrylonitrile	1	C3	DAILY MX	0.3600	1.2000	ug/L	E90
12/31/2023	34215	Acrylonitrile	1	Q1	MO AVG	2.2000	5.4000	g/d	E90
12/31/2023	34215	Acrylonitrile	1	Q2	DAILY MX	3.2000	5.4000	g/d	E90

0021

End Date	Param	Parameter Desc	Loc	Type	Stat Base Code	Limit Value	DMR Value	Units	Vio Code
11/30/2020	00400	pH	1	C1	INST MIN	6.0000	5.4000	SU	E90

Attachment B

Water Quality Based Permit Evaluations

Discharger:	**Allnex USA Inc.**
Permit Number:	CT0000086
DSN:	1
Receiving Water:	Quinipiac River
Average Flow per Day (gpd):	1,190,000
Avg Hours of Discharge (hrs/d):	24
Allocated ZOI (gph):	269,450
Date of Analysis:	11/30/2023

		Maximum Value	# of results >20=20	Coefficient of Variance	# Samples / Month for Permit Limit
Metals & Inorganics					
Aluminum	7429905	550	20	1.60	4
Ammonia (Summer)	7664417	14000	20	1.50	4
Ammonia (WInter)	7664417	14000	20	1.50	4
Antimony	7440360		1	0.60	4
Arsenic	7440382		1	0.60	4
Barium	7440393	1000	20	0.55	4
Beryllium	7440417		1	0.60	4
Boron	7440428	1000	20	0.37	4
Cadmium	7440439		1	0.60	4
Chlorine	7782505	35000	20	0.60	4
Chromium, hexavalent	18540299		1	0.60	4
Chromium, trivalent	16065831	7	20	0.22	4
Cobalt	7440484		1	0.60	4
Copper	7440508	30	20	1.24	4
Copper CT Specific	7440508	30	20	1.24	4
Cyanide	57125	4	20	0.60	4
Lead	7439921	2.5	20	0.60	4
Lithium	7439932		1	0.60	4
Manganese	7439965		1	0.60	4
Mercury - inorganic	7487947		1	0.60	4
Nickel	7440020	6	20	0.18	4
Selenium	7782492		1	0.60	4
Silver	7440224	2000	20	0.60	4
Thallium	7791120		1	0.60	4
Tin	7440315	30	20	0.60	4
Uranium	7440611		1	0.60	4
Vanadium	1314621		1	0.60	4
Zinc	7440666	100	20	0.78	4
Volatiles					
Acetone	67641	2790000	20	0.60	4
Acetonitrile	75058	2.5	20	0.60	4
Acrolein	107028		1	0.60	4
Acrylonitrile	107131	50	20	0.60	4
Benzene	71432	0.5	20	0.60	4

		Maximum Value	# of results >20=20	Coefficient of Variance	# Samples / Month for Permit Limit
Bromodichloromethane	75274		1	0.60	4
Bromomethane	74839		1	0.60	4
Butanone, 2-	78933		1	0.60	4
Butylbenzene, n-	104518		1	0.60	4
Carbon disulfide	75150		1	0.60	4
Carbon Tetrachloride	56235	5	5	0.60	4
Chlorobenzene	108907	0.5	20	0.60	4
Chloroethane	75003	25	20	0.60	4
Chloroform	67663	5	5	0.60	4
Chloromethane	74873	25	5	0.60	4
Chloronapthalene, 2-	91587		1	0.60	4
Chlorotoluene, 2-	95498		1	0.60	4
Chlorotoluene, 4-	106434		1	0.60	4
Cyclohexane	110827		1	0.60	4
Dibenzofuran	132649		1	0.60	4
Dichlorobenzene, 1,2-	95501	0.5	5	0.60	4
Dichlorobenzene, 1,3-	541731	0.5	5	0.60	4
Dichlorobenzene, 1.4-	106467	0.5	5	0.60	4
Dichlorobromomethane	75274		1	0.60	4
Dichlorobutene, 1,4-	31423924		1	0.60	4
Dichlorodiflouromethane	75718		1	0.60	4
Dichloroethane, 1,1-	75343	0.5	5	0.60	4
Dichloroethane, 1,2-	107062	0.5	5	0.60	4
Dichloroethene, 1,2-	540590		1	0.60	4
Dichloroethylene, 1,1-	75354	0.5	5	0.60	4
Dichloroethylene, cis-1,2-	156592		1	0.60	4
Dichloroethylene, trans-1,2-	156605	0.5	5	0.60	4
Dichloropropane, 1,2-	78875	0.5	5	0.60	4
Dichloropropene, 1,3-	542756		1	0.60	4
Ethyl acetate	141786		1	0.60	4
Ethylbenzene	100414	0.5	20	0.60	4
Ethylene dibromide	106934		1	0.60	4
Hexane, n-	110543		1	0.60	4
Isopropylbenzene	98828		1	0.60	4
Isopropyltoluene, 4-	99876		1	0.60	4
Methyl bromide	74839		1	0.60	4
Methyl chloride	74873	25	5	0.60	4
Methyl isobutyl ketone	108101		1	0.60	4
Methyl methacrylate	80626	1	20	0.60	4
Methyl tert butyl ether	1634044		1	0.60	4
Methylene chloride	75092	25	20	0.60	4
Methylnaphthalene, 2-	91576		1	0.60	4
Nitrobenzene	98953	5	5	0.60	4
Nitrophenol, 2-	88755		1	0.60	4
Propylbenzene, n-	103651		1	0.60	4
Pyridine	110861		1	0.60	4
Styrene	100425	50	20	0.60	4

