National Pollutant Discharge Elimination System Permit Factsheet

SECTION 1 - FACILITY SUMMARY

Applicant	Dunn Paper – East Hartford, LLC
Permit No.	CT0002127
Application No.	201301708
Date Application Received	April 1, 2013
Location Address	40 Forbes Street, East Hartford, CT 06108
Facility Contact	Jeffrey Brashich, Environmental Engineer Office Phone: 860-466-4181 Email: BrashichJ@BiOriginSP.com
Mailing Address	40 Forbes Street, East Hartford, CT 06108
DMR Contact	Jeffrey Brashich Office Phone: 860-466-4181 Email: BrashichJ@BiOriginSP.com
Secretary of State Business Id	0741767
Permit Term	5 Years
Permit Category	National Pollutant Discharge Elimination System – Industrial Major
SIC & NAICS Code(S)	2621, 322121
Applicable Effluent Guidelines	40 CFR 430 Subpart L
Permit Type	Reissuance
Ownership	Private
Receiving Water	Hockanum River
Waterbody Segment Id's	CT4500-00_01
Waterbody Classification	B
Discharge Locations	DSN 001: Latitude 41.77611 Longitude -72.60667
Compliance Actions	Compliance schedule for PFAS monitoring & thermal study
Deep Staff Engineer	Joseph Grandelski, 860-424-3608 Joseph.grandelski@ct.gov

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1.1 PERMIT FEES

1.1.1 APPLICATION FEE:

FEE	INVOICE NO.	AMOUNT	DATE PAID
Filing Fee:	DEP217941	$1,300	04/01/2013
Processing Fee:	DEP220556	$13,650	05/26/2015

1.1.2 ANNUAL FEE:

WASTEWATER CATEGORY (per RCSA 22a-430-7)	SUBCATEGORY (total maximum daily flow, gallons per day)	DSN	ANNUAL FEE (per RCSA 22a-430-7 and CGS 22a-6f)
Pulp and Paper Mills	>50,000 gpd	001-1	$8,425
TOTAL			**$8,425**

1.2 APPLICATION SUBMITTAL INFORMATION

On April 1, 2013, the Department of Energy and Environmental Protection ("DEEP") received an application (Application 201301708) from Cellu Tissue, LLC dba Clearwater Paper – East Hartford ("Permittee", "Applicant") in East Hartford, CT for the renewal of its NPDES Permit CT0002127, expiring on October 6, 2013 ("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 Hartford Courant on September 19, 2013. On May 17, 2013, the application was determined to be timely and administratively sufficient.

On July 8, 2015, DEEP approved a license transfer from Cellu Tissue LLC to Dunn Paper – East Hartford, LLC ("Dunn Paper") for NPDES Permit CT0002127 and NPDES Permit Renewal Application 201301708.

The Permittee seeks authorization for the following in Application 201301708:

DSN	PROPOSED AVERAGE DAILY FLOW (gpd)	PROPOSED MAXIMUM DAILY FLOW (gpd)	PROPOSED WASTESTREAMS	TREATMENT TYPE	DISCHARGE TO
001	300,000	500,000	Tissue paper manufacturing wastewater	pH adjustment, coagulation, flocculation, solids removal with dissolved air floatation, ultraviolet ("UV"), and a disc filter	Hockanum River

1.3 OTHER PERMITS

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

- Stormwater from the site is permitted under the *General Permit for the Discharge of Stormwater Associated with Industrial Activity* (GSI001634).
- Water treatment wastewater is permitted under the *Comprehensive General Permit for Discharges to Surface Water and Groundwater* (CTCSW0043), which includes River Adams Filter backwash and treated river water from the Dynasand filter.

- Miscellaneous wastewaters from the site are permitted under the *General Permit for the Discharge of Wastewaters from Significant Industrial Users* (CTSIU0085), which includes water treatment wastewater from the Parkson Lamellar gravity settler and Dynasand filter, boiler blowdown from two natural gas boilers, and other process wastewater from blowdown of the Heat Recovery Steam Generator (HRSG).

- Other paper mill wastewater is permitted under Pretreatment Permit SP0002347, which includes wastewater collected in floor drains from the machine room, converting area, and boiler/motor room, from the surge tank, and filtrate from the sludge press and dewatering drum.

The Permittee also has a diversion permit (DIV-201105690) that authorizes the consumptive diversion of 0.850 million gallons per day ("MGD") of Hockanum River water and return of diverted water, after in-mill treatment, to the river.

1.4 FACILITY DESCRIPTION

Dunn Paper is a specialty tissue paper manufacturing facility located in East Hartford, CT on 3.5 acres. Paper manufacturing operations have occurred at this site since 1811, prior to which the site operated as a saw mill as early as 1789 (https://connecticutmills.org/find/details/j.h.-walker-company). The Permittee has maintained a NPDES permit since 1974.

1.5 DESCRIPTION OF INDUSTRIAL PROCESS

Dunn Paper – East Hartford, LLC is a business that performs tissue paper manufacturing. Pulp, purchased from suppliers, is mixed with water, beaten into a fiber slurry and through a series of steps, the slurry is conditioned mechanically and with chemicals to obtain the desired properties and consistency. The fiber slurry is transferred to the paper machine where it forms a large sheet. As the sheet passes through the paper machine, water is removed. Finally, the sheet is dried in a Yankee Dryer, wound onto rolls, and then cut to the customers' required sizes. The tissue is processed into final products at the customers' locations, which includes products such as hygiene and sanitary products, and medical supplies.

The mill and wastewater treatment system operates 24 hours per day, 7 days per week. Dunn Paper operates one paper machine (PM No. 2). PM No. 1 was idled in 2015, with no current plans to be brought back online. The wastewater is discharged to the Hockanum River by way of DSN 001-1 under this permit.

1.6 TREATMENT SYSTEM DESCRIPTION

See Attachment A for an Effluent Plant Flow Diagram

1.6.1 RAW WATER TREATMENT

Water used at the facility is either supplied by the Metropolitan District Commission or diverted from the Hockanum River. Water withdrawn from the river is treated prior to use with the River Water Clarification System. The treatment system consists of filtering through the Haywood filter and Adams filter to remove large debris. The discharge of backwash wastewater from the Adams Filters to the river is permitted under the *Comprehensive General Permit for Discharges to Surface Water and Groundwater.* Following filtration, biocides (sodium hypochlorite and ChemTreat CL15) are added to the filtered water to treat for biological growth. Next, a coagulant (Epic WW58) and a flocculant (ChemTreat P812A) are added, and the solids settle out in the Lamella gravity settler. Solids from the settler are discharged to the sanitary sewer under the *General Permit for the Discharge of Wastewaters from Significant Industrial Users*. Clarified water flows through a Parkson Dynasand filter. From there, water is directed to the shower water tank or through the main mill pump to be used in the manufacturing process. Sodium hypochlorite and ChemTreat

CL15 are again dosed into the shower water tank and after the main mill pump to reduce biological growth buildup in the paper machine headbox and machine showers. The water treatment wastewater discharges are authorized under *Comprehensive General Permit for Discharges to Surface Water and Groundwater as described* in Section 1.3 Other Permits. The effluent of water treatment wastewaters enters the discharge flume downstream of the final effluent monitoring location for DSN 001-1 of this permit, as required by a compliance schedule under the previous permit (see Section 1.8 Compliance History).

1.6.2 PROCESS WATER TREATMENT

Process water from PM No. 2 flows into the saveall pit, a collection tank, and is then pumped to a sump ("channel"). Channel lift pumps work to move water from the channel to the Dissolved Air Floatation ("DAF") clarifiers. There are two DAF clarifiers, DAF #1 and DAF #2, which are used alternately to remove solids from the tissue manufacturing wastewater. A portion of influent water to the DAFs is saturated with dissolved air. Water flows into the main chamber of the DAF where it is chemically treated with a high-charge coagulant (Epic WW 2400 or Parafloc 197) and a flocculant (ChemTreat P812A). Soda ash and aluminum sulfate are added to control pH. The suspended solids rise to the surface of the water, where they are skimmed and directed either through the fines tank to the pulpers or the paper machine, or through the sludge tank to solids treatment. Clarified water from the DAF enters the cement tank, which is a 20,000-gallon holding tank, where it can be used again for process water or discharged as wastewater via DSN 001-1. A kidney loop is installed on the cement tank and pumps water through UV treatment and then a 50-micron disc filter. A bypass line around the UV treatment allows for limited maintenance in the circumstances when the UV bulbs need to be replaced. A portion of the treated water from the disc filter is recycled to the shower water tank for use as process water, while the remainder is either discharged as effluent via DSN 001-1 or recirculated to the cement tank, depending on the operating level in the cement tank. Approximately 70-80 percent of the treated wastewater is reused in the process on-site, and approximately 20-30 percent is discharged to the Hockanum River.

