pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0009920**
Wastewater Type	**Industrial**	APS ID	**780559**
Facility Type	**Major**	Authorization ID	**926487**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant, Facility and Project Information

Applicant Name	**Constellation Energy Generation LLC**	Facility Name	**Christopher M Crane Clean Energy Center** (formerly Three Mile Island) (TMI))
Applicant Address	PO Box 480 Route 441 South	Facility Address	2625 River Road
	Middletown, PA 17057-0480		Middletown, PA 17057-0480
Applicant Contact	Debra Musser	Facility Contact	Debra Musser
Applicant Phone	(267) 533-7308	Facility Phone	(267) 533-7308
Client ID	147686	Site ID	450833
SIC Code	4911	Municipality	Londonderry Township
SIC Description	Trans. & Utilities - Electric Services	County	Dauphin
Date Application Received	May 3, 2012; May 9, 2022; January 15, 2025; March 7, 2025	WQM Required	No
		WQM App. No.	Major Facility

Project Description: This is an application request for NPDES renewal.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	April 2, 2026
X		Daniel W. Martin, P.E. / Environmental Engineer Manager *Daniel W. Martin*	April 2, 2026
X		Maria D. Bebenek, P.E. / Environmental Program Manager *Maria D. Bebenek*	April 2, 2026

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Christopher M Crane Clean Energy Center (formerly Three Mile Island (TMI)) located at 2625 River Road, Middletown, PA 17057 in Dauphin County, municipality of Londonderry Township. The existing permit became effective on June 1, 2010 and expired on October 31, 2012.

A NPDES renewal application was received on May 3, 2012. The permit was administratively extended.

Due to the re-start of the nuclear plant, efforts to renew the permit began in January 2025

A transfer application was received on May 9, 2022. The applicant requested the permit be transferred to Constellation.

The facility later requested a name change for the facility to Christopher M Crane Clean Energy Center.

The application for renewal was received by DEP Southcentral Regional Office (SCRO) on January 15, 2025. The application included cross-referencing to the application submitted in 2012. DEP requested the application be re-submitted on current NPDES renewal forms.

The NPDES permit renewal was re-submitted on March 7, 2025. The renewal application processing was delayed due to the planned decommission of the facility and subsequent re-start of the facility.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 13,300 GPM (19.152 MGD) average design flow treatment facility. The maximum design flow rate is 30,000 GPM (43.2 MGD). The facility has a total of four internal monitoring points, a total of four stormwater outfalls, one outfall for intake, and four outfalls used for discharge to the Susquehanna River. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as an Industrial Wastewater due to the type of wastewater and the design flow rate for the facility.

Due to the length of time from the initial renewal application in 2012, DEP requested the Act 14 notice be submitted to the municipality and the county. The applicant disclosed the Act 14 requirement to Dauphin County Commissioners, Dauphin County Planning Commission, and Londonderry Township Board of Supervisors, and the Susquehanna River Basin Commission and the notice was received by the parties on February 17, 2026 and February 18, 2026.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Susquehanna River. The Susquehanna River discharges drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for warm water fishes (WWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Susquehanna River is a Category 2 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- Outfall S04; SWRO – 4 was eliminated. Outfall was capped.
- Outfall 401; Eliminated due to process unit not being in service
- Outfall 801; Added for the Rad Waste
- The average design flow is 13,300 GPM (19.152 MGD). The maximum design flow rate is 30,000 GPM (43.2 MGD).
- Consistent with Federal ELG 423.13(d)(1), monitoring shall be required for total toxic oxidants

Summary of Review

- Consistent with Federal ELG 423.13(d)(1), effluent limits for total chromium and total zinc shall be required.
- For Outfalls 001, 003, and 004, the maximum discharge temperature shall be 110 F.
- Total residual oxidants (TRO) was eliminated from the effluent limit table. TRO shall be monitored through chemical additive usages and total residual chlorine (TRC).

Sludge use and disposal description and location(s): Since the facility has been shutdown since 2019, biosolids/sewage sludge was not evaluated.

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name: Christopher M Crane Clean Energy Center

NPDES Permit # PA0009920

Physical Address: 2625 River Road
Middletown, PA 17057

Mailing Address: 2625 River Road
Middletown, PA 17057

Contact: Zigmund Karpa
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Consultant: ASA Analysis and Communication, Inc.
Radhika DeSilva
4052 Diane Way
Doylestown, PA 18902
rdesilva@asaac.com

1.2 Permit History

Description of Facility

The Christopher M. Crane Clean Energy Center / Three Mile Island (TMI) Nuclear Station is located in Londonderry Township, Dauphin County, Pennsylvania. This station is comprised of two pressurized water reactor units. Constellation Energy Corporation owns Unit 1 (TMI-1). Energy Solutions owns Unit 2 (TMI-2). Neither unit is presently in operation. Unit 2 was shut down in 1979 and was in the process of being decommissioned, and the TMI-1 generator was shutdown in 2019 due to economic reasons.

While the facility was decommissioning, the cooling towers were taken out of service. The facility maintained use of the river water pump discharge, the treated rad waste, the sewage treatment plant, and the industrial waste treatment system. As the decommissioning progressed further, elimination of the sewage plant was proposed. This was done to allow for sufficient clearance room to dispose of the facility's components. Crane intended on using holding tank permits to serve their sewage disposal needs.

In an effort to restart TMI-1, Constellation and Microsoft have teamed together to launch the Crane Clean Energy Center (CCEC) which is expected to be online in 2027/2028. A nuclear unit takes many decades to decommission. TMI-1 facility's support services have, therefore, remained operational continuously and TMI-1 has remained compliant with NPDES permit-related requirements following the generator shutdown. Constellation will pursue a license renewal that will extend plant operations to at least 2054. TMI-1 has a closed-cycle recirculating cooling tower system. Before shutting down, Unit 1 had a gross generating capacity of 885-megawatts (MW) and the station's design intake flow was 40.4 million gallons per day (MGD).

TMI-1 became operational in September 1974. In February 1979, TMI-1 went offline for refueling. The reactor was brough back online in October 1985. Since the facility existed before 2002 it can be considered an existing facility subject to the final Clean Water Act (CWA) §316(b) rule for existing facilities (the Rule) that became effective on August 15, 2014. This rule establishes requirements under section 316(b) of the Clean Water Act (CWA) for existing power generating facilities and existing manufacturing and industrial facilities that are designed to withdraw more than 2 million gallons per day (mgd) of water from waters of the United States and use at least 25 percent of the water they withdraw exclusively for cooling purposes. These national requirements, which will be implemented through National Pollutant Discharge Elimination System (NPDES) permits, apply to the location, design, construction, and capacity of cooling water intake structures (CWIS) at regulated facilities and provide requirements that reflect the best technology available (BTA) for minimizing adverse environmental impact (National Pollutant Discharge Elimination System-Final Regulations To Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities Summary)

Impingement BTA

The Rule at Title 40 CFR §125.94(c) requires that existing facilities employ one of seven impingement BTA alternatives. TMI-1 has a closed-cycle recirculating cooling tower system meeting the definition at 40 CFR §125.92(c)(1) for condenser cooling. Therefore, TMI-1 fulfills the BTA standard for impingement mortality at §125.94(a)(1) and does not require any other impingement mortality reduction measure.

Entrainment

Entrainment means any life stages of fish and shellfish in the intake water flow entering and passing through a cooling water intake structure and into a cooling water system, including the condenser or heat exchanger

Sources of Water

Water is withdrawn from the Susquehanna River. Other water processing may be supplied by the industrial wells. TMI-1 Withdrawal Rate is Less Than 5 Percent of the Susquehanna River Discharge. When TMI-1 design intake rate of 28,050 gpm (40.4 MGD) is compared with the Susquehanna River flow rate from October 2004-September 2024, TMI-1 withdrawal rate is approximately 0.16 percent of the mean annual flow(cfs).

PNDI

A Pennsylvania Natural Diversity Inventory (PNDI) Project Environmental Review was performed in June 2025. No known impacts were identified for any aquatic species potentially impinged or entrained at TMI-1, including black bullhead. Potential impacts to two state-protected bird species were identified by the Pennsylvania Game Commission. However, peregrine falcon and osprey are not susceptible to impingement. Peregrine falcon mostly prey on other birds and osprey consume a variety of species of fish. Therefore, these species should not be impacted by any impingement or entrainment at TMI-1.

The PA Game Commission acknowledged receiving the PNDI. On July 25, 2025, the Game Commission determined that no impact was likely.

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data

The Toxics Management Spreadsheet was conducted utilizing data from 2012. Since the data is over 15 years old, the NPDES permit shall include a condition which requires the facility to collect data within the first 18 months after startup. The collected sampling data will initiate an updated review of the toxics.

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 2625 River Road, Middletown, PA 17057. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