		Maximum Value	# of results >20=20	Coefficient of Variance	# Samples / Month for Permit Limit
Tetrachloroethane, 1,1,1,2-	630206		1	0.60	4
Tetrachloroethane, 1,1,2,2-	79345		1	0.60	4
Tetrachloroethylene	127184	5	5	0.60	4
Tetrahydrofuran	109999	3	20	0.60	4
Toluene	108883	2.6	20	0.60	4
Trichloro-1,2,2-trifluoroethane, 1	76131		1	0.60	4
Trichlorobenzene, 1,2,4-	120821	5	5	0.60	4
Trichloroethane, 1,1,1-	71556	5	20	0.60	4
Trichloroethane, 1,1,2-	79005	5	5	0.60	4
Trichloroethylene	79016	5	20	0.60	4
Trichlorofluoromethane	75694		1	0.60	4
Trimethylbenzene, 1,2,4-	95636		1	0.60	4
Trimethylbenzene, 1,3,5-	108678		1	0.60	4
Vinyl acetate	108054		1	0.60	4
Vinyl chloride	75014	5	5	0.60	4
Xylenes	1330207	5.17	20	0.60	4
Semi Volatiles:					
Acenaphthene	83329	2.5	5	0.60	4
Acenaphthylene	208968	5	5	0.60	4
Aniline	62533		1	0.60	4
Anthracene	120127	2.5	5	0.60	4
Benzidine	92875		1	0.60	4
Benzo(a)anthracene	56553	5	5	0.60	4
Benzo(a)pyrene	50328	5	5	0.60	4
Benzo(b)fluoranthene	205992	5	5	0.60	4
Benzo(g,h,i)perylene	191242		1	0.60	4
Benzo(k)fluoranthene	207089	5	5	0.60	4
Bis(2-chloroethoxy)methane	111911		1	0.60	4
Bis(2-chloroethyl)ether	111444		1	0.60	4
Bis(2-chloroisopropyl)ether	108601		1	0.60	4
Bis(2-ethylhexyl)phthalate	117817	2.5	20	0.60	4
Bromoform	75252		1	0.60	4
Bromopheny ether, 4-	101553		1	0.60	4
Bromophenyl-phenylether, 4-	101553		1	0.60	4
Butylbenzyl phthalate	85687		1	0.60	4
Carbazole	86748		1	0.60	4
Chloroaniline, 4-	106478		1	0.60	4
Chlorophenol, 2-	95578	5	5	0.60	4
Chlorophenol, 3-methyl-4	59507		1	0.60	4
Chlorophenyl-phenylether, 4-	7005723		1	0.60	4
Chrysene	218019	2.5	5	0.60	4
Cresol, m-	108394		1	0.60	4
Dibenzo(a,h)anthracene	53703		1	0.60	4
Dibromo-3-chloropropane, 1,2-	96128		1	0.60	4
Dibromochloromethane	124481		1	0.60	4
Dichlorobenzidine, 3,3'-	91941		1	0.60	4

		Maximum Value	# of results >20=20	Coefficient of Variance	# Samples / Month for Permit Limit
Dichlorophenol, 2,4-	120832	5	5	0.60	4
Dichlorotrifluoroethane	34077877		1	0.60	4
Diethyl phthalate	84662	5	5	0.60	4
Dimethyl phthalate	131113	5	20	0.60	4
Dimethylphenol, 2,4-	105679		1	0.60	4
Di-n-butyl phthalate	84742	5	5	0.60	4
Dinitrophenol, 2,4-	51285	25	5	0.60	4
Dinitrophenol, 2-methyl-4,6-	534521		1	0.60	4
Dinitrotoluene, 2,4-	121142	5	5	0.60	4
Dinitrotoluene, 2,6-	606202	5	5	0.60	4
Di-n-octyl phthalate	117840	50	20	0.60	4
Dioxane, 1,4-	123911		1	0.60	4
Diphenylhydrazine, 1,2-	122667		1	0.60	4
Ethanol	64175	2500	20	0.60	4
Ethylene glycol	107211	12500	20	0.60	4
Fluoranthene	206440		1	0.60	4
Fluorene	86737	5	5	0.60	4
Formaldehyde	50000	1500	20	0.70	4
Hexachlorobenzene	118741	2.5	5	0.60	4
Hexachlorobutadiene	87683	5	5	0.60	4
Hexachloroethane	67721	2.5	5	0.60	4
Indeno(1,2,3-c,d)pyrene	193395		1	0.60	4
Isophorone	78591	0.25	20	0.60	4
Isopropanol	67630	2500	20	0.60	4
Methanol	67561	5800	20	0.94	4
Methylphenol, 2-	95487	5	20	0.60	4
Methylphenol, 4-	106445		1	0.60	4
Naphthalene	91203	5	20	0.60	4
Nitroaniline, 2-	88744		1	0.60	4
Nitroaniline, 3-	99092		1	0.60	4
Nitroaniline, 4-	100016		1	0.60	4
Nitrosodimethylamine, N-	62759		1	0.60	4
NitrosoDi-n-propylamine, N-	621647		1	0.60	4
Nitrosodiphenylamine, N-	86306		1	0.60	4
Pentachloronitrobenzene	82688		1	0.60	4
Pentachlorophenol	87865		1	0.60	4
Phenanthrene	85018	5	5	0.60	4
Phenol	108952	5	20	0.60	4
Polychlorinated terphenyls	61788338		1	0.60	4
Propylene glycol	57556	12500	20	0.60	4
Pyrene	129000	2.5	5	0.60	4
Tert-butyl alcohol	75650	2500	20	0.60	4
Tetrachlorobenzene, 1,2,4,5-	95943		1	0.60	4
Trichlorophenol, 2,4,5-	95954		1	0.60	4
Trichlorophenol, 2,4,6-	88062		1	0.60	4

Pesticides & PCBs:

		Maximum Value	# of results >20=20	Coefficient of Variance	# Samples / Month for Permit Limit
Alachlor	15972608		1	0.60	4
Aldicarb	116063		1	0.60	4
Aldrin	309002		1	0.60	4
Atrazine	1912249		1	0.60	4
Chlordane	12789036		1	0.60	4
D, 2,4-	94757		1	0.60	4
DDD, 4,4-	72548		1	0.60	4
DDE, 4,4-	72559		1	0.60	4
DDT, 4,4-	50293		1	0.60	4
Dicamba	1918009		1	0.60	4
Dichloroprop	120365		1	0.60	4
Dieldrin	60571		1	0.60	4
Endosulfan, alpha	959988		1	0.60	4
Endosulfan, beta	33213659		1	0.60	4
Endosulfan sulfate	1031078		1	0.60	4
Endrin	72208		1	0.60	4
Endrin aldehyde	7421934		1	0.60	4
Endrin ketone	53494705		1	0.60	4
Heptachlor	76448		1	0.60	4
Heptachlor epoxide	1024573		1	0.60	4
Hexachlorocyclohexane, alpha	319846		1	0.60	4
Hexachlorocyclohexane, beta-	319857		1	0.60	4
Hexachlorocyclohexane, delta-	319868		1	0.60	4
Hexachlorocyclopentadiene	77474		1	0.60	4
Lindane	58899		1	0.60	4
Methoxychlor	72435		1	0.60	4
Simazine	122349		1	0.60	4
Toxaphene	8001352		1	0.60	3
Polychlorinated biphenyls	1336363		1	0.60	4