1.6.3 SOLIDS TREATMENT

Disc filter rejects are pumped back to the channel. Recovered fiber from the DAF units is either pumped to the fines tank to be returned to a pulper/beater or is pumped to the sludge tank. Unusable fiber is dewatered in the sludge tank and pH adjusted via soda ash and aluminum sulfate as needed. A flocculant (ChemTreat P812A) and a coagulant (Epic WW58) are added to the dewatered sludge, and then it is thickened in a dewatering drum and belt press. The thickened sludge is disposed of off-site as nonhazardous waste. Filtrate is returned to the channel for treatment.

1.7 FACILITY CHANGES

In June of 2015, Dunn Paper idled operations of PM No. 1. Previously, DAF #1 treated wastewater from PM No. 1 while DAF #2 treated wastewater from PM No. 2. With PM No. 1 removed from operations, the wastewater from PM No. 2 is now alternately treated by DAF #1 or DAF #2, which provides redundancy for cleaning and maintenance of either DAF.

There have been no permit modifications since the last permit renewal, but there have been facility and treatment system modifications performed in accordance with Section 22a-430-3(i) of the Regulations of the Connecticut State Agencies ("RCSA"). The regulations 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 at the time of Public Notice
N/A	Authorization to use Nalco HYG-25 and Nalco Accu-Valor 100A in the chlorine dioxide generator. These chemicals have since been replaced.	4/10/2012	Yes
N/A	Authorized installation of "sidehill screens" to the piping lines that feed the #1 and #2 clarifiers, installation of an aeration pump and changing the configuration of feed piping into DAF clarifier, and installation of a Seimans rotary disc filter with 30 micron screen.	3/9/2012	Yes
201508832	Authorized replacement of the Hach sc100 pH/TSS controller with a Hach sc200 controller.	12/10/2015	Yes
201615685	Approval to make process piping modifications, installation of a new filtration system, repurposing of an existing water storage tank, additional use of an existing disc filter, and new controls and instrumentation	2/3/2017	Yes
201702681	An approval to replace the manually-actuated bypass valves from the Kroftas to the emergency surge tank, in the case of pH or TSS exceedances, with automatic valves controlled by the mill's computerized control system. If the emergency surge tank level exceeds 70%, excess wastewater would be diverted into the dirty fines tank until 50% capacity is reached, in which case the computerized control system would trigger a plant shutdown. Additionally, Dunn Paper requested authorization to install an overflow pipe on the main white water collection tank (cement tank) to the channel to prevent accidental overflow of the tank's contents into the flume that discharges to the river when the disc filter is out of service or unable to keep up with the demand of the Kroftas. Water from the channel is pumped to the diversion tank or back to the Krofta. Further preventative measures to prevent of an overflow of the cement tank to the river were also approved via 3(i) application 202005965.	4/19/2017	Yes
201906108	Approval to use previously trialed Yankee dryer coating, water treatment and felt conditioning chemicals (ChemTreat FO180, CR180, CR310, CR100, P806, CL15, & FE212; and Holland EPIC WW2400) to enhance paper production and the water treatment system.	5/30/2019	Yes
202005965	Approval to install three new valves to prevent a future bypass discharge to the river. This includes a fail closed valve between DAF #1 and the cement tank, a fail open valve between DAF #1 and the diversion tank, and a fail open valve between DAF #2 and the diversion tank.	6/4/2020	Yes

202103532	Approval to extend the DSN 001-1 discharge pipe 80 inches and install a manually operated butterfly valve. These changes protect the lowest points in the building from flooding in the event of a 100-year flood and meet the requirements of their insurer's flood response plan.	3/16/2021	Yes
202104741	Approval to install and operate a disinfection system immediately before the disc filter. ETS-UV Disinfection Generator-SW Model treats the papermill wastewater with UV light for improved toxicity results in DSN 001-1.	4/26/2021	Yes
202306714	Approval to bypass UV treatment for limited maintenance purposes was approved on September 18, 2023. The UV bulbs require periodic replacement as they become less effective or burn out.	9/18/2023	Yes
202411636 & 202411637	Approval to reroute the backwash piping lines of the Disc Filter and Ergo Filter from the white water collection channel to the diversion tank. Currently, the filter backwash is directed to the channel, which is then treated by the dissolved air flotation ("DAF") treatment unit. Pulp fibers that are captured in the DAF are directed back to the paper machine via the fines tank. Redirecting the backwash to the solids treatment system will improve the removal of solids in the filter backwash, thereby improving the quality of pulp fiber collected in the fines tank.	1/10/2025	No
202501020	Approval to use Kymene 1500LV as a wet-strength chemical dosed into the dump chest in place of Kymene 557H.	2/28/2025	No

1.8 COMPLIANCE HISTORY

Based on Discharge Monitoring Reports ("DMRs") and Aquatic Toxicity Monitoring Reports ("ATMRs") submitted to DEEP, the Permittee reported the following effluent violations in the last five years:

EFFLUENT VIOLATIONS IN THE PAST 5 YEARS					
Month/ Year	**DSN**	**Parameter**	**Type of Limit**	**Permitted Limit**	**Reported Value**
4/9/2019	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	86.3 %
4/30/2019	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	48.4 %
7/23/2019	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	67.8%
1/14/2020	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	80.0 %
2/25/2020	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	83.3 %
4/14/2020	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	75.0 %
7/21/2020	001-1	LC_{50} Static 48Hr Acute *D. Pulex*	Daily Minimum	100 %	88.2 %

The violations were thought to be caused by pathogens, so the Permittee proposed installation of UV disinfection. The UV system was brought online in late 2022 and the acute toxicity failures ceased in 2020. There have been no LC_{50} Static 48Hr Acute *D. Pulex* failures in the last 4 years.

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

Consent Order No. COWRIN23002 was issued to the Permittee on October 2, 2023, for a bypass of the disc filter that resulted in a discharge of wastewater highly concentrated with total suspended solids ("TSS"), and a report of a fish kill on December 22, 2016. The Permittee also exceeded the maximum pH limit on April 5, 2017; violated the aquatic toxicity limit on October 11, 2016, November 11, 2016, and February 8, 2017; exceeded the biochemical oxygen demand, 5-day ("BOD_5") limit on November 6, 2017; caused foaming in the river on August 30, 2018; reported a bypass of the wastewater treatment system on December 4, 2019; reported a release of process wastewater to the river on April 26, 2022; and was cited for numerous violations during an inspection on January 11-12, 2023, including failure to maintain records, failure to comply with reporting requirements, failure to collect, handle, and analyze samples appropriately, failure to operate and maintain the wastewater collection system, failure to obtain approval for use of treatment chemicals, and numerous violations around exceedances of and reporting of the aquatic toxicity limit seven times between 2019 and 2020. The Permittee had demonstrated compliance prior to the consent order being issued, so the consent order only included a civil penalty. The Permittee paid the penalty on November 11, 2023, and a Certificate of Compliance was issued to the Permittee on December 6, 2023. Some of the actions the Permittee took to come into compliance included: installing UV treatment before the disc filter, which eliminated aquatic toxicity failures; installing new valves to prevent bypasses of treatment, particularly in cases of power failure; submitted approval requests for chemical changes that had already occurred; installation of visual and audible alarms for TSS and pH on DAF #1, DAF #2, and the discharge flume; and updated their Operations and Maintenance Plan to reflect these and other facility changes.