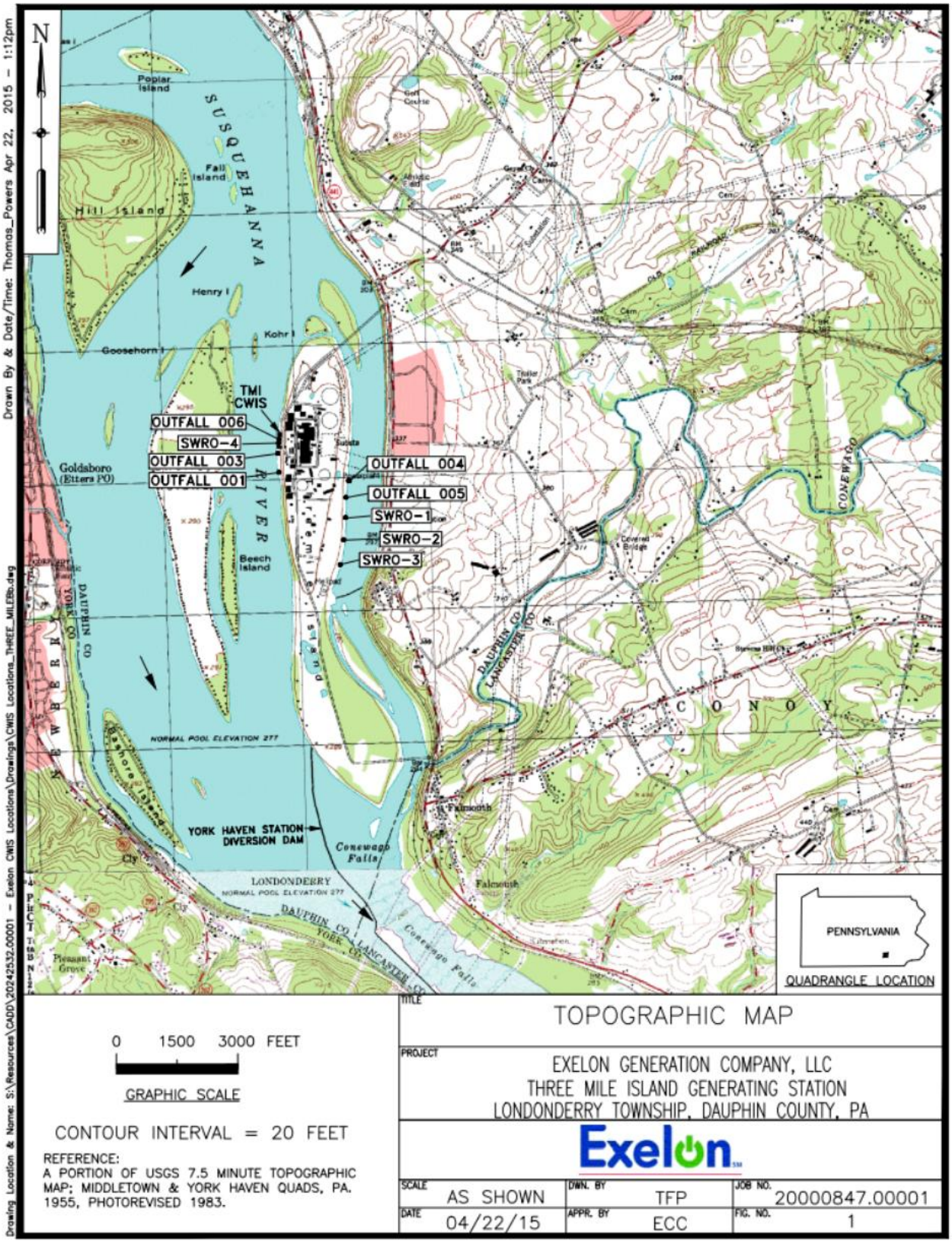
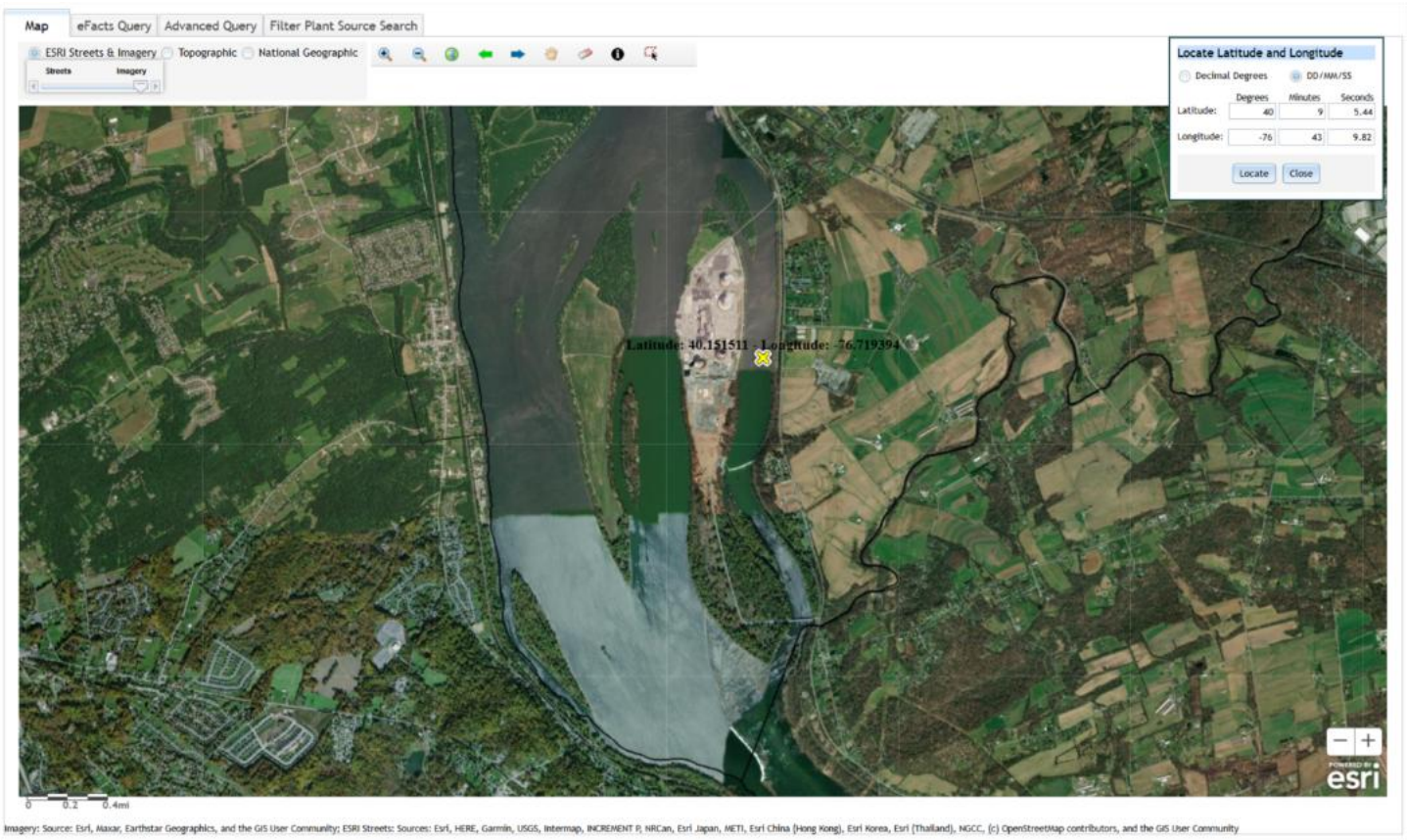
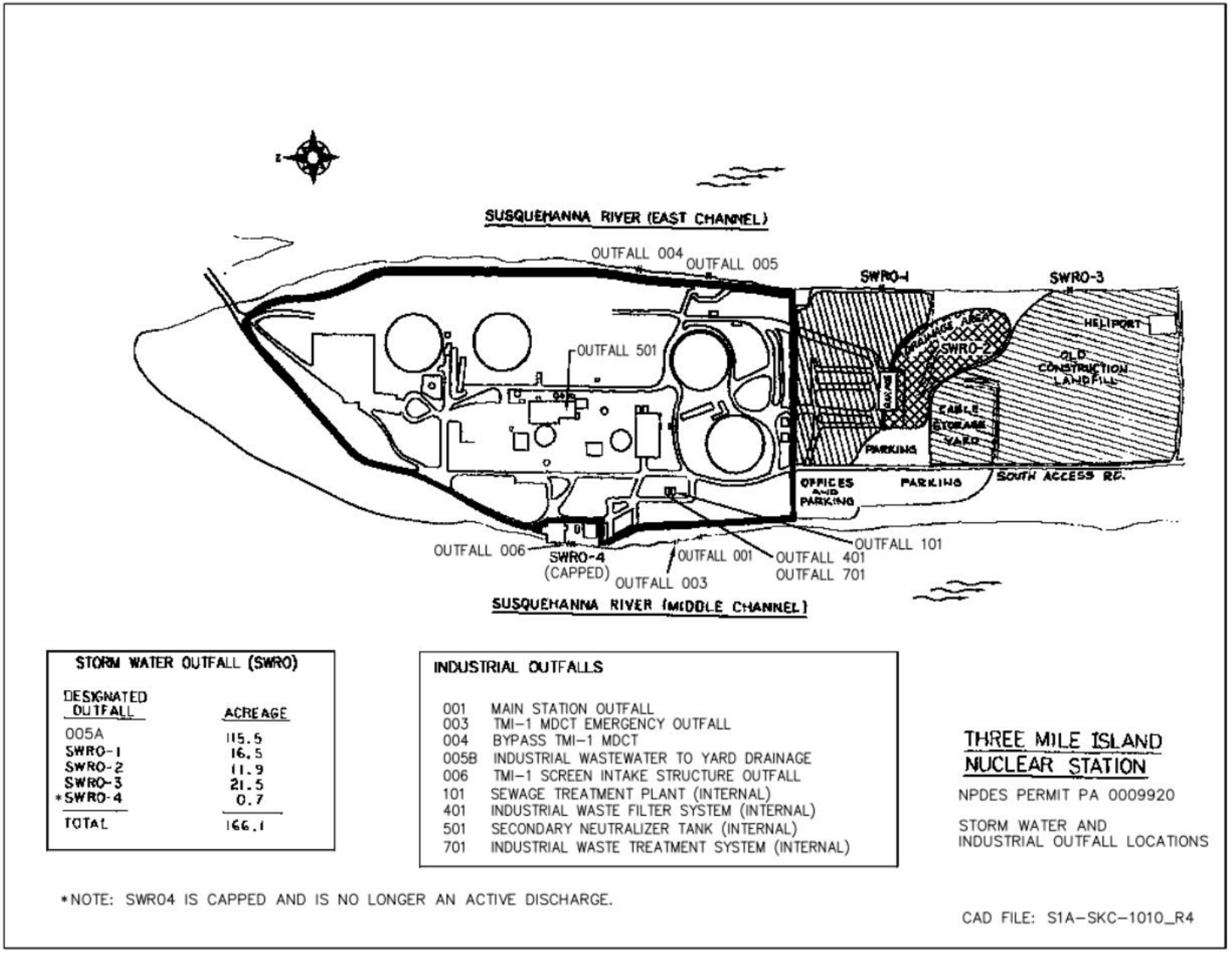


Figure 2: Aerial Photograph of the subject facility





STORM WATER OUTFALL (SWRO)

DESIGNATED OUTFALL	ACREAGE
005A	115.5
SWRO-1	16.5
SWRO-2	11.9
SWRO-3	21.5
*SWRO-4	0.7
TOTAL	166.1

INDUSTRIAL OUTFALLS

001	MAIN STATION OUTFALL
003	TMI-1 MDCT EMERGENCY OUTFALL
004	BYPASS TMI-1 MDCT
005B	INDUSTRIAL WASTEWATER TO YARD DRAINAGE
006	TMI-1 SCREEN INTAKE STRUCTURE OUTFALL
101	SEWAGE TREATMENT PLANT (INTERNAL)
401	INDUSTRIAL WASTE FILTER SYSTEM (INTERNAL)
501	SECONDARY NEUTRALIZER TANK (INTERNAL)
701	INDUSTRIAL WASTE TREATMENT SYSTEM (INTERNAL)

THREE MILE ISLAND NUCLEAR STATION

NPDES PERMIT PA 0009920

STORM WATER AND INDUSTRIAL OUTFALL LOCATIONS

*NOTE: SWR04 IS CAPPED AND IS NO LONGER AN ACTIVE DISCHARGE.

CAD FILE: S1A-SKC-1010_R4

2.1.2.1 Outfall Designations

Summary of Outfall Designations		
Outfall Type	**Outfall Number**	**Description**
Storm Water	007	Formerly 005A
Storm Water	008 (SWRO-1)	16.5 acres
Storm Water	009 (SWRO-2)	11.9 acres
Storm Water	010 (SWRO-3)	21.5 acres
Industrial	001	Main Station Outfall
Industrial	003	TMI-1 MDCT Emergency Outfall
Industrial	004	Bypass TMI-1 MDCT
Industrial	005	Industrial Wastewater to Yard Drainage. Also known as 005B
Industrial	006	TMI-1 Screen Intake Structure Outfall
Industrial	101	Sewage Treatment Plant (Internal)
Industrial	501	Secondary Neutralizer Tank (Internal)
Industrial	701	Industrial Waste Treatment System (Internal)
Industrial	901	Rad Waste
Storm Water	011 (SWRO-4)	SWRO-4 is capped and is no longer an active discharge
Industrial	401	Industrial Waste Filter System (Internal). Unit is out of service. Applicant requested outfall be eliminated

[40]

The facility has a cooling water intake structure and is subject to 316(b).