Water Quality Based Permit Limit Evaluations

Discharger:	**Allnex USA Inc.**
Permit Number:	CT0000086
DSN:	1
Receiving Water:	Quinipiac River
Average Flow per Day (gpd):	1,190,000
Avg Hours of Discharge (hrs/d):	24
Allocated ZOI (gph):	269,450
Date of Analysis:	11/30/2023

Allnex USA Inc.	**Estimated Maximum Concentration in Effluent**	**Waste Load Allocation**	**Limit Needed?**	**Governing WLA**
Metals & Inorganics				
Aluminum	3025	559.7828571	Yes	chronic
Ammonia (Summer)	72800	12672.97922	Yes	acute
Ammonia (Winter)	72800	23804.29351	Yes	acute
Antimony	0	1222.514286	No	chronic
Arsenic	0	0.13512	No	health
Barium	2000	765.89	Yes	chronic
Beryllium	0	1.672914286	No	health
Boron	1600	6112.571429	No	chronic
Cadmium	0	8.686285714	No	chronic
Chlorine	80500	70.77714286	Yes	chronic
Chromium, hexavalent	0	70.77714286	No	chronic
Chromium, trivalent	9.1	158.043189	No	chronic
Cobalt	0	154.4228571	No	chronic
Copper	126	30.88457143	Yes	chronic
Copper CT Specific	126	94.02355844	Yes	chronic
Cyanide	9.2	19.34727491	No	chronic
Lead	5.75	6.239	No	chronic
Lithium	0	221735.3816	No	health
Manganese	0	129.7378699	No	chronic
Mercury - inorganic	0	0.328148571	No	health
Nickel	7.2	185.9508571	No	chronic
Selenium	0	32.17142857	No	chronic
Silver	4600	0.386057143	Yes	chronic
Thallium	0	95.57488	No	health
Tin	69	1158.171429	No	chronic
Uranium	0	332603.0789	No	health
Vanadium	0	283.1085714	No	chronic
Zinc	260	333.25	No	chronic
			0	
Volatiles				
Acetone	6417000	10938.28571	Yes	chronic
Acetonitrile	5.75	52690.36571	No	chronic
Acrolein	0	0.643428571	No	chronic
Acrylonitrile	115	12.73988571	Yes	health
Benzene	1.15	456.8342857	No	health
Bromodichloromethane	0	896.65632	No	health
Bromomethane	0	18477.94311	No	health
Butanone, 2-	0	88484.29714	No	chronic
Butylbenzene, n-	0	6.434285714	No	chronic
Carbon disulfide	0	96.51428571	No	chronic
Carbon Tetrachloride	21	1544.228571	No	chronic
Chlorobenzene	1.15	302.4114286	No	chronic

Allnex USA Inc.	Estimated Maximum Concentration in Effluent	Waste Load Allocation	Limit Needed?	Governing WLA
Chloroethane	57.5	0	Yes	acute
Chloroform	21	900.8	No	chronic
Chloromethane	105	96085.33762	No	health
Chloronapthalene, 2-	0	57.90857143	No	chronic
Chlorotoluene, 2-	0	8185.736891	No	health
Chlorotoluene, 4-	0	45.04	No	chronic
Cyclohexane	0	1775.862857	No	chronic
Dibenzofuran	0	25.73714286	No	chronic
Dichlorobenzene, 1,2-	2.1	147.9885714	No	chronic
Dichlorobenzene, 1,3-	2.1	141.5542857	No	chronic
Dichlorobenzene, 1.4-	2.1	60.48228571	No	chronic
Dichlorobromomethane	0	887.9314286	No	health
Dichlorobutene, 1,4-	0	0	No	acute
Dichlorodiflouromethane	0	7635516.026	No	health
Dichloroethane, 1,1-	2.1	2638.057143	No	chronic
Dichloroethane, 1,2-	2.1	1910.982857	No	health
Dichloroethene, 1,2-	0	6241.257143	No	chronic
Dichloroethylene, 1,1-	2.1	61.76914286	No	health
Dichloroethylene, cis-1,2-	0	3989.257143	No	chronic
Dichloroethylene, trans-1,2-	2.1	3603.2	No	chronic
Dichloropropane, 1,2-	2.1	501.8742857	No	health
Dichloropropene, 1,3-	0	10.93828571	No	chronic
Ethyl acetate	0	10275.55429	No	chronic
Ethylbenzene	1.15	392.4914286	No	chronic
Ethylene dibromide	0	41.03787429	No	health
Hexane, n-	0	34951.97941	No	health
Isopropylbenzene	0	135.12	No	chronic
Isopropyltoluene, 4-	0	106.1657143	No	chronic
Methyl bromide	0	51474.28571	No	health
Methyl chloride	105	6048.228571	No	health
Methyl isobutyl ketone	0	148978462	No	health
Methyl methacrylate	2.3	21320710.11	No	health
Methyl tert butyl ether	0	328148.5714	No	chronic
Methylene chloride	57.5	12225.14286	No	chronic
Methylnaphthalene, 2-	0	30.24114286	No	chronic
Nitrobenzene	21	1421.977143	No	chronic
Nitrophenol, 2-	0	469.7028571	No	chronic
Propylbenzene, n-	0	0	No	acute
Pyridine	0	167.2914286	No	chronic
Styrene	115	154.4228571	No	chronic
Tetrachloroethane, 1,1,1,2-	0	188.2157257	No	health
Tetrachloroethane, 1,1,2,2-	0	212.3314286	No	health
Tetrachloroethylene	21	113.8868571	No	health
Tetrahydrofuran	6.9	21944.29872	No	health
Toluene	5.98	398.9257143	No	chronic
Trichloro-1,2,2-trifluoroethane, 1,1,2-	0	19464131.43	No	health
Trichlorobenzene, 1,2,4-	21	32.17142857	No	chronic
Trichloroethane, 1,1,1-	11.5	489.0057143	No	chronic
Trichloroethane, 1,1,2-	21	810.72	No	health
Trichloroethylene	11.5	1415.542857	No	chronic
Trichlorofluoromethane	0	5947837.59	No	health
Trimethylbenzene, 1,2,4-	0	102.9485714	No	chronic
Trimethylbenzene, 1,3,5-	0	167.2914286	No	chronic
Vinyl acetate	0	6319458.473	No	health

Allnex USA Inc.	Estimated Maximum Concentration in Effluent	Waste Load Allocation	Limit Needed?	Governing WLA
Vinyl chloride	21	5983.885714	No	chronic
Xylenes	11.891	173.7257143	No	chronic