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

Section 9 of the previous permit required the Permittee to (1) relocate the River Adams Filter backwash connection to after the monitoring location for DSN 001; (2) relocate the treated river water pipeline from the 30,000-gallon tank to the main water process pipeline; and (3) relocate the bypass of (partially) treated river water discharge piping to after the final effluent monitoring location for DSN 001. The Permittee confirmed that the relocation of the Adams Filter backwash connection was completed on November 25, 2008; the relocation of the treated river water pipeline was completed on October 31, 2008; and the relocation of the bypass for treated river water discharge piping was completed on October 1, 2008. These discharges are now permitted under Registration No. CTCSW0043 (see Section 1.3 Other Permits).

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

The site is not located within an area identified as a habitat for endangered, threatened or special concern species according to the June 2024 "State and Federal Listed Species and Natural Communities Map".

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

2.1 DESIGNATED USES

The receiving waterbody, the Hockanum River, is identified as CT4500-00_01, which includes the section from the mouth at the Connecticut River in East Hartford up to the Cellu Company Dam. The outfall is located downstream of this dam. This segment of the Hockanum River is classified as a Class B surface water. The designated uses for Class B waters are: (1) habitat for fish and other aquatic life and wildlife; (2) recreation; (3) navigation; and (4) industrial and agricultural water supply (RCSA 22a-426-4(h)).

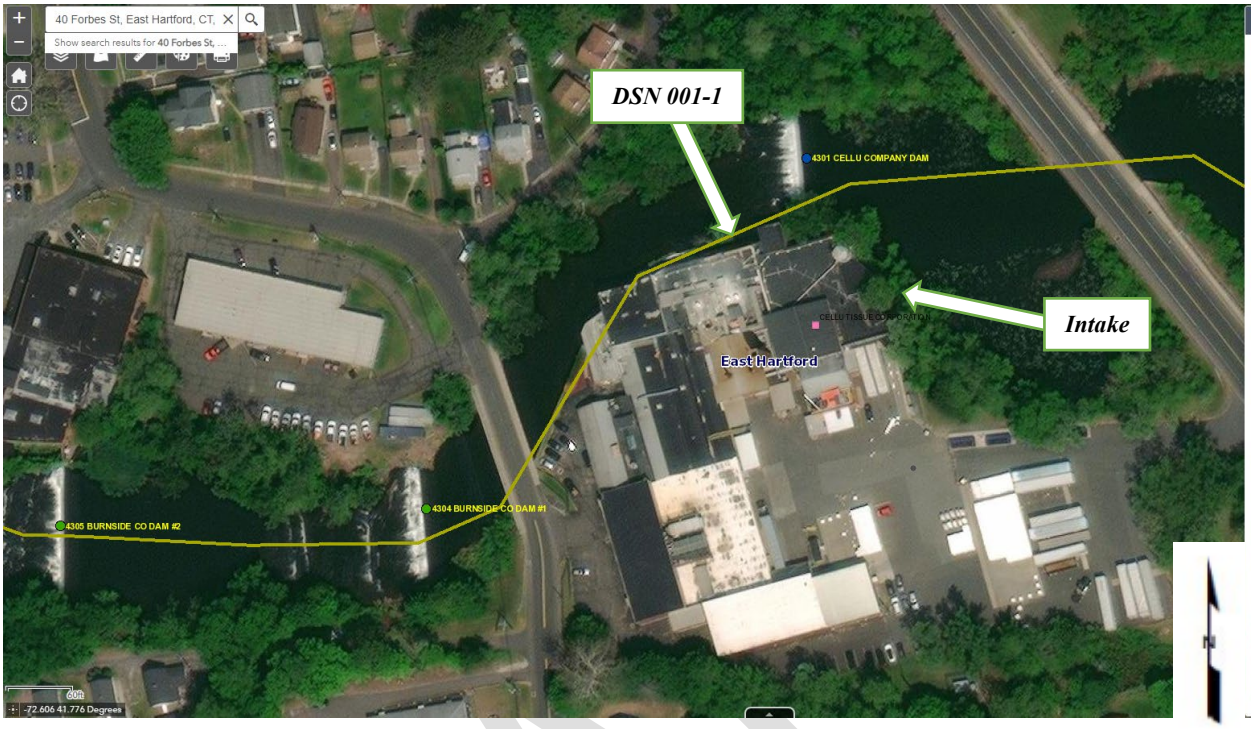
2.2 IMPAIRMENTS AND TMDLS

This section of the Hockanum River was assessed pursuant to CWA §305(b) as part of Connecticut's 2022 Integrated Water Quality Report. That assessment determined that this section of the Hockanum River is not supporting its designated use of habitat for fish, other aquatic life and wildlife (https://portal.ct.gov/-/media/deep/water/water_quality_management/305b/2022/final-2022-iwqr-appendix-a-1-connecticut-305b-assessment-results-for-rivers-and-streams.pdf). This section of the Hockanum River is listed on Connecticut's 303(d) list of impaired waterbodies; the causes of impairment are unknown (https://portal.ct.gov/-/media/deep/water/water_quality_management/305b/2022/final-2022-iwqr-appendix-b-1-list-of-impaired-waters-for-connecticut-epa-category-5.pdf). This section of the Hockanum River is subject to the Hockanum River Regional Basin *E. coli* Total Maximum Daily Load ("TMDL") (https://portal.ct.gov/-/media/deep/water/tmdl/ctfinaltmdl/hockanum) and A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound (https://portal.ct.gov/-/media/deep/water/lis_water_quality/nitrogen_control_program/tmdlpdf.pdf), which is based on control of total nitrogen. All fresh waterbodies in Connecticut are subject to the Northeast Regional Mercury Total Maximum Daily Load (https://portal.ct.gov/-/media/deep/water/tmdl/ctfinaltmdl/ne_hg_tmdl).

A review of Attachment O of the application revealed that fecal coliform and mercury were believed absent, and two samples analyzed for mercury were both non-detect. Therefore, monitoring for these parameters has not been included in the permit. Monitoring requirements for ammonia, total Kjeldahl nitrogen, nitrate, and nitrite, have been included in the permit in response to the Long Island Sound TMDL.

This section of the Hockanum River is also listed in the 2022-2024 Priority List of Waters for Action Plan Development (https://portal.ct.gov/-/media/deep/water/water_quality_management/305b/2022/final-2022-iwqr-appendix-c-1-priority-list-for-action-plan-development-2022-2024.pdf) under the Interim Phosphorus Strategy, which is an alternative restoration approach for total phosphorus. Phosphate is a component of one of the chemicals used by the Permittee, so monitoring requirements for total phosphorus have been included in the permit.

Figure 1: Image of discharge location



SECTION 3 - PERMIT CONDITIONS AND EFFLUENT LIMITATIONS

3.1 POLLUTANTS OF CONCERN

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

POLLUTANT	REASON FOR INCLUSION			
	POLLUTANT WITH AN APPLICABLE TECHNOLOGY-BASED LIMIT	POLLUTANT WITH A WASTE LOAD ALLOCATION FROM A TMDL	POLLUTANT IDENTIFIED AS PRESENT IN THE EFFLUENT THROUGH SAMPLING	POLLUTANT OTHERWISE EXPECTED TO BE PRESENT IN THE EFFLUENT
Aluminum, Total			X	
Anthracene			X	
BOD_5	X			
Chlorine, Total Residual			X	
Copper, Total			X	
Epichlorohydrin				X
Formaldehyde			X	
Lead, Total				X
Nitrogen, Ammonia (total as N)			X	
Nitrogen, Kjeldahl Total			X	
Nitrogen, Nitrate (total as N)			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
Nitrogen, Nitrite (total as N)			X	
Nitrogen, Total			X	
Oil and Grease, Total			X	
Pentachlorophenol	X			
pH	X			
Phenanthrene			X	
Phosphorus, Total			X	
Temperature			X	
Total Suspended Solids	X			
Trichlorophenol	X			
Volatile Organics, Total			X	
Zinc, Total			X	

3.2 BASIS FOR LIMITS

Technology and water-quality based requirements are considered when developing permit limits. Technology-based effluent limits ("TBELs") represent the minimum level of control imposed under the Clean Water Act ("CWA"). Industry-specific technology-based limits are set forth in 40 CFR 405 – 471 (EPA's Effluent Limitation Guidelines) and in Regulations of Connecticut State Agencies ("RCSA") Section 22a-430-4(s)(2). Water quality-based 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 ("WQC") are found in RCSA Section 22a-429-9 of the *Connecticut Water Quality Standards* ("WQS").