The facility has the following outfall information for stormwater.

007 (Formerly 005A): Lat 40 09’ 05” Lon -76 43’ 18”; The approximate drainage area is 5,031.18 sq. ft.

Oil and grease from station’s permanent & mobile equipment & containers; mobile equipment potential leakage antifreeze, fuels, battery acids; surfactants from cleaning activities; metals from exposed plant equipment and material lay down areas; sediments from parking lots and lay-down areas; herbicides and pesticide applications; hazardous chemicals (acids, caustic, biocides) and petroleum products used and stored at TMI Unit 1.

008’ (SWRO – 1); Lat 40 09’ 58” Lon -76 43’ 19”; The approximate drainage area is 16.5 acres

Oil and grease from station’s permanent & mobile equipment & containers; mobile equipment leakage antifreeze, fuels, battery acids; surfactants from cleaning activities; metals from exposed plant equipment and material lay- down areas; sediments from parking lots and lay-down areas; herbicides and pesticide applications; hazardous chemicals (acids, caustic, biocides) and petroleum products used and stored at TMI Unit 1.

009’ (SWRO – 2); Lat 40 08’ 53” Lon -76 43’ 19”; The approximate drainage area is 11.9 acres

Oil and grease from station’s permanent & mobile equipment & containers; mobile equipment leakage antifreeze, fuels, battery acids; surfactants from cleaning activities; metals from exposed plant equipment and material lay down areas; sediments from parking lots and lay down areas; herbicides and pesticide applications; hazardous chemicals (acids, caustic, biocides) and petroleum products used and stored at TMI Unit 1.

010 (SWRO – 3); Lat 40 08’ 45” Lon -76 43’ 21”; The approximate drainage area is 21.5 acres

Oil and grease from station’s permanent & mobile equipment & containers; mobile equipment leakage antifreeze, fuels, battery acids,; surfactants from cleaning activities; metals from exposed plant equipment and material lay down areas; sediments from parking lots and lay down areas.

011 (SWRO – 4); Lat 40 09' 15" Lon -76 43' 41"; This outfall is capped and is no longer an active discharge point.

This outfall is no longer active. The outfall discharge pipe has been sealed and capped. The discharge end of the pipe is visible, however there is no flow at this location. **The applicant has requested that this outfall be removed from the permit.**

2.2 Description of Treatment Process

The subject facility is a 13,300 GPM (19.152 MGD) average design flow treatment facility.

The maximum design flow rate is 30,000 GPM (43.2 MGD).

The facility has a total of four internal monitoring points.

The treatment units are the secondary neutralizer tank, the industrial waste treatment system, the sewage treatment plant, and the treated rad waste.

Wastewater from the secondary neutralizer tank, the industrial waste filter system, the industrial waste treatment system, the sewage treatment plant, and the treated radiation waste unit collectively discharge through Outfall 001 and to the Susquehanna River.

Outfall 006 receives wastewater from the intake screen, sluice water, the intake strainer pump backwash, and the intake chlorinator building floor drain. No discharge limits are necessary. All debris collected on the intake screen shall be collected and not discharged back to the river.

The existing permits limits for the facility are summarized in Section 2.4.

2.2.1 Secondary Neutralizer Tank

The secondary neutralizer tank (Internal Outfall 501) is a collection tank for the secondary side waste waters. The tank mostly consists of rejected demineralized water from the RO unit that is drained through the turbine building sump to IWTS.

2.2.2 Industrial Waste Filter System

Industrial Waste Filter System is not used in any function. The IWFS sump is used as a collection sump from Unit 2 and some other miscellaneous sumps (mostly outbuildings) that are sent through IWTS.

2.2.3 Industrial Waste Treatment System

Industrial Waste Treatment System (Internal Outfall 701) is a collection sump for most plant releases including settles solids, allows for pH adjustment, oil removal etc.

2.2.4 Sewage Treatment System

The sewage treatment plant (Internal Outfall 101) is comprised of a comminutor, an equalization tank, an aeration tank, a clarifier, and a chlorine contact tank prior to discharge through the outfall.

The facility is being evaluated for flow, CBOD5, TSS, phosphorus, and fecal coliform.

2.2.5 Treated Radiation Waste

The treated radiation waste (Internal Outfall 901) is the primary side wastewater treatment for removal of radioactive material to ODCM/NRC limits. Historically the radiation waste was treated with evaporators. The proposed treatment shall utilize demineralizers. An internal monitoring point shall monitor prior to discharge through Outfall 001.

Noteworthy Changes:

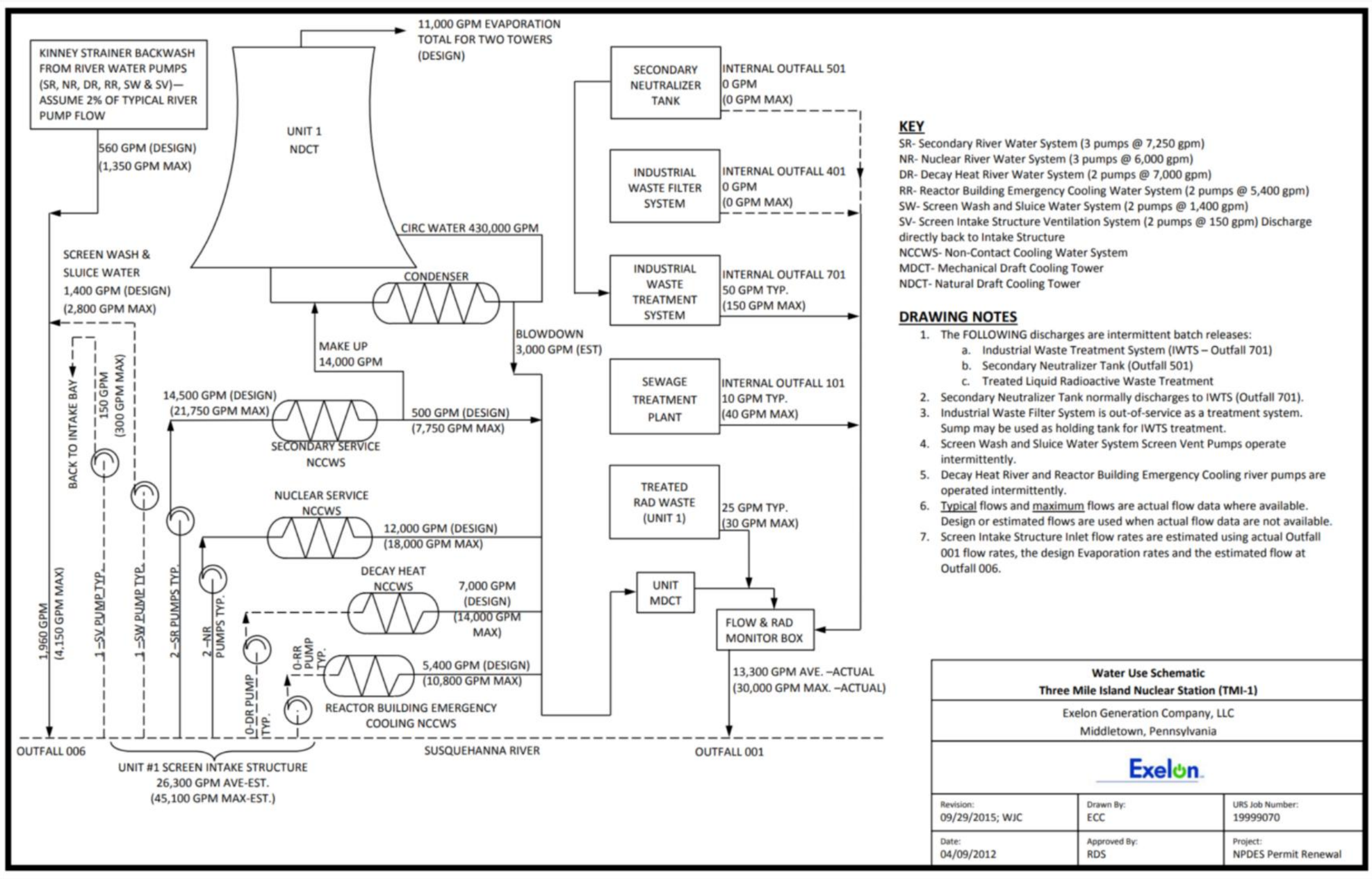
- The industrial waste filter system is out of service. The applicant has requested that the internal outfall be switched to inactive.

- The original treatment system included evaporators to remove the rad waste. The proposed treatment system will dispose of the rad waste through a new internal monitoring point.

2.2.6 Unit Mechanical Draft Cooling Tower (MDCT)

Mechanical Draft Cooling Towers remove waste heat from warm circulating water by actively moving air through the tower using fans, thereby enabling effective heat transfer before the water is reused in plant systems. The facility also uses Natural Draft Cooling, which dissipates heat through the cooling tower stacks rather than using fans.

A schematic of the facility's process is depicted.



KEY

SR- Secondary River Water System (3 pumps @ 7,250 gpm)
NR- Nuclear River Water System (3 pumps @ 6,000 gpm)
DR- Decay Heat River Water System (2 pumps @ 7,000 gpm)
RR- Reactor Building Emergency Cooling Water System (2 pumps @ 5,400 gpm)
SW- Screen Wash and Sluice Water System (2 pumps @ 1,400 gpm)
SV- Screen Intake Structure Ventilation System (2 pumps @ 150 gpm) Discharge directly back to Intake Structure
NCCWS- Non-Contact Cooling Water System
MDCT- Mechanical Draft Cooling Tower
NDCT- Natural Draft Cooling Tower