Semi Volatiles:				
Acenaphthene	10.5	39.24914286	No	health
Acenaphthylene	21	83.64571429	No	chronic
Aniline	0	8.364571429	No	chronic
Anthracene	10.5	0.128685714	Yes	chronic
Benzidine	0	0.003474514	No	health
Benzo(a)anthracene	21	3.1528	Yes	health
Benzo(a)pyrene	21	0.064342857	Yes	chronic
Benzo(b)fluoranthene	21	3.1528	Yes	health
Benzo(g,h,i)perylene	0	31.65668571	No	health
Benzo(k)fluoranthene	21	3.1528	Yes	health
Bis(2-chloroethoxy)methane	0	5057.348571	No	chronic
Bis(2-chloroethyl)ether	0	27.024	No	health
Bis(2-chloroisopropyl)ether	0	2187657.143	No	health
Bis(2-ethylhexyl)phthalate	5.75	6.434285714	No	chronic
Bromoform	0	797.8514286	No	chronic
Bromopheny ether, 4-	0	0	No	acute
Bromophenyl-phenylether, 4-	0	0	No	acute
Butylbenzyl phthalate	0	147.9885714	No	chronic
Carbazole	0	34.10171429	No	chronic
Chloroaniline, 4-	0	6.434285714	No	chronic
Chlorophenol, 2-	21	205.8971429	No	chronic
Chlorophenol, 3-methyl-4	0	45.04	No	chronic
Chlorophenyl-phenylether, 4-	0	0	No	acute
Chrysene	10.5	30.24114286	No	chronic
Cresol, m-	0	431.0971429	No	chronic
Dibenzo(a,h)anthracene	0	0.193028571	No	health
Dibromo-3-chloropropane, 1,2-	0	1.988194286	No	health
Dibromochloromethane	0	656.2971429	No	health
Dichlorobenzidine, 3,3'-	0	1.48632	No	health
Dichlorophenol, 2,4-	21	70.77714286	No	chronic
Dichlorotrifluoroethane	0	0	No	acute
Diethyl phthalate	21	1415.542857	No	chronic
Dimethyl phthalate	11.5	1994.628571	No	chronic
Dimethylphenol, 2,4-	0	96.51428571	No	chronic
Di-n-butyl phthalate	21	25.73714286	No	chronic
Dinitrophenol, 2,4-	105	141.5542857	No	chronic
Dinitrophenol, 2-methyl-4,6-	0	4.504	No	chronic
Dinitrotoluene, 2,4-	21	175.656	No	health
Dinitrotoluene, 2,6-	21	521.1771429	No	chronic
Di-n-octyl phthalate	115	0	Yes	acute
Dioxane, 1,4-	0	332603.0789	No	health
Diphenylhydrazine, 1,2-	0	6.434285714	No	chronic
Ethanol	5750	14650.86857	No	chronic
Ethylene glycol	28750	900800	No	chronic
Fluoranthene	0	5.147428571	No	chronic
Fluorene	21	25.09371429	No	chronic
Formaldehyde	3900	7579.588571	No	chronic
Hexachlorobenzene	10.5	0.0148632	Yes	health
Hexachlorobutadiene	21	965.1428571	No	health
Hexachloroethane	10.5	171.7954286	No	health

Allnex USA Inc.	Estimated Maximum Concentration in Effluent	Waste Load Allocation	Limit Needed?	Governing WLA
Indeno(1,2,3-c,d)pyrene	0	9.516308571	No	health
Isophorone	0.575	5919.542857	No	chronic
Isopropanol	5750	36586338.56	No	health
Methanol	18560	2123.314286	Yes	chronic
Methylphenol, 2-	11.5	431.0971429	No	chronic
Methylphenol, 4-	0	357.1028571	No	chronic
Naphthalene	11.5	135.12	No	chronic
Nitroaniline, 2-	0	135.12	No	chronic
Nitroaniline, 3-	0	45.04	No	chronic
Nitroaniline, 4-	0	759.2457143	No	chronic
Nitrosodimethylamine, N-	0	156.3531429	No	health
NitrosoDi-n-propylamine, N-	0	27.024	No	health
Nitrosodiphenylamine, N-	0	160.8571429	No	chronic
Pentachloronitrobenzene	0	16.08571429	No	chronic
Pentachlorophenol	0	96.51428571	No	chronic
Phenanthrene	21	14.79885714	Yes	chronic
Phenol	11.5	30241.14286	No	acute
Polychlorinated terphenyls	0	0	No	acute
Propylene glycol	28750	456.8342857	Yes	chronic
Pyrene	10.5	29.59771429	No	chronic
Tert-butyl alcohol	5750	151340.8343	No	chronic
Tetrachlorobenzene, 1,2,4,5-	0	12.86857143	No	chronic
Trichlorophenol, 2,4,5-	0	18.016	No	chronic
Trichlorophenol, 2,4,6-	0	21.23314286	No	chronic

Pesticides & PCBs:				
Alachlor	0	92.09393143	No	health
Aldicarb	0	8.364571429	No	chronic
Aldrin	0	0.0027024	No	health
Atrazine	0	10.29485714	No	chronic
Chlordane	0	0.027667429	No	chronic
D, 2,4-	0	32.17142857	No	chronic
DDD, 4,4-	0	0.0162144	No	health
DDE, 4,4-	0	0.011388686	No	health
DDT, 4,4-	0	0.006434286	No	chronic
Dicamba	0	1158.171429	No	chronic
Dichloroprop	0	77.21142857	No	chronic
Dieldrin	0	0.0027024	No	health
Endosulfan, alpha	0	0.36032	No	chronic
Endosulfan, beta	0	0.36032	No	chronic
Endosulfan sulfate	0	0.36032	No	chronic
Endrin	0	0.231634286	No	chronic
Endrin aldehyde	0	0.231634286	No	chronic
Endrin ketone	0	0.231634286	No	chronic
Heptachlor	0	0.024450286	No	chronic
Heptachlor epoxide	0	0.024450286	No	chronic
Hexachlorocyclohexane, alpha	0	0.250937143	No	health
Hexachlorocyclohexane, beta-	0	0.887931429	No	health
Hexachlorocyclohexane, delta-	0	12.86857143	No	chronic
Hexachlorocyclopentadiene	0	1.930285714	No	chronic
Lindane	0	0.366754286	No	chronic
Methoxychlor	0	0.193028571	No	chronic
Simazine	0	6.434285714	No	chronic
Toxaphene	0	0.012868571	No	chronic

Allnex USA Inc.	Estimated Maximum Concentration in Effluent	Waste Load Allocation	Limit Needed?	Governing WLA
Polychlorinated biphenyls	0	0.001093829	No	health