3.3 EFFLUENT LIMIT GUIDELINES

The following Effluent Limit Guidelines and Standards were reviewed to determine their applicability to the facility's operations, waste streams, and discharge, DSN 001-1:

EPA promulgated initial Effluent Limit Guidelines and Standards for the Pulp, Paper and Paperboard category (40 CFR Part 430) in 1974 and 1977, amended the regulations in 1982 and 1986, and promulgated a major amendment covering toxic pollutants in 1998 (the Cluster Rules). Subpart L applies to the manufacture of tissue papers at nonintegrated mills; filter and non-woven papers at nonintegrated mills; and paperboard at nonintegrated mills. The Permittee produces tissue paper from purchased pulp, therefore, Subpart L is applicable.

Subpart J was also considered, which applies to the production of paperboard from wastepaper from noncorrugating medium furnish or from corrugating medium furnish; tissue paper from wastepaper without deinking at secondary fiber mills; molded products from wastepaper without deinking; and builders' paper and roofing felt from wastepaper. The Permittee utilizes virgin pulp and not wastepaper, therefore, Subpart J is not applicable.

Subpart L prescribes Best Practicable Control Technology Currently Available ("BPT") for pollutants BOD_5, TSS, and pH for continuous dischargers (40 CFR 430.122), and Best Available Technology Economically Achievable ("BAT") for pollutants pentachlorophenol ("PCP") and trichlorophenol ("TCP") (40 CFR 430.124). Best Conventional Control Technology ("BCT") for conventional pollutants (40 CFR 430.123) are the same as the effluent limitations specified for BPT. The Permittee is not subject to New Source Performance Standards ("NSPS"), based on the definition of "new source" defined under 40 CFR 430.01(j) and 40 CFR 122.2. The process and production equipment associated with PM No. 2 have not been totally replaced since the promulgation of the NSPS for the nonintegrated-tissue papers subcategory as part of the 1982 Amendment to the Pulp, Paper, and Paperboard point source category.

Federal Effluent Limitations are given below (as of June 2025):

Pollutant	40 CFR 430.122 (BPT)		40 CFR 430.124 (BAT)	
	Maximum Daily	Average Monthly	Maximum Daily	Maximum Daily
	Kg/kkg (or lbs/1,000 lb)	Kg/kkg (or lbs/1,000 lb)	Kg/kkg (or lbs/1,000 lb)	mg/L
BOD_5	11.4	6.25		
TSS	10.25	5.0		
pH	([1])	([1])		
Pentachlorophenol			0.0028	(0.029)(22.9)/y
Trichlorophenol			0.00096	(0.010)(22.9)/y
y = wastewater discharged in kgal per ton of product				

[1] Within the range of 5.0 to 9.0 at all times.

3.3.1 TECHNOLOGY BASED EFFLUENT LIMITATIONS

Technology-based treatment requirements represent the minimum level of control that must be imposed under CWA §§ 301(b) and 402 to meet Best Practicable Control Technology Currently Available ("BPT") for conventional pollutants and some metals, Best Conventional Control Technology ("BCT") for conventional pollutants, and Best Available Technology Economically Achievable ("BAT") for toxic and non-conventional pollutants. *See* 40 CFR § 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 § 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 § 402(a)(1). EPA promulgates New Source Performance Standards ("NSPS") under CWA § 306 and 40 CFR § 401.12. *See also* 40 CFR §§ 122.2 (definition of "new source") and 122.29.

In the absence of published technology-based effluent guidelines, the permit writer is authorized under CWA § 402(a)(1)(B) and RCSA Section 22a-430-4(m) to establish effluent limitations on a case-by-case basis using Best Professional Judgment ("BPJ").

In the development of permit limits for BOD_5, TSS, pH, PCP, and TCP, DEEP compared EPA's Pulp, Paper and Paperboard Categorical Limits (40 CFR Part 430, Subpart L) and limits in the previous permit, in accordance with RCSA Section 22a-430-4(l)4(A)(xxiii). In accordance with 40 CFR 430.124 (Pulp, Paper and Paperboard Category), the Permittee may, in lieu of analyzing for pentachlorophenol and trichlorophenol, include an annual statement on the DMR certifying that there has been no use of pentachlorophenol and trichlorophenol at the facility.

BPT effluent limitations for non-integrated mills where tissue papers are produced from purchased pulp			
Pollutant	**40 CFR 430, Subpart L Effluent Limits**	**Production-based limits** [1] (*converted to kg/day*)	**Concentration limits** [2]
BOD_5	MDL = 11.4 *kg / kkg of product* AML = 6.25 *kg / kkg of product*	MDL: $\frac{11.4\ kg}{kkg} \times \frac{52.2\ kkg}{day} = 595\frac{kg}{day}$ AML: $\frac{6.25\ kg}{kkg} \times \frac{52.2\ kkg}{day} = 326\frac{kg}{day}$	MDL = 314 *mg/L* AML = 172 *mg/L*
TSS	MDL = 10.25 *kg / kkg of product* AML = 5.0 *kg / kkg of product*	MDL: $\frac{10.25\ kg}{kkg} \times \frac{52.2\ kkg}{day} = 535\frac{kg}{day}$ AML: $\frac{5.0\ kg}{kkg} \times \frac{52.2\ kkg}{day} = 261\frac{kg}{day}$	MDL = 283 *mg/L* AML = 138 *mg/L*
pH	5.0 – 9.0		

BAT effluent limitations for non-integrated mills where tissue papers are produced from purchased pulp		
Pollutant	**40 CFR 430, Subpart L Effluent Limits**	
	MDL (*kg / kkg of product)*	**MDL** [3] (*mg/L*)
PCP	MDL = 0.0028 *kg / kkg of product* $= \frac{0.0028\ kg}{kkg} \times \frac{52.2\ kkg}{day} = 0.146\ kg/day$	MDL = (0.029)(22.9)/y $= \frac{(0.029)(22.9)}{5.22} = 0.127\frac{mg}{L}$
TCP	MDL = 0.00096 *kg / kkg of product* $= \frac{0.00096\ kg}{kkg} \times \frac{52.2\ kkg}{day} \times = 0.050\ kg/day$	MDL = (0.010)(22.9)/y $= \frac{(0.010)(22.9)}{5.22} = 0.043\frac{mg}{L}$

[1] Current production is 115,000 lbs/day:

$$Production = \frac{115{,}000\ lbs}{day} \times \frac{kg}{2.20\ lbs} \times \frac{kkg}{1000\ kg} = \frac{52.2\ kkg}{day}$$

[2] Based on production-based limit, and converted to a concentration-based limit by dividing by the maximum daily flow:

$$limit\ \left(\frac{kg}{day}\right) \times 1{,}000{,}000\frac{mg}{kg} \times \frac{day}{500{,}000\ gal} \times \frac{gal}{3.785\ L}$$

[3] y = wastewater discharged in kgal per ton of product:

$$y = \frac{300{,}000\ gal}{day} \times \frac{kgal}{1000\ gal} \times \frac{day}{115{,}000\ lbs} \times \frac{2000\ lbs}{ton}$$
$$= 5.22\ \ kgal\ of\ wastewater/ton\ of\ product$$

3.4 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 § 301(b)(1)(C) and 40 CFR §§ 122.44(d)(1),122.44(d)(5), 125.84(e) and 125.94(i).

TBELs were included for BOD_5, TSS, pH, pentachlorophenol, and trichlorophenol. BOD_5 and TSS do not have numeric water quality criteria, so no water quality-based effluent limits ("WQBELs") were derived

for these parameters. WQBELs for pentachlorophenol and trichlorophenol were not derived because the Permittee certified that these pollutants are not used at the facility, and a review of prior quarterly monitoring indicated that these parameters have not been detected; hence monitoring will not be required.