DRAWING NOTES

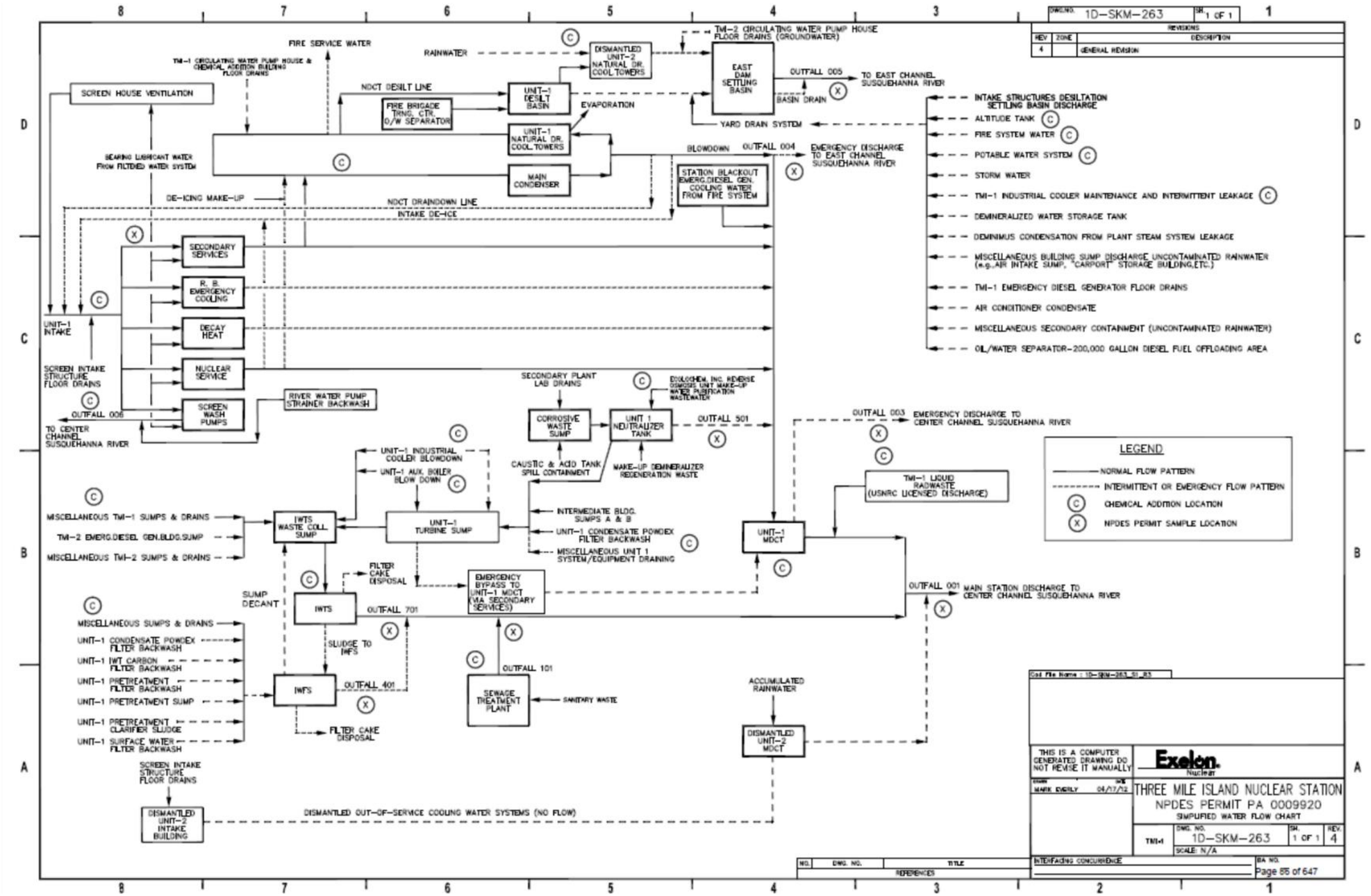
1. The FOLLOWING discharges are intermittent batch releases:
   a. Industrial Waste Treatment System (IWTS – Outfall 701)
   b. Secondary Neutralizer Tank (Outfall 501)
   c. Treated Liquid Radioactive Waste Treatment
2. Secondary Neutralizer Tank normally discharges to IWTS (Outfall 701).
3. Industrial Waste Filter System is out-of-service as a treatment system. Sump may be used as holding tank for IWTS treatment.
4. Screen Wash and Sluice Water System Screen Vent Pumps operate intermittently.
5. Decay Heat River and Reactor Building Emergency Cooling river pumps are operated intermittently.
6. Typical flows and maximum flows are actual flow data where available. Design or estimated flows are used when actual flow data are not available.
7. Screen Intake Structure Inlet flow rates are estimated using actual Outfall 001 flow rates, the design Evaporation rates and the estimated flow at Outfall 006.

Water Use Schematic
Three Mile Island Nuclear Station (TMI-1)

Exelon Generation Company, LLC
Middletown, Pennsylvania

Exelon

Revision:	Drawn By:	URS Job Number:
09/29/2015; WJC	ECC	19999070
Date:	Approved By:	Project:
04/09/2012	RDS	NPDES Permit Renewal


DWG. NO. 1D-SKM-263 SH. 1 OF 1
REVISIONS
REV 4 DESCRIPTION: GENERAL REVISION
FIRE SERVICE WATER
RAINWATER
TMI-1 CIRCULATING WATER PUMP HOUSE & CHEMICAL ADDITION BUILDING FLOOR DRAINS
DISMANTLED UNIT-2 NATURAL DR. COOL TOWERS
TMI-2 CIRCULATING WATER PUMP HOUSE FLOOR DRAINS (GROUNDWATER)
EAST DAM SETTLING BASIN
OUTFALL 005 TO EAST CHANNEL SUSQUEHANNA RIVER
BASIN DRAIN
SCREEN HOUSE VENTILATION
NDCT DESILT LINE
UNIT-1 DESILT BASIN
FIRE BRIGADE TRNG. CTR. O/W SEPARATOR
EVAPORATION
UNIT-1 NATURAL DR. COOL TOWERS
YARD DRAIN SYSTEM
INTAKE STRUCTURES DESILTATION SETTLING BASIN DISCHARGE
ALTITUDE TANK
FIRE SYSTEM WATER
POTABLE WATER SYSTEM
STORM WATER
TMI-1 INDUSTRIAL COOLER MAINTENANCE AND INTERMITTENT LEAKAGE
DEMINERALIZED WATER STORAGE TANK
DEMINIMUS CONDENSATION FROM PLANT STEAM SYSTEM LEAKAGE
MISCELLANEOUS BUILDING SUMP DISCHARGE UNCONTAMINATED RAINWATER (e.g.,AIR INTAKE SUMP, "CARPORT" STORAGE BUILDING,ETC.)
TMI-1 EMERGENCY DIESEL GENERATOR FLOOR DRAINS
AIR CONDITIONER CONDENSATE
MISCELLANEOUS SECONDARY CONTAINMENT (UNCONTAMINATED RAINWATER)
OIL/WATER SEPARATOR-200,000 GALLON DIESEL FUEL OFFLOADING AREA
BEARING LUBRICANT WATER FROM FILTERED WATER SYSTEM
BLOWDOWN OUTFALL 004 EMERGENCY DISCHARGE TO EAST CHANNEL SUSQUEHANNA RIVER
STATION BLACKOUT EMERG.DIESEL GEN. COOLING WATER FROM FIRE SYSTEM
DE-ICING MAKE-UP
NDCT DRAINDOWN LINE
INTAKE DE-ICE
SECONDARY SERVICES
R. B. EMERGENCY COOLING
DECAY HEAT
NUCLEAR SERVICE
SCREEN WASH PUMPS
UNIT-1 INTAKE
SCREEN INTAKE STRUCTURE FLOOR DRAINS
OUTFALL 006 TO CENTER CHANNEL SUSQUEHANNA RIVER
RIVER WATER PUMP STRAINER BACKWASH
SECONDARY PLANT LAB DRAINS
EDDLOCHEM, INC. REVERSE OSMOSIS UNIT MAKE-UP WATER PURIFICATION WASTEWATER
CORROSIVE WASTE SUMP
UNIT 1 NEUTRALIZER TANK
OUTFALL 501
OUTFALL 003 EMERGENCY DISCHARGE TO CENTER CHANNEL SUSQUEHANNA RIVER
TMI-1 LIQUID RADWASTE (USNRC LICENSED DISCHARGE)
UNIT-1 INDUSTRIAL COOLER BLOWDOWN
UNIT-1 AUX. BOILER BLOW DOWN
CAUSTIC & ACID TANK SPILL CONTAINMENT
MAKE-UP DEMINERALIZER REGENERATION WASTE
INTERMEDIATE BLDG. SUMPS A & B
UNIT-1 CONDENSATE POWDEX FILTER BACKWASH
MISCELLANEOUS UNIT 1 SYSTEM/EQUIPMENT DRAINING
UNIT-1 TURBINE SUMP
UNIT-1 MDCT
LEGEND
NORMAL FLOW PATTERN
INTERMITTENT OR EMERGENCY FLOW PATTERN
CHEMICAL ADDITION LOCATION
NPDES PERMIT SAMPLE LOCATION
MISCELLANEOUS TMI-1 SUMPS & DRAINS
TMI-2 EMERG.DIESEL GEN.BLDG.SUMP
MISCELLANEOUS TMI-2 SUMPS & DRAINS
IWTS WASTE COLL. SUMP
FILTER CAKE DISPOSAL
EMERGENCY BYPASS TO UNIT-1 MDCT (VIA SECONDARY SERVICES)
OUTFALL 001 MAIN STATION DISCHARGE TO CENTER CHANNEL SUSQUEHANNA RIVER
SUMP DECANT
IWTS
OUTFALL 701
MISCELLANEOUS SUMPS & DRAINS
UNIT-1 CONDENSATE POWDEX FILTER BACKWASH
UNIT-1 IWT CARBON FILTER BACKWASH
UNIT-1 PRETREATMENT FILTER BACKWASH
UNIT-1 PRETREATMENT SUMP
UNIT-1 PRETREATMENT CLARIFIER SLUDGE
UNIT-1 SURFACE WATER FILTER BACKWASH
SLUDGE TO IWFS
IWFS
OUTFALL 401
FILTER CAKE DISPOSAL
OUTFALL 101
SEWAGE TREATMENT PLANT
SANITARY WASTE
ACCUMULATED RAINWATER
DISMANTLED UNIT-2 MDCT
SCREEN INTAKE STRUCTURE FLOOR DRAINS
DISMANTLED UNIT-2 INTAKE BUILDING
DISMANTLED OUT-OF-SERVICE COOLING WATER SYSTEMS (NO FLOW)
Cad File Name : 1D-SKM-263_SI_R3
THIS IS A COMPUTER GENERATED DRAWING DO NOT REVISE IT MANUALLY
Exelon Nuclear
MARK EVERLY 04/17/12
THREE MILE ISLAND NUCLEAR STATION
NPDES PERMIT PA 0009920
SIMPLIFIED WATER FLOW CHART
TMI-1 DWG. NO. 1D-SKM-263 SH. 1 OF 1 REV. 4
SCALE: N/A
NO. DWG. NO. TITLE REFERENCES
INTERFACING CONCURRENCE
BA NO.
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2.3 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that are used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals summarized in the table below as part of their treatment process.

Toxics Management Spreadsheet (TMS) was conducted to determine maximum chemical additive usages.

There were a number of additives where the facility would exceed the usage rates recommended by TMS.

The facility requested that the following chemical additives have special consideration from the maximum usage rates due to the facility's process utilizing a closed loop cycle and/or fate and transport degradation.

Hydrazine, Zinc Acetate Dihydrate, Boric Acid, Nalco 77352NA, Nalco H150M, Nalco 1315, Sodium Hypochlorite, and CP837 chloride.

Refer to the attached Constellation letters dated February 23, 2026 and March 4, 2026.

Additionally refer to the email correspondence dated March 4, 2026.