Water Quality Based Permit Limit Calculations

Discharger:	**Allnex USA Inc.**		
Permit Number:	CT0000086		
DSN:	1	IWC 1 hr	26.30
Receiving Water:	Quinipiac River		
Average Flow per Day (gpd):	1,190,000	IWC 24 Hours:	26.3
Avg Hours of Discharge (hrs/d)	24		
Allocated ZOI (gph):	269,450		
Date of Analysis:	11/30/2023		

Allnex USA Inc.	**Governing Criteria**	**AML (ug/L)**	**MDL (ug/L)**	**AML (kg/d)**	**MDL (kg/d)**
Metals & Inorganics					
Aluminum	chronic	3.47E+02	1.02E+03	1.56E+00	4.59E+00
Ammonia (Summer)	acute	4.39E+03	1.27E+04	1.98E+01	5.71E+01
Ammonia (Winter)	acute	8.25E+03	2.38E+04	3.72E+01	1.07E+02
Antimony	chronic	1.00E+03	2.01E+03	4.51E+00	9.05E+00
Arsenic	health	2.10E-01	4.21E-01	9.46E-04	1.90E-03
Barium	chronic	6.37E+02	1.23E+03	2.87E+00	5.53E+00
Beryllium	health	2.60E+00	5.21E+00	1.17E-02	2.35E-02
Boron	chronic	5.39E+03	8.75E+03	2.43E+01	3.95E+01
Cadmium	acute	6.48E+00	1.30E+01	2.92E-02	5.86E-02
Chlorine	chronic	5.80E+01	1.16E+02	2.61E-01	5.24E-01
Chromium, hexavalent	acute	5.13E+01	1.03E+02	2.31E-01	4.64E-01
Chromium, trivalent	chronic	1.47E+02	2.00E+02	6.61E-01	8.99E-01
Cobalt	chronic	1.26E+02	2.54E+02	5.70E-01	1.14E+00
Copper	chronic	3.09E+01	1.70E+02	1.39E-01	7.67E-01
Copper CT Specific	acute	5.24E+01	1.43E+02	2.36E-01	6.44E-01
Cyanide	chronic	1.58E+01	3.18E+01	7.14E-02	1.43E-01
Lead	chronic	5.11E+00	1.02E+01	2.30E-02	4.62E-02
Lithium	health	3.44E+05	0.00E+00	1.55E+03	0.00E+00
Manganese	chronic	1.06E+02	2.13E+02	4.79E-01	9.61E-01
Mercury - inorganic	health	5.09E-01	1.02E+00	2.30E-03	4.61E-03
Nickel	chronic	1.75E+02	2.26E+02	7.88E-01	1.02E+00
Selenium	chronic	2.63E+01	5.28E+01	1.19E-01	2.38E-01
Silver	chronic	3.16E-01	6.34E-01	1.42E-03	2.86E-03
Thallium	chronic	8.96E+01	1.80E+02	4.04E-01	8.10E-01
Tin	chronic	9.48E+02	1.90E+03	4.27E+00	8.58E+00
Uranium	health	5.16E+05	0.00E+00	2.33E+03	0.00E+00
Vanadium	chronic	2.32E+02	4.65E+02	1.04E+00	2.10E+00
Zinc	acute	1.85E+02	4.18E+02	8.32E-01	1.89E+00

0.951

Volatiles					
Acetone	chronic	8.96E+03	1.80E+04	4.04E+01	8.10E+01
Acetonitrile	chronic	4.31E+04	8.66E+04	1.94E+02	3.90E+02
Acrolein	chronic	5.27E-01	1.06E+00	2.37E-03	4.76E-03
Acrylonitrile	health	1.98E+01	3.97E+01	8.91E-02	1.79E-01
Benzene	health	7.09E+02	1.42E+03	3.20E+00	6.41E+00
Bromodichloromethane	health	1.39E+03	0.00E+00	6.27E+00	0.00E+00
Bromomethane	chronic	2.63E-02	5.28E-02	1.19E-04	2.38E-04
Butanone, 2-	chronic	7.25E+04	1.45E+05	3.27E+02	6.55E+02
Butylbenzene, n-	chronic	5.27E+00	0.00E+00	2.37E-02	0.00E+00
Carbon disulfide	chronic	7.90E+01	1.59E+02	3.56E-01	7.15E-01