3.4.1 WATERBODY AMBIENT CONDITIONS

According to the report "Flow Durations, Low-Flow Frequencies, and Monthly Median Flows for Selected Streams in Connecticut through 2005" (https://pubs.usgs.gov/sir/2007/5270/pdf/SIR2007-5270.pdf), the 7Q10 of the Hockanum River at the USGS station number 01192500 is 22.7 cubic feet per second ("cfs") for a drainage area of 73.4 mi^2. According to the USGS StreamStats application (https://streamstats.usgs.gov/ss/), the drainage area of Dunn Paper's outfall location is 74.4 mi^2. The approximate streamflow at Dunn Paper's outfall is:

$$7Q10_{outfall} = 7Q10_{gage} \times \frac{Drainage\ Area_{outfall}}{Drainage\ Area_{gage}} = 22.7 \times \frac{74.4}{73.4} = 23.0\ cfs$$

Ambient river conditions were downloaded from USGS Water Data for the Nation - Gage 01192500 Hockanum River Near East Hartford, CT (https://waterdata.usgs.gov/monitoring-location/01192500/#parameterCode=00065&period=P7D&showMedian=false) and collected during annual chronic aquatic toxicity testing, which requires collection of a sample of ambient river water upstream of the discharge. The average background concentrations of pollutants used in this reasonable potential analysis for the years 2019-2024 are given in the table below:

Hockanum River Background Concentrations of Pollutants, 2019-2024	
Pollutant	**Concentration**
Ammonia	0.17 mg/L
Chloroform	0 ug/L
Copper	3.9 ug/L
Formaldehyde	23 ug/L
Nickel	1.1 ug/L
Zinc	11.9 ug/L

Ambient Measurements for Ammonia Calculations			
Months	**Average**	**Minimum**	**Maximum**
pH (S.U.)			
April – October	7.6	7.0	8.5
November – March	7.5	7.2	7.7
Temperature (°C)			
April – October	18.9	6.7	26.3
November – March	4.8	2.3	9.0

RCSA 22a-426-9 specifies that the WQC for ammonia is dependent on the presence of salmonids, pH, and temperature of the receiving stream. DEEP stocks trout in the Hockanum River. Brown trout were documented upstream in 1995 and 2008 at Station 14235, according to the CT DEEP Fish Community Data – Inland Waters (https://cteco.uconn.edu/projects/fish/viewer/index.html). There is also a Trout Management Area upriver, which was last stocked in May 2024 according to

the Connecticut Trout Stocking GIS map (https://ctdeep.maps.arcgis.com/apps/webappviewer/index.html?id=70d13bc033854b89a87c04b1d11b1a43). The following equations were used to calculate the ammonia criteria:

A) The one-hour average concentration:

$$[0.275/(1+10^{(7.204-pH)})]+[39.0/(1+10^{(pH-7.204)})]$$

B) The four-day average concentration = 2.5 times the value of the 30-day average concentration.

C) The 30-day average concentration:

$$[0.0577/(1+10^{(7.688-pH)})]+[2.487/(1+10^{(pH-7.688)})]\times[MIN(2.85,1.45\times(10^{(0.028(25-T)})))]$$

The criteria were calculated for two periods of the year: April through October and November through March. Maximum ambient values were used to calculate the acute (1-hour exposure) criteria, as organisms are more sensitive to ammonia with increasing pH and temperature. Average ambient values were used to calculate the chronic (4-day and 30-day exposure) criteria. The inputs and criteria are presented in the table below:

Months	**One-Hour Acute Criteria** (mg/L)	**Four-Day Chronic Criteria** (mg/L)	**30-Day Chronic Criteria** (mg/L)
April – October	3.2	7.5	3.0
November – March	14.4	17.1	6.8

3.4.2 ZONE OF INFLUENCE

The previously allocated zone of influence ("ZOI") of 552,062 gph is being carried forward.

3.4.3 REASONABLE POTENTIAL ANALYSIS

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

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

Consistent with the TSD, a reasonable potential analysis ("RPA") compared the projected concentrations in the receiving waterbody after discharge with the applicable water quality criteria using the following information:

- Discharge monitoring data from July 2019 to July 2024;
- Hockanum River water quality data from USGS Station 01192500 (https://waterdata.usgs.gov/);
- Ambient water monitoring data from annual chronic toxicity testing;
- Hockanum River water quality criteria for freshwater;
- Allocated Zone of Influence; and
- Statistical multiplier in Table 3-1 of the Technical Support Document For Water Quality-based Toxics Control (EPA/505/2-90-001).

An RPA was conducted for the following parameters: aluminum, chlorine, copper, lead, nickel, zinc, chloroform, formaldehyde, and ammonia. The analysis considered the zone of influence of 552,062 gph and the average daily permitted flow of 300,000 gpd (12,500 gph). Details of the analysis are presented in Attachment B. A discussion of the elevated levels of aluminum are included in Section 3.7 below.

Epichlorohydrin, pentachlorophenol, and trichlorophenol were regularly monitored in the last permit cycle and were never detected in the effluent. An RPA was not conducted for these parameters.

Anthracene and phenanthrene were detected in the initial screening of the effluent at levels below the water quality criteria. Anthracene and phenanthrene are chemicals used in dyes, plastics, and pesticides. The only dye that is used on site is an edge marker, and possibly ink on the outside of the pulp bales. Anthracene and phenanthrene are both polycyclic aromatic hydrocarbons, which are a byproduct of burning fossil fuels (https://archive.epa.gov/epawaste/hazard/wastemin/web/pdf/phenanth.pdf). Due to the uncertainty of the presence of these chemicals in the wastewater, semi-annual monitoring has been included to collect data to further assess the presence and variability of the pollutants in the discharge.

The RPA did not indicate that WQBELs are needed. Calculations are included as Attachment B.

3.4.4 WHOLE EFFLUENT TOXICITY

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

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

Dunn Paper's previous permit required quarterly testing of acute toxicity and contained a limit of $LC_{50} > 100\%$. The previous permit also required annual testing of chronic toxicity. As noted in Section 1.8 Compliance History, the Permittee had seven exceedances of its acute toxicity limit that occurred between April 2019 and July 2020, with the lowest LC_{50} result of 48.4% in April 2019.

Acute toxic units:

$$TUa = \frac{100}{LC_{50}} = \frac{100}{48.4} = 2.07\ TUa$$

$$TUc = \frac{100}{IC_{25}} = \frac{100}{100} = 1.00\ TUc$$

A standard coefficient of variation of 0.6 is assumed, which corresponds to a statistical multiplier of 2.3.

Dilution Factor:

$$DF = \frac{ZOI\ +\ Average\ Permitted\ flow\ for\ effluent\ (gph)}{Average\ permitted\ flow\ for\ effluent\ (gph)} = \frac{552{,}062 + 12{,}500}{12{,}500} = 45.16$$

Instream Waste Concentration:

$$IWC = \frac{1}{DF} \times 100\% = 2.21\ \%$$

Projected TUa and TUc in the receiving water:

$$Projected\ TUa = highest\ TUa \times multiplier \times IWC = 2.07 \times 2.3 \times \frac{1}{45.16} = 0.11$$

$$Projected\ TUc = 1.00 \times 2.3 \times \frac{1}{45.16} = 0.051$$

The EPA's TSD recommends using acute toxicity criteria and chronic toxicity criteria of TUa = 0.3 and TUc = 1.0. Both the projected TUa and TUc are below the criteria. Historically, there were several aquatic toxicity failures in 2019-2020, as documented in the compliance history (Section 1.8 of the fact sheet). Therefore, a permit limit is needed.

The maximum daily limit for toxicity is based on the concentration that will prevent toxicity within the receiving stream as specified in Section 22a-430-3(j)(7)(B)(i) of the RCSA. Chronic toxicity shall be assumed to occur at any discharge concentration which exceeds the LC_{50} concentration determined in an acute toxicity test multiplied by an application factor of 0.05.

Chronic toxicity if: $IWC \geq LC_{50} \times 0.05$

Rearranged: $LC_{50} \leq IWC \times 20$

Limit: $LC_{50} \leq 2.21\% \times 20 = 44\%$

This is less stringent than the previous permit limit of $LC_{50} \leq 100\%$, so the previous limit will be carried forward.

3.4.5 THERMAL EVALUATION

Section 316(a) of the Federal Water Pollution Control Act, U.S.C. § 1326(a) provides that the thermal component of any discharge will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving water body. The CT WQS for Allowable Temperature Increase in Class B waters states, "There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 85°F, or in any case raise the temperature of surface water more than 4°F" (RCSA 22a-426-9(a)(1)). The CT WQS also allow that a "zone of influence for assimilation of a thermal discharge shall be no greater than 25% of the cross-sectional area or volume of flow of the receiving water" (RCSA 22a-426-4(l)(8)).