Summary of Chemical Additives

Additive Number	Chemical Additive Name	Outfall / IMP No.	Purpose Provided by Facility	Proposed Usage Frequency	Proposed Max Usage Rate	Units	Notification Form (Y/N)	New Chemical Request Form (Y/N)	Facility Estimated Discharge Concentration (ug/l)	TMS Max Uage (lbs/day)	TMS Max Usage (gal/day)
1	Nalco 77352NA	001	Biocide	As-needed	< 1	gal/day	Y	NA	2	1.32	0.16
2	3D Trasar 3DT198	001	Corrosion Inhibitor	As-needed	20	gal/day	Y	NA		251	30.10
3	Nalco H150M	001	Biocide; neutralized after treatment	2 treatments /yr	600	gal/day	Y	NA	0.237	0.42	0.05
4	Nalco 1315	001	Neutralizing Agent	2 treatments /yr	15,000	gal/day	Y	NA	29,625	91,102	10,924
5	3D Trasar 3DT120	001	Circulating Water Treatment - Component Cooling Water Systems	As-needed	5	gal/day	Y	NA		4093	490.77
6	Sulfuric Acid	001 / 701	Neutralizing Agent / pH Control (Pretreatment Systems (RO / UF / DI trailers)	Continuous	5	gal/day	Y	NA		330	39.57
7	Nalco 8158 (same as alum sulfate)	001	Coagulant	As - needed	< 1	gal/day	Y	NA		2746	329.26
8	Pre - Tect 2040HP	001	Corrosion Inhibitor	As - needed	3	gal/day	N	Y		6,363	763
9	Pre -Tect PT7000	001	Corrosion Inhibitor	As - needed	3	gal/day	N	Y		Pending toxicity data	
10	Boric Acid	001	Pressurized Water Reactor Treatment	As - needed	10	lbs/day	N	Y		Closed loop	
11	Lithium Hydroxide (Lithium)	001	pH control	As - needed	2	lbs/day	N	Y		Exempt. For production of wastewater	
12	Trasar Trac 103	001	Corrosion Inhibitor	As - needed	< 1	gal/day	N	Y		462	55.40
13	Nalclear 7744	001	Water Treatment - Flocculant	As - needed	< 1	gal/day	Y	NA		1.85	0.22
14	CP 837 Chloride (Zinc Orthophosphate for drinking water)	001	Corrosion control / biocide	As - needed	2	gal/day	N	Y		Exemption request letter	
15	Optimer 7193 Plus	001	Water treatment	As - needed	< 1	gal/day	Y	NA		0.092	0.01
16	Zinc Acetate Dihydrate	001	Internal boiler water treatment; corrosion control agent	As - needed	< 1	lbs/day	N	Y		Closed loop	
17	Klaraid IC1172	001	Coagulant (RO,DI, UF trailer)	As - needed	< 1	gal/day	Y	NA		1,334	160
18	Sodium Hypochlorite (12 - 15%)	001	Biocide (multiple locations) Also RO, DI, UF as needed	2 hrs application /day or as-needed	300	gal/day	Y	NA	12	1.45	0.17
19	Sodium Bisulfite	001	Dechlorination	As - needed	< 1	gal/day	Y	NA		399	47.84
20	Sodium Hydroxide	001	Neutralizing Agent / pH Control	As - needed	< 1	gal/day	Y	NA		132	15.83
21	Citric Acid	001	Neutralizing Agent	As - needed	< 1	gal/day	Y	NA		673	80.70
22	Hypersperse MDC714	001	Antiscalant for RO membranes	24 hours for 1-2 days	16	gal/day	Y	NA		14,312	1,716
23	Nalcolyte 7134	001	Radwaste treatment system; Coagulant. 99% consumed	As-needed	< 1	gal/day	N	Y		Pending toxicity data	
24	Hydrazine 35%	001	Corrosion Inhibitor– (also for RO, DI)	As - needed	5	gal/day	N	Y		0.013	0.00156
25										Closed loop/Fate and Transport	
26	ControlBrom CB	001	Biocide		10,820	gal/day	Y			28,215	3,383

Note:
TMS Max Usage (gal/day) = TMS Max Usage (lb/day) / 8.34 lb/gal

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 001, which receives wastewater from circulating cooling water; secondary service water; reactor building emergency cooling; decay heat; nuclear service water; liquid radioactive waste treatment; contributing internal monitoring points (101, 401, 501, 701); station blackout diesel cooling water; and other minor sources as identified in the NPDES permit application.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information on page 3.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at Outfall 001, unless otherwise noted below.

DISCHARGE LIMITATIONS[1]						MONITORING REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	From 6.0 to 9.0 inclusive					2/month	Grab
Total Suspended Solids	XXX	XXX	Monitor & Report	Monitor & Report	XXX	2/month	Grab
Temperature (10/1-3/31)	XXX	XXX	XXX	110° F	XXX	Continuous	Recorded
Temperature (4/1-9/30)	XXX	XXX	XXX	115° F	XXX	Continuous	Recorded
Free Available Chlorine	XXX	XXX	XXX	0.2	0.5	(9)	(9)
Total Residual Oxidants (TRO)[8][10]	XXX	XXX	XXX	0.14	0.17	(6)	(6)
Spectrus CT 1300[8]	XXX	XXX	XXX	0.1	0.3	(5)	(5)
Hydrazine	XXX	XXX	XXX	XXX	Not Detectable	(7)	(7)

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 101, which receives wastewater from the sewage treatment plant.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information below.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at discharge from sewage treatment plant.

DISCHARGE LIMITATIONS[1]						MONITORING[6] REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	Continuous	Recorded
Total Suspended Solids	XXX	XXX	30	XXX	60	1/quarter	8-hour Comp
$CBOD_5$	XXX	XXX	25	XXX	50	1/quarter	8-hour Comp
Phosphorus (as P)	XXX	XXX	2.0	XXX	4.0	1/quarter	8-hour Comp
Fecal Coliform (5/1-9/30)[5]	XXX	XXX	200/100 ml	XXX	XXX	1/quarter	Grab
Fecal Coliform (10/1-4/30)[5]	XXX	XXX	2,000/100 ml	XXX	XXX	1/quarter	Grab

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 401, which receives wastewater from the Industrial Waste Filter System.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information below.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at discharge from Industrial Waste Filter System.

DISCHARGE LIMITATIONS[1]						MONITORING[5] REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	From 6.0 to 9.0 inclusive					1/quarter	Grab
Total Suspended Solids	XXX	XXX	30	100	XXX	1/quarter	Grab
Oil and Grease	XXX	XXX	15	20	30	1/quarter	Grab

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 501, which receives wastewater from Unit 1 Secondary Neutralizer Tank.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information below.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at discharge from Unit 1 Secondary Neutralizer Tank or from the mixed tank prior to release.

DISCHARGE LIMITATIONS[1]						MONITORING[5] REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	2/month	Calculated
pH (S.U.)	From 6.0 to 9.0 inclusive					2/month	Grab
Total Suspended Solids	XXX	XXX	30	100	XXX	2/month	Grab
Oil and Grease	XXX	XXX	15	20	30	1/quarter	Grab

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 701, which receives wastewater from the Industrial Waste Treatment System.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information below.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at discharge from the Industrial Waste Treatment System.

DISCHARGE LIMITATIONS[1]						MONITORING[5] REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	From 6.0 to 9.0 inclusive					2/month	Grab
Total Suspended Solids	XXX	XXX	30	100	XXX	2/month	Grab
Oil and Grease	XXX	XXX	15	20	30	1/quarter	Grab

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 003, emergency discharge from Unit 1, in the event Outfall 001 becomes blocked.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information on page 9.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at Outfall 003, unless otherwise noted below.

DISCHARGE LIMITATIONS[1]						MONITORING[5] REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	1/day	Estimated
pH (S.U.)	From 6.0 to 9.0 inclusive					2/month	Grab
Total Suspended Solids	XXX	XXX	Monitor & Report	Monitor & Report	XXX	2/month	Grab
Temperature (10/1-3/31)	XXX	XXX	XXX	110° F	XXX	1/shift	i-s
Temperature (4/1-9/30)	XXX	XXX	XXX	115° F	XXX	1/shift	i-s
Free Available Chlorine	XXX	XXX	XXX	0.2	0.5	(10)	(10)
Total Residual Oxidants (TRO)[9][11]	XXX	XXX	XXX	0.14	0.17	(7)	(7)
Spectrus CT 1300[9]	XXX	XXX	XXX	0.1	0.3	(6)	(6)
Hydrazine	XXX	XXX	XXX	XXX	Not Detectable	(8)	(8)

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 004, emergency discharge from Unit 1, in the event Unit 1 Mechanical Draft Cooling Tower becomes blocked.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information on page 11.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at outfall 004.

DISCHARGE LIMITATIONS[1]						MONITORING[5] REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[3]			[4]	
Discharge[2] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	1/day	Estimated
pH (S.U.)	From 6.0 to 9.0 inclusive					2/month	Grab
Total Suspended Solids	XXX	XXX	Monitor & Report	Monitor & Report	XXX	2/month	Grab
Temperature	XXX	XXX	XXX	Monitor & Report	XXX	1/shift	1-s
Free Available Chlorine	XXX	XXX	XXX	0.2	0.5	(9)	(9)
Total Residual Oxidants (TRO)[8][10]	XXX	XXX	XXX	0.14	0.17	(6)	(6)
Spectrus CT 1300[8]	XXX	XXX	XXX	0.1	0.3	(6)	(6)
Hydrazine	XXX	XXX	XXX	XXX	Not Detectable	(7)	(7)

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 005B, which receives wastewater from screen house desilting; dewatering of Unit 1 Natural Draft Cooling Towers; fire brigade training; fuel oil off-loading station; industrial cooler maintenance; emergency diesel generator building floor drains; and operation of the east dike settling basin drain valve.

1. Numbers in parentheses ( ) refer to Footnotes/Additional Requirements/Information below.

2. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s): at Outfall 005B.

DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)[2]			[3]	
Discharge[1] Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	1/month	Estimated
pH (S.U.)	From 6.0 to 9.0 inclusive					2/month	Grab
Total Suspended Solids	XXX	XXX	30	100	XXX	2/month	Grab
Oil and Grease	XXX	XXX	15	20	30	2/month	Grab

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Outfall 006, which receives wastewater from intake screen wash and sluice water; the intake pump strainer backwash; and the intake chlorinator building floor drain.

DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)				
Discharge Parameter	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
	No discharge limitations are necessary. All debris collected on the intake screens shall be collected and not discharged back to the river.						

PART A

B. Monitoring Requirements for Stormwater Outfalls 005A, SO1, SO2, SO3, SO4 (1)

	MONITORING REQUIREMENTS	
Parameter	Grab Sample (mg/l)	Monitor Frequency (2)
5-day CBOD	Monitor & Report	1/year
Chemical Oxygen Demand	Monitor & Report	1/year
Total Suspended Solids	Monitor & Report	1/year
Total Phosphorus	Monitor & Report	1/year
Total Kjeldahl Nitrogen	Monitor & Report	1/year
Dissolved Iron	Monitor & Report	1/year
Oil and Grease	Monitor & Report	1/year
pH (S.U.)	Monitor & Report	1/year

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections:

The DEP inspector noted the following during the inspection.