Allnex USA Inc.	Governing Criteria	AML (ug/L)	MDL (ug/L)	AML (kg/d)	MDL (kg/d)
Carbon Tetrachloride	chronic	1.26E+03	2.54E+03	5.70E+00	1.14E+01
Chlorobenzene	chronic	2.48E+02	4.97E+02	1.12E+00	2.24E+00
Chloroethane	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloroform	chronic	7.38E+02	1.48E+03	3.32E+00	6.67E+00
Chloromethane	health	1.49E+05	0.00E+00	6.72E+02	0.00E+00
Chloronapthalene, 2-	chronic	4.74E+01	9.51E+01	2.14E-01	4.29E-01
Chlorotoluene, 2-	health	1.27E+04	0.00E+00	5.73E+01	0.00E+00
Chlorotoluene, 4-	chronic	3.69E+01	7.40E+01	1.66E-01	3.33E-01
Cyclohexane	chronic	1.45E+03	2.92E+03	6.55E+00	1.31E+01
Dibenzofuran	chronic	2.11E+01	0.00E+00	9.50E-02	0.00E+00
Dichlorobenzene, 1,2-	chronic	1.21E+02	2.43E+02	5.46E-01	1.10E+00
Dichlorobenzene, 1,3-	chronic	1.16E+02	2.33E+02	5.22E-01	1.05E+00
Dichlorobenzene, 1.4-	chronic	4.95E+01	9.94E+01	2.23E-01	4.48E-01
Dichlorobromomethane	health	1.38E+03	0.00E+00	6.21E+00	0.00E+00
Dichlorobutene, 1,4-	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichlorodiflouromethane	health	1.19E+07	0.00E+00	5.34E+04	0.00E+00
Dichloroethane, 1,1-	chronic	2.16E+03	0.00E+00	9.74E+00	0.00E+00
Dichloroethane, 1,2-	health	2.97E+03	5.95E+03	1.34E+01	2.68E+01
Dichloroethene, 1,2-	chronic	5.11E+03	1.03E+04	2.30E+01	4.62E+01
Dichloroethylene, 1,1-	health	9.59E+01	1.92E+02	4.32E-01	8.67E-01
Dichloroethylene, cis-1,2-	chronic	3.27E+03	6.55E+03	1.47E+01	2.95E+01
Dichloroethylene, trans-1,2-	chronic	2.95E+03	5.92E+03	1.33E+01	2.67E+01
Dichloropropane, 1,2-	health	7.79E+02	1.56E+03	3.51E+00	7.05E+00
Dichloropropene, 1,3-	chronic	8.96E+00	1.80E+01	4.04E-02	8.10E-02
Ethyl acetate	chronic	8.41E+03	1.69E+04	3.79E+01	7.61E+01
Ethylbenzene	chronic	3.21E+02	6.45E+02	1.45E+00	2.91E+00
Ethylene dibromide	health	6.37E+01	0.00E+00	2.87E-01	0.00E+00
Hexane, n-	health	5.43E+04	0.00E+00	2.45E+02	0.00E+00
Isopropylbenzene	chronic	1.11E+02	2.22E+02	4.99E-01	1.00E+00
Isopropyltoluene, 4-	chronic	8.69E+01	1.74E+02	3.92E-01	7.86E-01
Methyl bromide	health	7.99E+04	0.00E+00	3.60E+02	0.00E+00
Methyl chloride	health	9.39E+03	0.00E+00	4.23E+01	0.00E+00
Methyl isobutyl ketone	health	2.31E+08	0.00E+00	1.04E+06	0.00E+00
Methyl methacrylate	health	3.31E+07	0.00E+00	1.49E+05	0.00E+00
Methyl tert butyl ether	chronic	2.69E+05	5.39E+05	1.21E+03	2.43E+03
Methylene chloride	chronic	1.00E+04	2.01E+04	4.51E+01	9.05E+01
Methylnaphthalene, 2-	chronic	2.48E+01	4.97E+01	1.12E-01	2.24E-01
Nitrobenzene	chronic	1.16E+03	2.34E+03	5.25E+00	1.05E+01
Nitrophenol, 2-	chronic	3.85E+02	0.00E+00	1.73E+00	0.00E+00
Propylbenzene, n-	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pyridine	chronic	1.37E+02	2.75E+02	6.17E-01	1.24E+00
Styrene	chronic	1.26E+02	2.54E+02	5.70E-01	1.14E+00
Tetrachloroethane, 1,1,1,2-	health	2.92E+02	5.86E+02	1.32E+00	2.64E+00
Tetrachloroethane, 1,1,2,2-	health	3.30E+02	6.61E+02	1.49E+00	2.98E+00
Tetrachloroethylene	health	1.77E+02	3.55E+02	7.97E-01	1.60E+00
Tetrahydrofuran	health	3.41E+04	6.83E+04	1.54E+02	3.08E+02
Toluene	chronic	3.27E+02	6.55E+02	1.47E+00	2.95E+00
Trichloro-1,2,2-trifluoroethane, 1,1,2-	health	3.02E+07	0.00E+00	1.36E+05	0.00E+00
Trichlorobenzene, 1,2,4-	chronic	2.63E+01	5.28E+01	1.19E-01	2.38E-01
Trichloroethane, 1,1,1-	chronic	4.00E+02	8.03E+02	1.80E+00	3.62E+00
Trichloroethane, 1,1,2-	health	1.26E+03	2.52E+03	5.67E+00	1.14E+01
Trichloroethylene	chronic	1.16E+03	2.33E+03	5.22E+00	1.05E+01
Trichlorofluoromethane	health	9.23E+06	0.00E+00	4.16E+04	0.00E+00

Allnex USA Inc.	Governing Criteria	AML (ug/L)	MDL (ug/L)	AML (kg/d)	MDL (kg/d)
Trimethylbenzene, 1,2,4-	chronic	8.43E+01	1.69E+02	3.80E-01	7.62E-01
Trimethylbenzene, 1,3,5-	chronic	1.37E+02	2.75E+02	6.17E-01	1.24E+00
Vinyl acetate	health	9.81E+06	0.00E+00	4.42E+04	0.00E+00
Vinyl chloride	chronic	4.90E+03	9.83E+03	2.21E+01	4.43E+01
Xylenes	chronic	1.42E+02	2.85E+02	6.41E-01	1.29E+00
5.775					
Semi Volatiles:					
Acenaphthene	health	6.09E+01	1.22E+02	2.75E-01	5.51E-01
Acenaphthylene	chronic	6.85E+01	1.37E+02	3.09E-01	6.19E-01
Aniline	chronic	6.85E+00	1.37E+01	3.09E-02	6.19E-02
Anthracene	chronic	1.05E-01	2.11E-01	4.75E-04	9.53E-04
Benzidine	health	5.39E-03	1.08E-02	2.43E-05	4.88E-05
Benzo(a)anthracene	health	4.89E+00	9.82E+00	2.21E-02	4.43E-02
Benzo(a)pyrene	chronic	5.27E-02	1.06E-01	2.37E-04	4.76E-04
Benzo(b)fluoranthene	health	4.89E+00	9.82E+00	2.21E-02	4.43E-02
Benzo(g,h,i)perylene	health	4.91E+01	0.00E+00	2.22E-01	0.00E+00
Benzo(k)fluoranthene	health	4.89E+00	9.82E+00	2.21E-02	4.43E-02
Bis(2-chloroethoxy)methane	chronic	4.14E+03	0.00E+00	1.87E+01	0.00E+00
Bis(2-chloroethyl)ether	health	4.20E+01	8.42E+01	1.89E-01	3.79E-01
Bis(2-chloroisopropyl)ether	health	3.40E+06	0.00E+00	1.53E+04	0.00E+00
Bis(2-ethylhexyl)phthalate	chronic	5.27E+00	1.06E+01	2.37E-02	4.76E-02
Bromoform	chronic	6.53E+02	1.31E+03	2.94E+00	5.91E+00
Bromopheny ether, 4-	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bromophenyl-phenylether, 4-	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Butylbenzyl phthalate	chronic	1.21E+02	2.43E+02	5.46E-01	1.10E+00
Carbazole	chronic	2.79E+01	5.60E+01	1.26E-01	2.53E-01
Chloroaniline, 4-	chronic	5.27E+00	1.06E+01	2.37E-02	4.76E-02
Chlorophenol, 2-	chronic	1.69E+02	3.38E+02	7.60E-01	1.52E+00
Chlorophenol, 3-methyl-4	chronic	3.69E+01	0.00E+00	1.66E-01	0.00E+00
Chlorophenyl-phenylether, 4-	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene	chronic	2.48E+01	4.97E+01	1.12E-01	2.24E-01
Cresol, m-	chronic	3.53E+02	7.08E+02	1.59E+00	3.19E+00
Dibenzo(a,h)anthracene	health	3.00E-01	0.00E+00	1.35E-03	0.00E+00
Dibromo-3-chloropropane, 1,2-	health	3.09E+00	0.00E+00	1.39E-02	0.00E+00
Dibromochloromethane	health	1.02E+03	0.00E+00	4.59E+00	0.00E+00
Dichlorobenzidine, 3,3'-	health	2.31E+00	4.63E+00	1.04E-02	2.09E-02
Dichlorophenol, 2,4-	chronic	5.80E+01	1.16E+02	2.61E-01	5.24E-01
Dichlorotrifluoroethane	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Diethyl phthalate	chronic	1.16E+03	2.33E+03	5.22E+00	1.05E+01
Dimethyl phthalate	chronic	1.63E+03	3.28E+03	7.36E+00	1.48E+01
Dimethylphenol, 2,4-	chronic	7.90E+01	0.00E+00	3.56E-01	0.00E+00
Di-n-butyl phthalate	chronic	2.11E+01	4.23E+01	9.50E-02	1.91E-01
Dinitrophenol, 2,4-	chronic	1.16E+02	2.33E+02	5.22E-01	1.05E+00
Dinitrophenol, 2-methyl-4,6-	chronic	3.69E+00	7.40E+00	1.66E-02	3.33E-02
Dinitrotoluene, 2,4-	chronic	1.63E+02	3.28E+02	7.36E-01	1.48E+00
Dinitrotoluene, 2,6-	chronic	4.27E+02	0.00E+00	1.92E+00	0.00E+00
Di-n-octyl phthalate	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dioxane, 1,4-	health	5.16E+05	0.00E+00	2.33E+03	0.00E+00
Diphenylhydrazine, 1,2-	chronic	5.27E+00	1.06E+01	2.37E-02	4.76E-02
Ethanol	chronic	1.20E+04	2.41E+04	5.41E+01	1.08E+02
Ethylene glycol	chronic	7.38E+05	1.48E+06	3.32E+03	6.67E+03
Fluoranthene	chronic	4.21E+00	8.46E+00	1.90E-02	3.81E-02
Fluorene	chronic	2.05E+01	4.12E+01	9.26E-02	1.86E-01