The Permittee heats their process water to 180°F for production purposes, and maximum daily discharge temperatures have ranged from 60°F to 121°F over the past five years. This thermal component of their process water demonstrates a risk of exceeding the CT WQS. Dunn Paper's previous permit did not require temperature monitoring or contain a temperature limit. However, in order to demonstrate compliance with the CT WQS, the Permittee conducted a thermal evaluation of their discharge in the receiving water in 2014 and submitted a Thermal Mapping & Biothermal Assessment to DEEP in January 2015. The Permittee also continued to monitor the temperature of the discharge on a daily basis. The study included mapping the thermal plume during August 21, 2014, and August 27, 2014, and the study concluded that while the discharge exceeded water quality criteria at the end of the pipe, the proposed zone of influence was contained to an embayment surrounding the outfall that was less than 25% of the cross-sectional area of the receiving water, and the temperature at the edge of this zone would not exceed the WQC. This area would not impede fish passage, and temperatures at the border of this zone would induce fish to avoid this area. The study concluded that under current operating conditions, the proposed zone of influence was supportive of a balanced indigenous community.

DEEP's evaluation of the study found that it did not evaluate the effects of the thermal component of the discharge during the winter period when elevated discharge temperatures may have a greater effect on the receiving stream. This is a concern given that data from the last three years shows that the Permittee's discharge no longer exhibits lower temperatures during the winter months.

During the most recent five years (2019-2024), Dunn Paper reported discharging an average of 245,000 gpd, which is a significant decrease from the 400,000 – 475,000 gpd reported during the thermal evaluation period. The flow decrease is a result of the use of only one paper machine instead of two and implementation of water conservation strategies, including increased reuse of process water and a reduction of the use of river and city water in the shower water tank, which historically helped to lower discharge temperatures.

Additionally, the plume mapping conducted in 2014 was representative of discharge temperatures up to 106°F. Maximum daily discharge temperatures for the period July 2019 through June 2024 were greater than 106°F on at least 25% of days in that period, and the maximum daily discharge temperature over that period was 121°F, which is a significant increase from the period when the study was conducted. DEEP conducted a one-way analysis of variance (ANOVA) of the means of the discharge temperatures recorded during July to September 2014 and compared those to discharge temperatures recorded during the most recent summer period for which data was available (July to September 2023), and found a statistically significant difference between the means of those two time periods. In order to confidently conclude that the thermal component of the discharge is supportive of a balanced indigenous biotic community and that the discharge is not violating the CT WQS, another thermal verification study is required.

A compliance schedule is included in the permit, requiring the Permittee to conduct a thermal verification study under conditions more representative of the current operations at the facility, including an evaluation of the effect of the discharge on the receiving water during the winter period. Monitoring of the intake and discharge temperatures have been included in the permit. The permit may be reopened to incorporate limits after submittal and review of the new thermal verification study.

3.5 COMPARISON OF LIMITS

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

PARAMETER	UNITS	LIMITS						
		TECHNOLOGY (40 CFR 430, Subpart L)		WATER QUALITY		PREVIOUS PERMIT		
		Average Monthly Limit	Maximum Daily Limit	Average Monthly Limit	Maximum Daily Limit	Average Monthly Limit	Maximum Daily Limit	Maximum Instantaneous Limit
Acute Toxicity, *Daphnia pulex*, LC_{50}	%				44		**100**	**100**
Acute Toxicity, *Pimephales promelas*, LC_{50}	%				44		**100**	**100**
Biochemical Oxygen Demand, 5-day (BOD_5)	mg/L	172	314			**25.0**	**50.0**	**75.0**
Biochemical Oxygen Demand, 5-day (BOD_5)	kg/day	**326**	**595**					
Chlorine, Total Residual	mg/L					**0.15**	**0.3**	**0.45**
Oil & Grease, Total	mg/L					**10.0**	**20.0**	**30.0**
Pentachlorophenol	µg/L		127			**8.2**	**16.5**	**16.5**
Pentachlorophenol	kg/day		**0.146**					
Total Suspended Solids	mg/L	138	283			**20.0**	**40.0**	**60.0**
Total Suspended Solids	kg/day	**261**	**535**					
Trichlorophenol	µg/L		43			**6.5**	**13.0**	**13.0**
Trichlorophenol	kg/day		**0.050**					
Zinc, Total	mg/L					**0.2**	**0.41**	**0.51**
		Min	**Max**	**Min**	**Max**	**Min**	**Max**	
pH	S.U.	5.0	9.0	**6.5**	**8.0**	6.0	9.0	

The current (concentration-based) permit limits for BOD_5, TSS, PCP, and TCP are more stringent than the calculated TBELs, based on the current production and maximum daily flow requested. Therefore, the current limits will be carried forward in accordance with anti-backsliding. WQBELs for pH have been set equivalent to the WQC for Class B surface waters, which is more stringent than the previous permit or TBELs.

3.6 SAMPLING FREQUENCY, TYPE, AND REPORTING

Sample type and sampling frequency were determined in accordance with RCSA Sections 22a-430-3(j)(3), 22a-430-3(j)(7), 22-430-4(l)(4)(A), and 22a-430-4(m):

Sample Type	Sample Frequency	Parameter	Reason for Inclusion / Basis for Limits
Daily Composite	Annually	Chronic Aquatic Toxicity, *Ceriodaphnia dubia*	Monitoring only, based on reasonable potential (RP) for toxicity to occur in receiving stream.
		Chronic Aquatic Toxicity, *Pimephales promelas*	
	Quarterly	Acute Toxicity, *Daphnia pulex*, LC_{50}	Reasonable potential for toxicity to occur in receiving stream. Limit based on anti-backsliding.
		Acute Toxicity, *Pimephales promelas*, LC_{50}	
		Copper, Total	Monitoring only, based on BPJ. No RP to exceed WQC.
		Formaldehyde	Monitoring only, based on BPJ. No RP to exceed WQC.
		Lead, Total	Monitoring only, based on BPJ. Detected at elevated concentration in ambient monitoring.
		Phosphorus, Total	Monitoring only, based on BPJ. Present in wastewater.
		Zinc. Total	Limit based on anti-backsliding. No RP to exceed WQC.
	Monthly	Aluminum, Total	Monitoring only, based on BPJ. Detected at elevated concentration in ambient monitoring.
		Nitrogen, Ammonia (total as N)	Monitoring only, based on BPJ. Present in wastewater.
		Nitrogen, Kjeldahl (total as N)	
		Nitrogen, Nitrate (total as N)	
		Nitrogen, Nitrite (total as N)	
		Nitrogen, Total	
		Pentachlorophenol	Mass-based limits, monitoring frequency, and certification allowance based on 40 CFR Part 430. More stringent concentration limit based on anti-backsliding.
		Trichlorophenol	
	Weekly	Biochemical Oxygen Demand, 5-day (BOD_5)	Mass-based limit is a TBEL. More stringent concentration limit based on anti-backsliding.
		Total Suspended Solids	Mass-based limit is a TBEL. More stringent concentration limit based on anti-backsliding.
Grab Sample Average	Annually	Epichlorohydrin	Monitoring only, based on BPJ.
	Semi-Annual	Oil & Grease, Total	Limit based on anti-backsliding.
	Monthly	Chlorine, Total Residual	Limit based on anti-backsliding. RP to exceed WQC.
Grab	Semi-annual	Anthracene	Monitoring only, to collect additional data to characterize the variability of the pollutant discharge. Detected on their permit application screening.
		Phenanthrene	
		Volatile Organics, Total	Monitor only, based on BPJ. Chloroform has been detected in past monitoring at low levels.

3.6.1 SUFFICIENTLY SENSITIVE METHODS:

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

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

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

The following MLs are unique to the Permittee's discharge and have been incorporated into the permit for the given reasons, described below.

List of Minimum Levels Required by the Permit			
Parameter	**ML**	**Unit**	**Justification**
Anthracene	4.92	µg/L	Equal to the lowest applicable WQC for Class B surface waters. Approved EPA Methods are able to quantify below this level.
Pentachlorophenol	5.0	µg/L	Required by the ELG at 40 CFR Part 430 - The Pump, Paper, and Paperboard Point Source Category (40 CFR 430.01(i)).
Phenanthrene	49.17	µg/L	Equal to the lowest applicable WQC for Class B surface waters. Approved EPA Methods are able to quantify below this level.
Trichlorophenol	2.5	µg/L	Required by the ELG at 40 CFR Part 430 - The Pump, Paper, and Paperboard Point Source Category (40 CFR 430.01(i)).