08/03/2021:

IMP 701 includes the industrial waste treatment system. As the shutdown progresses, the treatment system will be abandoned. This will occur after the spent fuel is cleaned-up.

Outfall 001 is the discharge from the on-site sewage treatment plant. The treatment plant continues to see reduced flows especially with the recent lay-offs so the system no longer discharges daily.

Stormwater outfall 009 (S02) is located south of the cooling towers. The drainage area was changed as the old maintenance building was removed and the spent fuel storage pad was constructed.

09/20/2023:

Three holding tanks will be used to hold sewage during the decommissioning process. In order to proceed with the decommissioning of Unit 2, the current main pump station/wet well must be removed to install rail lines. Removal of the wet well prevents sewage getting to the current Sewage Treatment Plant (STP). The existing STP continues to be used but receives a minimal amount of sewage due to the low number of on-site staff.

The first holding tank will repurpose existing pump station #1. This holding tank will serve the Operation Support Facility (OSF) and will have a capacity of 1,500 gallons.

The second holding tank will be for the Outage Support Building (OSB). This will be a new 10,000-gallon tank installed underground. Flow from the OSB will go to pump station #9 and then to the underground tank.

The third holding tank will be for the South Office Building (SOB). A 1,500-gallon holding tank will be installed underground next to the building.

Two switches and alarms will be present on all the holding tanks. Walters and Heim are currently interested in the project installation. As lines are abandoned, they will be flushed to ensure no residual material. This flushing water will be sent to the STP before it is decommissioned. Constellation staff stated that continuous flow from Outfall 001 will cease around February of 2024. This outfall receives non-contact cooling water as well as the discharges from the STP and the Industrial Waste Treatment System.

The sampling point for Outfall 001 was observed. At the time of inspection, non-contact cooling water was still discharging. The flowmeter read 8,000 GPM. A composite sampler is also present here.

The Industrial Waste Treatment System (IWTS), Outfall 701, will be completely offline in the first quarter of 2024. The sump pit underneath the IWTS is currently being batch discharged once per quarter. The sump water currently consists of clean ground water and air intake tunnel water. The sump level was reading 50% of the total capacity of 541,997 gallons. pH is adjusted as needed and the water is recirculated before being batched discharged. June of 2023 was the last time that the plant discharged boron.

Outfall 501 will receive and discharge the clean sump water. The STP's internal outfall/internal monitoring point is 101. Currently the plant discharges about 4-5,000 gallons of effluent one or two days per week.

Note: Due to the planned decommissioning of the nuclear plant, the summary of inspections summary was abbreviated to disclose the inspections from the last five years.

3.2 Summary of DMR Data

The facility has been shutdown since 2019. The DMR data shown in the tables do not reflect the facility's full production effluent data.

The off-site laboratory used for the analysis of the parameters was ALS Environmental located at 34 Dogwood Lane, Middletown, PA 17057.

DMR Data for Outfall 001 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	10.4	9.9	14.4	14.1	14.4	14.4	14.4	10.2	7.2	6.3	6.2	6.7
Flow (MGD) Daily Maximum	11.2	10.2	14.4	14.4	14.4	14.4	14.4	14.4	8.1	7.1	6.9	7.7
pH (S.U.) Minimum	7.6	7.7	7.7	7.9	7.5	7.6	7.4	7.7	7.4	8.0	7.5	7.7
pH (S.U.) Maximum	7.6	8.3	7.1	8.0	7.7	7.6	7.9	7.8	7.4	8.0	7.8	8.0
Free Available Chlorine (mg/L) Daily Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRO (mg/L) Daily Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
Temperature (ºF) Daily Maximum	55	75	80	88	88	87	72	68	57	36	43	45
TSS (mg/L) Average Monthly	10	14	17	18	25	19	45	14	23	< 5	< 5	< 5
TSS (mg/L) Daily Maximum	14	18	20	21	27	24	65	20	29	< 5	< 5	< 5
Hydrazine (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
Spectrus CT 1300 (mg/L) Daily Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG

DMR Data for Outfall 005 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly			0.076									
Flow (MGD) Daily Maximum			0.086									
pH (S.U.) Minimum			8.5									
pH (S.U.) Maximum			8.5									

TSS (mg/L) Average Monthly			9									
TSS (mg/L) Daily Maximum			10									
Oil and Grease (mg/L) Average Monthly			< 4									
Oil and Grease (mg/L) Daily Maximum			< 4									

DMR Data for Outfall 101 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
CBOD5 (mg/L) Average Monthly												< 2
TSS (mg/L) Average Monthly												5
Fecal Coliform (CFU/100 ml) Geometric Mean												124
Total Phosphorus (mg/L) Average Monthly												0.2

DMR Data for Outfall 701 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	0.086			0.092				0.079				0.060
Flow (MGD) Daily Maximum	0.115			0.110				0.114				0.081
pH (S.U.) Minimum	8.0			8.1				8.0				8.1
pH (S.U.) Maximum	8.2			8.2				8.1				8.2
TSS (mg/L) Average Monthly	< 5			< 5				< 5				7
TSS (mg/L) Daily Maximum	< 5			< 5				< 5				7
Oil and Grease (mg/L) Average Monthly			< 6			< 5						< 5

Oil and Grease (mg/L) Daily Maximum			< 6			< 5						< 5

3.2.1 Stormwater Sampling Results

The table below summarizes stormwater sampling results.

The storm event occurred in October 2011.

Stormwater Sampling Reults from NPDES renewal application

Pollutant	007 (005A) mg/l		008 (SWRO-1) mg/l		009 (SWRO-2) mg/l		010 (SWRO-3) mg/l		Benchmark Values mg/l
BOD5		3.2		7.2	<	2		2.2	
COD	<	15		26	<	15	<	15	
TN	<	1		1.1	<	1	<	1	XXX
TP	<	0.1		0.16	<	0.1		0.15	XXX
pH (S.U.)		7.13		7.38		8.07		7.76	9
TSS		13		6	<	5		6	100
Oil and Grease	<	2	<	2.1	<	2.1		3.4	30
Total Iron		NS		NS		NS		NS	XXX
TKN	<	1		1.1		1	<	1	
Dissolved Iron	<	0.06	<	0.06		0.06	<	0.06	
Copper	<	0.005	<	0.005		0.005	<	0.005	
Total Chromium	<	0.0025	<	0.0025		0.0025	<	0.0025	
Zinc		0.012	<	0.005		0.005		0.016	
Fecal Coliform (#/100 mL)		580		200		117		818	

Notes:
- For 007 (005A), storm event on October 12, 2011
- For SWRO-1 (008), storm event on October 19, 2011
- For SWRO-2 (009), storm event on October 12-13, 2011
- For SWRO-3 (010), storm event on October 12-13, 2011
- No exposure polluants are BOD and COD
- NS - No sample

Consistent with PAG03 Appendix H, monitoring shall be required semi-annually for TN, TP, pH, TSS, Oil and Grease, and Total Iron.

Via best professional judgment, monitoring shall be required semi-annually for BOD and COD. These parameters were present in the current permit and shall continue to the proposed permit.

The reader should note that monitoring was changed for (a) BOD for CBOD (b) TN for TKN and (c) Total Iron for Dissolved Iron.

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

Since the facility has been shutdown since 2019, non-compliance with NPDES effluent limits was not evaluated.

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in October 31, 2012 to March 4, 2026, the following were observed enforcement actions

Summary of Non-Compliance with NPDES Effluent Limits
Beginning October 31, 2012 and ending March 4, 2026

ENF ID	ENF TYPE DESC	VIOLATIONS	ENF FINAL STATUS	ENF CLOSED DATE
451683	Notice of Violation	92A.62	Comply/Closed	02/02/2026
437198	Notice of Violation	92A.62	Comply/Closed	01/15/2025

Chapter 92a.62. requires permittees to pay an annual fee.

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

Since the facility has been shutdown since 2019, biosolids/sewage sludge was not evaluated.

3.5 Open Violations

No open violations existed as of March 2026

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Susquehanna River. The Susquehanna River discharges drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is PP&L Brunner Island (PWS ID #7670802) located approximately 5 miles downstream of the subject facility on the Susquehanna River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2024 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life. The designated use has been classified as protected waters for warm water fishes (WWF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Susquehanna River at Harrisburg, PA (WQN202). This WQN station is located approximately 11 miles upstream of the subject facility.

For WQM modeling,

1. pH and stream water temperature data from the water quality network station was used. pH was estimated to be 8.25 and the stream water temperature was estimated to be 23.75 C.
2. The hardness of the stream was estimated by collecting a sample upstream of the facility. The NPDES application reported a sampling result of 91 mg/l $CaCO_3$.
3. The following data input assumptions were made:

- Crane Clean Energy Center is located in between the Susquehanna River at Harrisburg, PA and the Susquehanna River at Marietta, PA. The lowest Q710 between the two stations and the average drainage area between the two stations was utilized for low flow field.

- A report entitled Study of *Travel Time and Mixing Characteristics for the Susquehanna River Below Three Mile Island, Final Report, 1982* summarized the division of flow in each of the three channels. The east channel has 0% of the total flow during low flow conditions. The middle channel has 45% of the total flow during the low flow conditions. (Fact Sheet 05/12/1997, Page 16). The worst case drainage area for Three Mile Island was estimated to be 10,845 sq mi between the two gauge stations (24,100 sq mi * 0.45 = 10,845 sq mi).

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data		
USGS Station Number	01570500	
Station Name	Susquehanna River at Harrisburg, PA	
Q710	2440	ft^3/sec
Drainage Area (DA)	24,100	mi^2

Gauge Station Data		
USGS Station Number	01576000	
Station Name	Susquehanna River at Marietta, PA	
Q710	2420	ft^3/sec
Drainage Area (DA)	25,990	mi^2

Calculations

The low flow yield of the gauge station is:

Low Flow Yield (LFY) = Q710 / DA

LFY = (2420 ft^3/sec / ((24,100 + 25,990 mi^2)/2)

LFY = 0.0966 $ft^3/sec/mi^2$

The low flow at the subject site is based upon the DA of 10,845 mi^2

Q710 = (LFY@gauge station)(DA@Subject Site)

Q710 = (0.0966 $ft^3/sec/mi^2$)(10,845 mi^2)

Q710 = 1,047.9 ft^3/sec

Assumptions:

-Take worst case Q710

- Average drainage area for Harrisburg, PA and Marietta, PA gauge stations

- Utilize 45% factor for island in middle of Susquehanna River

DEP has generally applied a 1/3 factor to account for mixing in large and wide receiving waters. Since the Q710 estimate utilizes a 45% river flow factor for the middle channel, the 1/3 factor was not utilized.

Analysis and Communication, Inc. (ASA) stated that the withdrawal rate from the Susquehanna River does not exceed 5% of the Susquehanna River discharge (NPDES Renewal application, March 2025, Page 3).