Allnex USA Inc.	Governing Criteria	AML (ug/L)	MDL (ug/L)	AML (kg/d)	MDL (kg/d)
Formaldehyde	chronic	6.01E+03	1.30E+04	2.71E+01	5.84E+01
Hexachlorobenzene	health	2.31E-02	4.63E-02	1.04E-04	2.09E-04
Hexachlorobutadiene	health	1.50E+03	0.00E+00	6.75E+00	0.00E+00
Hexachloroethane	health	2.67E+02	0.00E+00	1.20E+00	0.00E+00
Indeno(1,2,3-c,d)pyrene	health	1.48E+01	0.00E+00	6.66E-02	0.00E+00
Isophorone	chronic	4.85E+03	9.72E+03	2.18E+01	4.38E+01
Isopropanol	health	5.68E+07	0.00E+00	2.56E+05	0.00E+00
Methanol	chronic	1.57E+03	3.85E+03	7.06E+00	1.74E+01
Methylphenol, 2-	chronic	3.53E+02	7.08E+02	1.59E+00	3.19E+00
Methylphenol, 4-	chronic	2.92E+02	5.87E+02	1.32E+00	2.64E+00
Naphthalene	chronic	1.11E+02	2.22E+02	4.99E-01	1.00E+00
Nitroaniline, 2-	chronic	1.11E+02	2.22E+02	4.99E-01	1.00E+00
Nitroaniline, 3-	chronic	3.69E+01	7.40E+01	1.66E-01	3.33E-01
Nitroaniline, 4-	chronic	6.22E+02	1.25E+03	2.80E+00	5.62E+00
Nitrosodimethylamine, N-	health	2.43E+02	0.00E+00	1.09E+00	0.00E+00
NitrosoDi-n-propylamine, N-	health	4.20E+01	0.00E+00	1.89E-01	0.00E+00
Nitrosodiphenylamine, N-	chronic	1.32E+02	2.64E+02	5.94E-01	1.19E+00
Pentachloronitrobenzene	chronic	1.32E+01	2.64E+01	5.94E-02	1.19E-01
Pentachlorophenol	acute	6.09E+01	1.22E+02	2.75E-01	5.51E-01
Phenanthrene	chronic	1.21E+01	2.43E+01	5.46E-02	1.10E-01
Phenol	acute	1.51E+04	3.02E+04	6.79E+01	1.36E+02
Polychlorinated terphenyls	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene glycol	chronic	3.74E+02	7.50E+02	1.69E+00	3.38E+00
Pyrene	chronic	2.42E+01	4.86E+01	1.09E-01	2.19E-01
Tert-butyl alcohol	chronic	1.24E+05	2.49E+05	5.59E+02	1.12E+03
Tetrachlorobenzene, 1,2,4,5-	chronic	1.05E+01	2.11E+01	4.75E-02	9.53E-02
Trichlorophenol, 2,4,5-	chronic	1.48E+01	2.96E+01	6.65E-02	1.33E-01
Trichlorophenol, 2,4,6-	chronic	1.74E+01	3.49E+01	7.84E-02	1.57E-01
1125					
Pesticides & PCBs:					
Alachlor	health	1.43E+02	2.87E+02	6.44E-01	1.29E+00
Aldicarb	chronic	6.85E+00	1.37E+01	3.09E-02	6.19E-02
Aldrin	health	4.20E-03	8.42E-03	1.89E-05	3.79E-05
Atrazine	chronic	8.43E+00	1.69E+01	3.80E-02	7.62E-02
Chlordane	chronic	2.27E-02	4.54E-02	1.02E-04	2.05E-04
D, 2,4-	chronic	2.63E+01	5.28E+01	1.19E-01	2.38E-01
DDD, 4,4-	health	2.52E-02	0.00E+00	1.13E-04	0.00E+00
DDE, 4,4-	health	1.77E-02	0.00E+00	7.97E-05	0.00E+00
DDT, 4,4-	chronic	5.27E-03	1.06E-02	2.37E-05	4.76E-05
Dicamba	chronic	9.48E+02	1.90E+03	4.27E+00	8.58E+00
Dichloroprop	chronic	6.32E+01	1.27E+02	2.85E-01	5.72E-01
Dieldrin	health	4.20E-03	8.42E-03	1.89E-05	3.79E-05
Endosulfan, alpha	chronic	2.95E-01	5.92E-01	1.33E-03	2.67E-03
Endosulfan, beta	chronic	2.95E-01	5.92E-01	1.33E-03	2.67E-03
Endosulfan sulfate	chronic	2.95E-01	5.92E-01	1.33E-03	2.67E-03
Endrin	chronic	1.90E-01	3.80E-01	8.55E-04	1.72E-03
Endrin aldehyde	chronic	1.90E-01	3.80E-01	8.55E-04	1.72E-03
Endrin ketone	chronic	1.90E-01	3.80E-01	8.55E-04	1.72E-03
Heptachlor	chronic	2.00E-02	4.02E-02	9.02E-05	1.81E-04
Heptachlor epoxide	chronic	2.00E-02	4.02E-02	9.02E-05	1.81E-04
Hexachlorocyclohexane, alpha	health	3.90E-01	7.82E-01	1.76E-03	3.52E-03
Hexachlorocyclohexane, beta-	health	1.38E+00	2.77E+00	6.21E-03	1.25E-02
Hexachlorocyclohexane, delta-	chronic	1.05E+01	0.00E+00	4.75E-02	0.00E+00