3.7 OTHER PERMIT CONDITIONS

Section 11 of the permit contains a requirement to develop an Aluminum Optimization Plan. Ambient upstream monitoring conducted during the Permittee's annual chronic toxicity monitoring has indicated elevated levels of aluminum in this section of the Hockanum River. Recognizing that aluminum is a common component of wastewater treatment chemicals, the permit will include a requirement for the

Permittee to develop and implement a 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 January DMR.

3.8 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).

PFAS Sampling Plan

DEEP is requiring effluent monitoring for per- and polyfluoroalkyl substances ("PFAS") in certain discharges to support further regulatory evaluations regarding the identification of contributing sources of such substances to the state's surface waters. The Permittee operates under SIC code 2621 and has been identified as a potential source of PFAS in accordance with DEEP's Industrial NPDES and Pretreatment PFAS Roadmap (https://portal.ct.gov/-/media/deep/water_regulating_and_discharges/industrial_wastewater/2023-09-30-wped-pfas-roadmap.pdf).

As such, this permit contains a compliance schedule requiring the Permittee to develop, submit for approval, and implement a PFAS monitoring and sampling plan to ensure data is representative and undergoes proper quality control and assurance. The industrial classification has been identified as a potential source and the effluent will be sampled to characterize the discharge.

Thermal Verification Study

Additionally, this permit contains a compliance schedule for the Permittee to conduct a thermal verification study. This includes submittal of a scope of study that will include summer and winter monitoring of the river at low-flow conditions, completing the field verification with plume mapping, and submittal of a Thermal Verification Report indicating the extent of the influence of the thermal discharge on the receiving stream and verification that the thermal discharge will not cause or contribute to an instream water quality violation.

pH Effluent Limits

Effluent limits for pH are more stringent than the previous permit. The Permittee will require time to evaluate and install treatment options as necessary to come into compliance with the new limits. A compliance schedule has been included in the permit, which requires the Permittee to evaluate alternatives and implement a plan to ensure compliance with the pH limits within 18 months of permit issuance.

3.9 ANTIDEGRADATION EVALUATION

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.

DEEP has determined that the discharges or activities are consistent with the maintenance, restoration, and protection of existing and designated uses assigned to the receiving water body by considering all relevant data. Compliance with all the terms and conditions in the new permit would ensure that existing and designated uses of surface waters and the water quality necessary for their protection are maintained and preserved.

3.10 ANTI-BACKSLIDING

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

3.11 COOLING WATER INTAKE STRUCTURE §316(B)

§ 316(b) of the Federal Water Pollution Control Act, U.S.C. § 1326(b) states that "any standard established pursuant to § 301 or 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures (CWIS) reflect the best technology available (BTA) for minimizing adverse environmental impact".

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

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

Dunn Paper has a diversion permit to withdraw up to 850,000 gallons per day from the Hockanum River. They do not utilize this water for cooling water purposes, therefore, CWA § 316(b) is not applicable.

3.12 VARIANCES AND WAIVERS

The Permittee requested alternative effluent limit for the thermal discharge. Temperature monitoring and a compliance schedule to conduct a thermal verification study under current operating conditions have been incorporated into the permit to evaluate the request.

3.13 E-REPORTING

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

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

- The Permittee requested a reduction of flow limits in the previous permit of an average monthly discharge of 696,000 gpd to 300,000 gpd and a maximum daily discharge of 1,152,000 gpd to 500,000 gpd. The new flow limits have been granted.

- Mass-based limits were added for BOD_5, TSS, pentachlorophenol, and trichlorophenol based on TBELs. The included concentration-based limits are more stringent than the mass-based limits, based on the maximum daily discharge.

- pH minimum limit has been raised from 6.0 to 6.5, and pH maximum limit has been lowered from 9.0 to 8.0. The previous permit limits were technology-based limits but would not meet the water quality standard listed at RCSA 22a-426-9(a) for Class B waters. The new limits will ensure that the WQC for Class B surface waters will be met at end-of-pipe. A compliance schedule is included which requires the permittee to achieve compliance with the new pH limits.

- A permit condition has also been added requiring the Permittee to conduct an Aluminum Optimization Plan. Monitoring for aluminum has been changed from quarterly to monthly. The Permittee is also required to monitor dissolved organic carbon ("DOC") with their annual chronic toxicity monitoring for the purpose of investigating the need for future aluminum limits related to water quality criteria models dependent on DOC, hardness, and pH.

- Quarterly monitoring for copper and lead was added to the permit to be conducted with acute toxicity testing. Previously, these parameters were only required to be monitored with annual chronic toxicity testing.

- Nickel is no longer required to be monitored as part of the chronic toxicity testing. Based on an evaluation of data, nickel has not been present in the discharge or has only been present at very low concentrations.

- Quarterly monitoring for phosphorus was added because phosphate is present in chemicals used on site, and phosphorus is present in the effluent. The Hockanum River is subject to the "Phosphorus Reduction Strategy for Inland Non-Tidal Waters", pursuant to Public Act 12-155, An Act Concerning Phosphorus Reductions in State Waters (https://portal.ct.gov/-/media/deep/water/water_quality_standards/p/pa12155fullccreportpdf.pdf).

- Effluent temperature monitoring was added to the permit.

- Monitoring of anthracene and phenanthrene were included on a quarterly basis in order to assess the frequency and variability of these pollutants within the discharge.

- The permit more clearly specifies that annual PCP and TCP certification is provided in lieu of monitoring. However, the monitoring frequency has been changed from quarterly to monthly per the monitoring requirements of 40 CFR 430.02, in the case that these parameters are determined to be present. The Permittee is required to submit one sample analyzed for PCP and TCP during the permit term utilizing EPA Method 1653 that meets the minimum levels in 40 CFR Part 430.

- The permit includes new language in Section 9 defining the circumstances around noncompliance that are required to be reported to the Commissioner and requires the notifications to be submitted through an online noncompliance form.

- Chemical monitoring that is required with acute and chronic toxicity was previously listed in Sections 6 of the previous permit, and the monitoring requirement for acute aquatic toxicity was listed in Table A of the previous permit. These monitoring requirements have been moved to 001-AT and 001-CT, which will allow the Permittee to report aquatic toxicity results and paired chemical and receiving water monitoring results in NetDMR. Additionally, ATMRs are now required to be submitted electronically rather than in hardcopy.

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. 201301708 PERMIT ID NO. CT0002127

Interested persons may obtain copies of the application from Jeffrey Brashich, Dunn Paper – East Hartford, LLC, 40 Forbes Street, East Hartford, CT 06108, 860-466-4181 or BrashichJ@BiOriginSP.com.

The application is available for inspection by contacting Joseph Grandelski at joseph.grandelski@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 thirty (30) days of this public notice. Written comments should be directed to Joseph Grandelski, Environmental Engineer 1, Bureau of Materials Management and Compliance Assurance, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127 or DEEP.IndustrialNPDESPublicComments@ct.gov and should indicate the Permit ID No. CT0002127 in the subject line. The Commissioner may hold a public hearing prior to approving or denying an application if in the Commissioner's discretion the public interest will be best served thereby, and shall hold a hearing upon receipt of a petition signed by at least twenty five (25) persons. Notice of any public hearing shall be published at least thirty (30) days prior to the hearing.