4.6.1 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	43
Latitude	40º 9' 5.44"	Longitude	-76º 43' 9.82"
Quad Name		Quad Code	
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	Unnamed Tributary of Susquehanna River (WWF)	Stream Code	6685
NHD Com ID	56406043	RMI	58.5
Drainage Area	10,845	Yield (cfs/mi^2)	0.0966
Q_{7-10} Flow (cfs)	1047.9	Q_{7-10} Basis	StreamStats/Streamgauge
Elevation (ft)	278	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	Not applicable		
Source(s) of Impairment	Not applicable		
TMDL Status	Not applicable	Name	

Background/Ambient Data		Data Source
pH (SU)	8.25	WQN202; median July to Sept
Temperature (°C)	23.75	WQN202; median July to Sept
Hardness (mg/L)	109	WQN202; historical median
Other:		

Nearest Downstream Public Water Supply Intake	PP&L Bruner Island		
PWS Waters	Susquehanna Rive	Flow at Intake (cfs)	336,000
PWS RMI	54	Distance from Outfall (mi)	4.55

4.6.2 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	0
Latitude	40º 8' 50.51"	Longitude	-76º 43' 7.27"
Quad Name		Quad Code	
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Unnamed Tributary of Susquehanna River (WWF)	Stream Code	
NHD Com ID	56406549	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	

4.6.3 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	010	Design Flow (MGD)	0
Latitude	40º 8' 42.12"	Longitude	-76º 43' 17.34"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Susquehanna River (WWF)	Stream Code	
NHD Com ID	56406549	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	

4.6.4 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	011	Design Flow (MGD)	0
Latitude	40º 9' 12.31"	Longitude	-76º 43' 9.24"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Susquehanna River (WWF)	Stream Code	
NHD Com ID	56406043	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determine the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1	*(Modeling Point #1)*	*(Modeling Point #2)*	*Units*
Stream Code	6685	6685	
River Mile Index	58.5	44.3	miles
Elevation	278.61	200.56	feet
Latitude	40.152222	40.054491	
Longitude	-76.727778	-76.53099	
Drainage Area	10,845	25990	sq miles
Low Flow Yield	0.0966	0.0966	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

a. a *minimum concentration for DO in the discharge as 30-day average;*
b. *a 30-day average concentration for CBOD5 in the discharge;*
c. *a 30-day average concentration for the NH_3-N in the discharge;*
d. *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the pollutants in Groups 1 through 5.

The NPDES application collected at least three samples.

For toxics modeling, the permit has utilized data from 2012. The facility was decommissioned in 2019. More recent data was not available for toxics modeling.

Data shall be required to be collected for Pollutant Groups 1 to 5. The NPDES permit will be reopened 18 months after startup. DEP recommends collection of four (4) different samples over different weeks. DEP has recommended the facility collect the additional samples to make a suitable determination if monitoring or effluent limits are necessary. Upon NPDES re-opening, the toxics modeling shall be re-evaluated.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

a. When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
b. For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
c. For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provide objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For new Phase 4 and 5 sewage discharges, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance, with the exception of small flow and single residence facilities.

For non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. In general, facilities that discharge groundwater and cooling water with no addition of chemicals containing N or P do not require monitoring. Monitoring for facilities with other discharges will generally conform to the following minimum sampling frequencies, with the permit writer having final discretion:

• Cooling water or other discharges treated with chemical additives containing N and/or P – 1/year.

Non-significant IW facilities that propose expansion or production increases and as a result will discharge at least 75 lbs/day TN or 25 lbs/day TP (on an annual average basis), will be classified as Significant IW dischargers and receive Cap Loads in their permits based on existing performance (existing TN/TP concentrations at current average annual flow).

In general, for new non-significant IW discharges (including existing facilities discharging without a permit), DEP will issue permits containing Cap Loads of "0" and these facilities will be expected to purchase credits and/or apply offsets to achieve compliance.

Due to the Chesapeake Bay WIP, this facility is subject to Sector C monitoring requirements. Monitoring for nitrogen and phosphorus shall be required at least 2x/yr.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a. a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b. a summary of changes from the existing NPDES permit to the proposed permit; and
c. a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by outfall.

WQM Modeling Runs

Internal Monitoring Point 101 discharges sewage effluent. Two modeling runs were conducted for water quality modeling for dissolved oxygen. Modeling Run #1 used a typical discharge flow rate of 10 GPM (0.0144 MGD). Modeling Run #2 used a maximum discharge flow rate of 40 GPM (0.0576 MGD). Both modeling runs recommend secondary effluent limits (i.e. CBOD of 25 mg/l and 25 mg/l ammonia-nitrogen). WQM modeling outputs are presented in the Attachment.

Toxic Modeling Runs

Toxics Management Spreadsheet (TMS) was conducted with four different modeling runs.

Modeling Run #1 reviewed toxics discharged through Outfall 001. The monitoring data used was from 2012 well before the decommissioning of the plant. With the plant shutdown, the facility does not have other monitoring data available.

Toxics Modeling Spreadsheet (TMS) recommended the pollutants in the table below for either monitoring or effluent limits. Many of the parameters may not require monitoring or effluent limits if the laboratory results are sampled at or below DEP target QL. Since the data is from 2012, the suspect parameters have been placed in the permit as monitor only. With the plant shutdown, resampling was not possible.

Toxics Management Spreadsheet (TMS) Output
Recommended Parameters for Monitoring or Effluent Limits
Outfall 001

Pollutant	NPDES app Influent		NPDES app Effluent		DEP Target QL		Is NPDES app> DEP Target QL
Total Aluminum		56		200	<	10	Not Appl.; Results is positive
Total Antimony	<	10	<	10	<	2	Yes
Total Cadmium	<	1	<	1	<	0.2	Yes
Hexavalent Chromium	<	10	<	10	<	1	Yes
Total Copper		7.5		14	<	4	Not Appl.; Results is positive
Total Lead	<	3	<	3	<	1	Yes
Total Selenium	<	10	<	10	<	5	Yes
Total Silver	<	2	<	2	<	0.4	Yes
Total Thallium	<	10	<	10	<	2	Yes
Total Zinc		12		70	<	5	Not Appl.; Results is positive
Acrolein	<	30	<	30	<	2	Yes
Vinyl Chloride	<	2	<	2	<	0.5	Yes
Pentachlorophenol	<	15.1	<	15.1	<	10	Yes
3,3-Dichlorobenzidine	<	15.1	<	15.1	<	5	Yes
Hexachlorobutadiene	<	2.8	<	2.8	<	0.5	Yes
Hexachlorocyclopentadiene	<	7.5	<	7.5	<	5	Yes
1,2,4-Trichlorobenzene	<	2.8	<	2.8	<	0.5	Yes

The NPDES permit will be reopened 18 months after startup. The data is from 2012. For Pollutant Groups 1 to 5, DEP recommends collection of four (4) different samples over different weeks. DEP recommends the facility collect the additional samples to make a suitable determination if monitoring or effluent limits are necessary.

Upon NPDES re-opening, the toxics modeling shall be re-evaluated.

Modeling Run #2

The facility confirmed that boron shall be discharged through the Rad Waste process unit. The facility estimates that the typical rad waste discharge shall be 25 gpm (0.036 MGD). TMS was conducted using the typical flow rate for Outfall 001 (i.e. 19.152

MGD). TMS recommends an average monthly effluent limit of 10.6 mg/l for boron. The facility shall be required to monitor for boron,

Modeling Run #3 and #4 reviewed the chemical additives discharged through Outfall 001.

Chemical additive is a chemical product (including products of disassociation and degradation, collectively "products") introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to surface waters. The term generally excludes chemicals used for neutralization of waste streams, the production of goods, and treatment of wastewater.

A summary sheet listing the chemical additive and usage rates is depicted.

Chemical additive usage rates recommended by TMS may be exempt if the facility can demonstrate a closed loop process or through fate and transport degradation.

Crane itemizes a few problematic chemical additives which would not meet TMS additive usage rates. The chemical additives are NALCO 77352NA, NALCO H150M, NALCO 1315, and Sodium hypochlorite (12-15%). The facility conjectures that only a smaller percentage of the chemical additive usage will appear as residuals in the discharge. Refer to email correspondence dated for March 4, 2026.

Due to closed loop circulation, the facility requested that the following chemicals not be additives restricted to maximum usage rates.

Hydrazine, Zinc Acetate Dihydrate, Boric Acid, Nalco 77352NA, Nalco H150M, Nalco 1315, Sodium Hypochlorite

Due to fate and transport analysis, the facility requested an exemption for usage rates for CP 837 Chloride.

The facility's estimated usage of sodium hypochlorite exceeds TMS recommended usage amounts. The facility shall be provided allowance provided they are able to meet total residual chlorine effluent limits.

6.1.1 Monitoring Requirement Summary by Outfall

Previous NPDES permit included monitoring and/or effluent limits for pH, DO, and TRC assuming that the sewage plant would directly discharge to the receiving stream. Crane process includes the sewage plant effluent as an internal monitoring point prior to commingling with cooling water blowdown exiting through Outfall 001. Best professional judgement yields the significant dilution eliminating reasonable potential for pH, DO, and TRC. Further, a review of other nuclear power plants with a sewage treatment plant as an internal monitoring point suggested that pH, DO, and TRC are not a concern in the discharge. (Courtesy of Fact Sheet May 1997).

No monitoring for pH, DO, and TRC shall be required at the internal monitoring point 101.

TTO shall mean total toxic organics, which is the summation of all quantifiable values greater than 0.01 milligrams per liter. Refer to 40 CFR 413.02 for the list of toxic organics.

Total residual chlorine (or total residual oxidants for intake water with bromides) means the value obtained using any of the "chlorine—total residual" methods in Table IB in 40 CFR 136.3(a), or other methods approved by the permitting authority. Refer to 40 CFR 423.11.

Total residual oxidants (TRO) was eliminated from the effluent limit table. TRO shall be monitored through chemical additive usages and total residual chlorine (TRC).

Effluent limitation guidelines (ELG) are enforced by the EPA to regulate the discharge of pollutants from industrial sources into receiving waters. The standard industrial classification code of the facility classifies the facility as a Steam Electric Power Generating Point Source Category. This subjects the facility to Title 40 Chapter I Subchapter N Part 423.13. Crane Clean Energy is a 885 MW facility. The process consistes of a closed-cycle recirculating cooling tower system The facility meets the definition of best available technology.

Effluent Limits					
Outfalls 501, 701, and 005B					
Parameter	**Monitoring**	**Effluent Limit**			**Rationale**
		Inst Max	**Max Daily**	**Average**	
		mg/l	**mg/l**	**mg/l**	
pH	Grab;2x/month	-----	6 - 9 S.U.		40 CFR Part 423.12(b); Chapter 95.2(1)
TSS	Grab;2x/month	-----	100	30	40 CFR Part 423.12(b)
Oil and Grease	Grab;2x/month	30	20	15	40 CFR Part 423.12(b); Chapter 95.2(2).ii
Notes:					
- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.					