Allnex USA Inc.	Governing Criteria	AML (ug/L)	MDL (ug/L)	AML (kg/d)	MDL (kg/d)
Hexachlorocyclopentadiene	chronic	1.58E+00	3.17E+00	7.12E-03	1.43E-02
Lindane	chronic	3.00E-01	6.02E-01	1.35E-03	2.72E-03
Methoxychlor	chronic	1.58E-01	0.00E+00	7.12E-04	0.00E+00
Simazine	chronic	5.27E+00	1.06E+01	2.37E-02	4.76E-02
Toxaphene	chronic	1.05E-02	2.11E-02	4.75E-05	9.53E-05
	0				
Polychlorinated biphenyls	health	1.70E-03	0.00E+00	7.65E-06	0.00E+00

Attachment C

Calculation of Ammonia Criteria for Freshwater Surface Waters

Quinnipiac River

Calculation of Freshwater Water Quality Criteria For Ammonia

1 Criteria for ammonia, (mg/L as N) vary in response to ambient surface water temperature (T, degrees C) and pH. Biological integrity is considered impaired when:

A The one-hour average concentration of total ammonia exceeds:
$[0.275/(1+10^{(7.204-pH)})] + [39.0/(1+10^{(pH-7.204)})]$ when salmonids are present
Or
$[0.411/(1+10^{(7.204-pH)})] + [58.4/(1+10^{(pH-7.204)})]$ when salmonids are absent

B The four-day average concentration of total ammonia exceeds 2.5 times the value obtained from the formula in 14.c. below.

C The 30-day average concentration of total ammonia exceeds:
$[0.0577/(1+10^{(7.688-pH)})] + [2.487/(1+10^{(pH-7.688)})] \times [MIN(2.85, 1.45 \times (10^{(0.028(25-T))})]$
when early life stages are present;
or
$[0.0577/(1+10^{(7.688-pH)})] + [2.487/(1+10^{(pH-7.688)})] \times [1.45 \times (10^{(0.028(25-MAX(T,7))})]$
when early life stages are absent.

Data

Used data form the USGS gage stations located on the Quinnipiac River at Wallingford, Meriden and Southington for Jan 2013- Jan 2024. Data was obtained through the EPA Water Quality Data Portal.

Data were parsed into two groups: April through October and November through March. Average, minimum, and maximum Ammonia concentrations were calculated along with the number of observations. Ammonia concentrations are expressed in mg/l.

Table 1: Measured Ambient Ammonia Concentration (mg/L)

Months	pH				Temperature, water			
	Average	Minimum	Maximum	N	Average	Minimum	Maximum	N
Apr	7.8	7.2	8.1	27	11.8	5.2	14.6	24
May	7.7	7.2	8.0	16	15.1	11.2	18.9	16
Jun	7.7	7.1	8.1	31	18.5	12.2	22.4	20
Jul	7.7	7.2	8.1	33	22.0	19.0	24.7	21
Aug	7.8	7.3	8.2	27	21.0	18.1	25.0	17
Sep	7.7	7.0	8.1	31	18.4	12.4	24.3	21
Oct	7.8	7.3	8.2	27	13.1	9.8	17.8	17
Jan	7.6	7.2	7.9	11	3.5	0.6	7.5	11
Feb	7.8	7.0	8.2	25	2.8	0.3	5.6	16
Mar	7.8	7.2	8.1	17	5.9	2.8	13.5	17
Nov	7.6	7.2	7.9	15	9.6	6.7	13.7	15
Dec	7.8	7.5	8.0	26	5.0	2.0	7.7	18

Applicable Waterbody Segments

These calculated criteria apply to the freshwater portions of the Quinnipiac River:

Table 2: Applicable Waterbody Segments

Applicable Water Segments	
CT5200-00_01	Quinnipiac River (North Haven/Wallingford)-01
CT5200-00_02	Quinnipiac River (North Haven/Meriden)-02
CT5200-00_03	Quinnipiac River (Meriden)-03
CT5200-00_04	Quinnipiac River (Cheshire/Meriden/Southington)-04
CT5200-00_05	Quinnipiac River (Southington)-05
CT5200-00_06	Quinnipiac River-06
CT5200-00_07	Quinnipiac River-07
CT5200-00-4-L2_01	Hanover Pond (Meriden)

Salmonids

Salmonids are potentially present in the Quinnipiac River

Early Life Stage Presence

Based on expected monthly conditions as follows

Table 3: Determination for Potential Presence of Early LIfe Stages

Months	Biological Condition	Early Life Stages Present
Apr	Habitat Forming	No
May	Clupeid Spawning	Yes
Jun	Resident Spawning	Yes
Jul	Rearing & Growth	Yes
Aug	Rearing & Growth	Yes
Sep	Rearing & Growth	Yes
Oct	Rearing & Growth	Yes
Jan	Overwinter	No
Feb	Overwinter	No
Mar	Habitat Forming	No
Nov	Salmonid Spawning	Yes
Dec	Overwinter	No

Acute Criteria Calculation

- Criteria are pH dependent
- Assumes a 1 hour exposure period
- Used highest maximum daily value for each analysis period, since hourly values were not available.

30-Day Average and 4-Day Average Criteria

- Criteria are pH and temperature dependent
- Equations considering the presence of early life stages were used based on selections above
- 30-Day average criteria were calculated for each month using the monthly average values
- 4-Day average criteria were calculated based on the 30-Day average criteria

Criteria Summary

Table 4: Calculated Ammonia Water Quality Criteria

Calculated Ammonia Criteria (mg/l)

Waterbody:	Quinnipiac River, Freshwater Segments		
Months	**Acute**	**30 Day Average**	**4 Day Average**
April - October	3.83	2.10	5.24
November - March	3.83	3.98	9.94