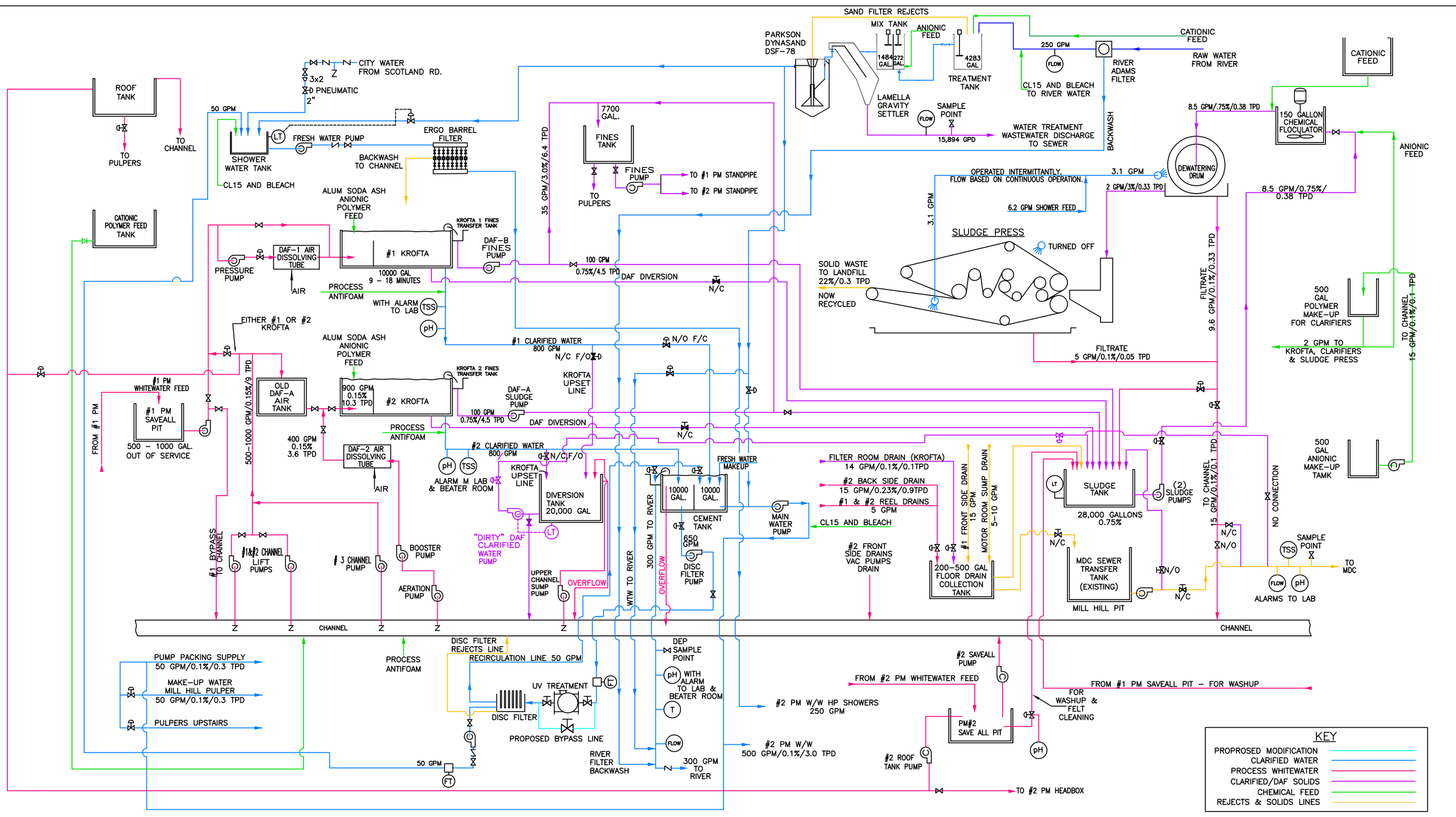
Petitions for a hearing shall be submitted within thirty (30) days from the date of publication of this public notice and should include the application number noted above and also identify a contact person to receive notifications. Petitions may also identify a person who is authorized to engage in discussions regarding the application and, if resolution is reached, withdraw the petition. The Office of Adjudications will accept electronically-filed petitions for hearing in addition to those submitted by mail or hand-delivered. Petitions with required signatures may be sent to deep.adjudications@ct.gov or may be mailed or delivered to DEEP Office of Adjudications, 79 Elm Street, 3rd floor, Hartford, CT 06106-5127. If the signed original petition is only in an electronic format, the petition must be submitted with a statement signed by the petitioner that the petition exists only in that form. Original petitions that were filed electronically must also be mailed or delivered to the Office of Adjudications within thirty (30) days of electronic submittal. Additional information can be found at www.ct.gov/deep/adjudications.

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

facilitate efforts to provide accommodation, please request all accommodations as soon as possible following notice of any agency hearing, meeting, program, or event.

Attachment A

Effluent Plant Flow Diagram



WATER SYSTEM LEGEND							
SYMBOL	ITEM	SYMBOL	ITEM	SYMBOL	ITEM	SYMBOL	ITEM
LT	LEVEL TRANSMITTER	T	TEMPERATURE PROBE		CHECK VALVE		NORMALLY OPEN VALE
pH	PH PROBE	FT	FLOW TUBE		REDUCER		NORMALLY OPEN AIR VALE
TSS	TURBIDITY METER		PUMP		FLANGE		NORMALLY CLOSED AIR VALE
FLOW	FLOW METER		MAKEUP VALVE		NORMALLY CLOSED VALE		HAND VALVE

No.	Revisions	Date
19	UPDATES SAVE ALL DIVERSION	5/25/24
18	UPDATES FOR SP002347	3/1/24
17	GENERAL REVISIONS	4/18/23
16	UPDATES FOR UV SYSTEM	11/17/22
15	UPDATES FOR SIU PERMIT	04/20/21
14	SPILL RELEASE PREVENTION/MDC	08/02/18
13	SPILL RELEASE PREVENTION	03/16/17
12	APPROVED WATER FILTRATION MOD	03/15/17
11	PROP. WATER FILTRATION MODIF.	11/29/16
10	PROPOSED DEP MOD. (JJD)	02/01/12
9	GENERAL REVISIONS	02/01/12
8	GENERAL REVISIONS	10/01/08
7	PROPOSED DEP MOD.	6/04/08
6	REVISED PER CLIENT COMMENTS	3/12/08
5	REVISED PER CLIENT COMMENTS	11/01/07
4	REVISED PER CLIENT COMMENTS	3/05/07
3	REVISED PER CLIENT COMMENTS	10/24/06
2	REVISED PER CLIENT COMMENTS	2/13/01
1	REVISED PER CLIENT COMMENTS	8/16/00
0	ISSUED	4/13/00

TOLERANCES
UNLESS OTHERWISE NOTED
FRACTIONS ±1/64
ANGLES ±1/2°
MACHINE 125
ALL UNDIMENSIONED RADII 1/64" OR LESS BREAK ALL SHARP EDGES

EFFLUENT PLANT

FLOW DIAGRAM

Appr: | Drawn: PDD | Scale: NONE | Date: 07/12/2023

BIORIGIN SPECIALTY PRODUCTS
EAST HARTFORD, CT.

Attachment B

Reasonable Potential Analysis

Reasonable Potential Analysis				
Parameter	**Projected maximum effluent concentration**	**Projected maximum receiving water concentration (mg/L)**	**Most stringent criteria**	**Is there reasonable potential to exceed WQC?**
Ammonia (Apr – Oct)	$0.62 \times 2.9 = 1.8\ mg/L$	$\frac{1.8 \times 300{,}000 + 0.17 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 0.21\ mg/L$	3.0 mg/L	No
Ammonia (Nov – Mar)	$0.29 \times 2.3 = 0.67\ mg/L$	$\frac{0.67 \times 300{,}000 + 0.17 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 0.18\ mg/L$	6.8 mg/L	No
Chlorine	$160 \times 1.6 = 256\ ug/L$	$\frac{256 \times 300{,}000 + 0 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 5.67\ ug/L$	11 ug/L	No
Chloroform	$0.68 \times 2.9 = 2.0\ ug/L$	$\frac{2.0 \times 300{,}000 + 0 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 0.040\ ug/L$	17.1 ug/L	No
Copper	$83 \times 4.2 = 349\ ug/L$	$\frac{349 \times 300{,}000 + 3.9 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 12\ ug/L$	18.1 ug/L	No
Formaldehyde	$1{,}100 \times 6.8 = 7{,}480\ ug/L$	$\frac{7{,}480 \times 300{,}000 + 23 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 188\ ug/L$	128,000 ug/L	No
Zinc	$39 \times 4.5 = 176\ ug/L$	$\frac{176 \times 300{,}000 + 12 \times 13{,}249{,}488}{300{,}000 + 13{,}249{,}488} = 15\ ug/L$	65 ug/L	No