Effluent Limits				
Outfalls 101				
Parameter	**Monitoring**	**Effluent Limit**		**Rationale**
		I-Max	**Average Monthly**	
		mg/l	**mg/l**	
CBOD	8-hr composite;1x/quarter	50	25	
TSS	8-hr composite;1x/quarter	60	30	Chapter 92a.47(a).1
Phosphorus	8-hr composite;1x/quarter	4	2	Anti-backsliding
Fecal Coliform	1x/quarter	May to Sept 1,000 / 100 mL ; Oct to Apr 10,000 / 100 mL ;	May to Sept 200 / 100 mL ; Oct to Apr 200 / 100 mL ;	Chapter 92a.47(a).4; 92a.47(a).5; geometric mean
Notes:				
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, or (g) WET				
2 Monitoring frequency based on flow rate of 25 GPD (0.036 MGD).				

Effluent Limits				
Outfall 001				
Parameter	**Monitoring**	**Effluent Limit**		**Rationale**
		I-Max	**Average**	
		mg/l	**mg/l**	
pH	2x/month	6 - 9 S.U.		Chapter 95.2(1)
TSS	2x/month	60	30	Chapter 92a.47(a).1
Temperature	Continuous	110 F	-----	Consistent with Chapter 93.7 , thermal modeling recommends maximum daily discharge temperature of 110 F
Free Available Chlorine	1x/wk during chemical addition	0.5	0.2	CFR Part 423(d)(1)
Total Residual Chlorine	1x/wk during chemical addition	0.2		CFR 423.13(a); 423.13(b)(1); 423.13(b)(2)
Total Toxic Organics (TTO)	When discharging	No Detectable Amount		CFR 423.13(d).1, Appendix A
Total Chromium	When discharging	0.2	0.2	CFR 423.13(d).1, Appendix A
Total Zinc	When discharging	1	1	CFR 423.13(d).1, Appendix A
Total Nitrogen	2x/yr	No effluent limit	No effluent limit	Monitoring is required due to the Chesapeake Bay WIP
Total Phosphorus	2x/yr	No effluent limit	No effluent limit	Monitoring is required due to the Chesapeake Bay WIP

Notes:

- 40 CFR Part 423.14

- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

- For any plant with a total rated electric generating capacity of 25 or more megawatts, the quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once through cooling water from each discharge point times the concentration

- Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

Effluent Limits
Outfalls 003 and 004

Parameter	Monitoring	Effluent Limit		Rationale
		I-Max	Average	
		mg/l	mg/l	
pH	2x/month	6 - 9 S.U.		Chapter 95.2(1)
TSS	2x/month	60	30	Chapter 92a.47(a).1
Temperature	1x/shift	110 F	-----	Consistent with Chapter 93.7 , thermal modeling recommends maximum daily discharge temperature of 110 F
Free Available Chlorine	1x/wk during chemical addition	0.5	0.2	CFR Part 423(d)(1)
Total Residual Chlorine	1x/wk during chemical addition			CFR 423.13(a); 423.13(b)(1); 423.13(b)(2)
Total Toxic Organics (TTO)		No Detectable		CFR 423.13(d).1, Appendix A
Total Chromium			0.2	CFR 423.13(d).1, Appendix A
Total Zinc			1	CFR 423.13(d).1, Appendix A

Notes:

- 40 CFR Part 423.14

- There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

- For any plant with a total rated electric generating capacity of 25 or more megawatts, the quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once through cooling

- Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

Effluent Limits
Outfall 901

Parameter	Monitoring	Effluent Limit		Rationale
		I-Max	Average Monthly	
		mg/l	mg/l	
pH	1x/month	6 - 9 S.U.		Chapter 95.2(1)
Total Boron	1x/month	26.5	10.6	Suspected pollutant

6.1.3.3 Summary of Thermal Effluent Limits

DEP files for the August 2007 Fact Sheet shows that an older worksheet was utilized for thermal effluent estimations. DEP recognizes that there are differences in the calculation methods from the older thermal worksheet.

The DEP Thermal Worksheet assumed (1) the receiving waters is warm water fishes (WWF) and (2) a maximum discharge flow rate of 43.2 MGD (30,000 gpm).

The modeling recommends a maximum discharge temperature of 110 F from January to December.

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

- Outfall S04; SWRO – 4 was eliminated. Outfall was capped.
- Outfall 401; Eliminated due to process unit not being in service
- Outfall 801; Added for the Rad Waste
- The average design flow is 13,300 GPM (19.152 MGD). The maximum design flow rate is 30,000 GPM (43.2 MGD).
- Consistent with Federal ELG 423.13(d)(1), monitoring shall be required for total toxic oxidants
- Consistent with Federal ELG 423.13(d)(1), effluent limits for total chromium and total zinc shall be required.
- For Outfalls 001, 003, and 004, the maximum discharge temperature shall be 110 F.
- Total residual oxidants (TRO) was eliminated from the effluent limit table. TRO shall be monitored through chemical additive usages and total residual chlorine (TRC).

6.3.1 Summary of Proposed NPDES Effluent Limits

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 9' 8.00" , **Longitude** 76° 43' 40.00" , **River Mile Index** 58.5 , **Stream Code** 6685

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: IW Process Effluent with ELG

1. The permittee is authorized to discharge during the period from Permit Effective Date through Permit Expiration Date.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/month	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	0.2	XXX	1/week	Grab
Free Available Chlorine	XXX	XXX	XXX	XXX	0.2	0.5	1/week	Grab
Temperature (deg F) (°F)	XXX	XXX	XXX	XXX	110	XXX	1/shift	I-S
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Aluminum, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Antimony, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Cadmium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Chromium, Hexavalent	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Chromium, Total	31	31 Daily Max	XXX	0.2	0.2	XXX	1/month	Grab
Copper, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Lead, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Selenium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Silver, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Thallium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Zinc, Total	159	159 Daily Max	XXX	1.0	1.0	XXX	1/month	Grab
Total Toxic Organics	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
3,3-Dichlorobenzidine	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Pentachlorophenol	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Acrolein	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
1,2,4-Trichlorobenzene	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Hexachlorobutadiene	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Hexachlorocyclopentadiene	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Vinyl Chloride	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 003 , **Latitude** 40° 9' 10.00" , **Longitude** 76° 43' 40.00" , **River Mile Index** 58.5 , **Stream Code** 6685

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: IW Process Effluent with ELG

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/month	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	0.2	XXX	1/week	Grab
Free Available Chlorine	XXX	XXX	XXX	XXX	0.2	0.5	1/week	Grab
Temperature (deg F) (°F)	XXX	XXX	XXX	XXX	110	XXX	1/shift	I-S
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Chromium, Total (3)	31	31 Daily Max	XXX	0.2	0.2	XXX	1/month	Grab
Zinc, Total (3)	159	159 Daily Max	XXX	1.0	1.0	XXX	1/month	Grab
Total Toxic Organics	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 003

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. C. For Outfall 004 , **Latitude** 40° 9' 10.00" , **Longitude** 76° 43' 18.00" , **River Mile Index** 5835 , **Stream Code** 6685

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: IW Process Effluent with ELG

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/month	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	0.2	XXX	1/week	Grab
Free Available Chlorine	XXX	XXX	XXX	XXX	0.2	0.5	1/week	Grab
Temperature (deg F) (°F)	XXX	XXX	XXX	XXX	110	XXX	1/shift	I-S
Total Suspended Solids	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Chromium, Total (3)	31	31 Daily Max	XXX	0.2	0.2	XXX	1/month	Grab
Zinc, Total (3)	159	159 Daily Max	XXX	1.0	1.0	XXX	1/month	Grab-Composite
Total Toxic Organics	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 004

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. D. For Outfall 005 , **Latitude** 40° 9' 6.00" , **Longitude** 76° 43' 18.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: IW Process Effluent with ELG

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	100	XXX	2/month	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	2/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 005

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. E. For Outfall 008 , **Latitude** 40° 8' 58.00" , **Longitude** 76° 43' 19.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: Stormwater

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Semi-Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	Report Daily Min	XXX	Report Daily Max	XXX	1/6 months	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 008

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. F. For Outfall 009 , **Latitude** 40° 8' 53.00" , **Longitude** 76° 43' 19.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: IW Process Effluent without ELG

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Semi-Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	Report Daily Min	XXX	Report Daily Max	XXX	1/6 months	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 009

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. G. For Outfall 010 , **Latitude** 40° 8' 45.00" , **Longitude** 76° 43' 21.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: Stormwater

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Average Weekly	Minimum	Semi-Annual Average	Maximum	Instant. Maximum	Measurement Frequency	Sample Type
pH (S.U.)	XXX	XXX	Report Daily Min	XXX	Report Daily Max	XXX	1/6 months	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 010

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. H. For Outfall 101 , **Latitude** 40° 9' 10.00" , **Longitude** 76° 43' 40.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	1/quarter	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	1/quarter	8-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Mar 31	XXX	XXX	XXX	2000 Geo Mean	XXX	XXX	1/quarter	Grab
Fecal Coliform (CFU/100 ml) Apr 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/quarter	Grab
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	1/quarter	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 101

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. I. For Outfall 501 , **Latitude** 40° 9' 5.00" , **Longitude** 76° 43' 40.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: Secondary Neutralizer Tank

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Calculation
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	100	XXX	2/month	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	1/quarter	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 501

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. J. For Outfall 701 , **Latitude** 40° 9' 5.00" , **Longitude** 76° 43' 40.00" , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: Industrial Waste Treatment System

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	100	XXX	2/month	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	1/quarter	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 701

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. K. For Outfall 901 , **Latitude** _____ , **Longitude** _____ , **River Mile Index** _____ , **Stream Code** _____

Receiving Waters: Unnamed Tributary of Susquehanna River (WWF)

Type of Effluent: Treated Rad Waste

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/month	Grab
Boron, Total	1699	2651	XXX	10.6	16.5	26.5	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 901

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☒	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP:
☐	Other:

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems
- For toxics modeling, the permit has utilized data from 2012. The facility had been in decommission since 2019. More recent data was not available for toxics modeling. The NPDES permit will be reopened 15 months after startup. Data shall be required to be collected for Pollutant Groups 1 to 5. DEP recommends collection of four (4) different samples over different weeks. DEP has elected to collect the additional samples to make a suitable determination if monitoring or effluent limits are necessary. Upon NPDES re-opening, the toxics modeling shall be re-evaluated.
- Applicable sections in CFR Part 423

  § 423.19 Reporting and recordkeeping requirements.

  (a) *In general.* Discharges subject to this part must comply with the reporting requirements in this section.

  (b) *Signature and certification.* Unless otherwise provided in this section, all certifications and recertifications required in this part must be signed and certified pursuant to 40 CFR 122.22 for direct dischargers or 40 CFR 403.12(l) for indirect dischargers.

  (c) *Publicly accessible internet site requirements.*

  (1) Except as provided in paragraph (c)(2) of this section, each facility subject to one or more of the reporting requirements in paragraphs (d) through (o) of this section must maintain a publicly accessible internet site (ELG website) containing the information specified in paragraphs (d) through (o), if applicable. This website shall be titled "ELG Rule Compliance Data and Information." The facility must ensure that all information required to be posted is immediately available to anyone visiting the site, without requiring any prerequisite, such as registration or a requirement to submit a document request. All required information must be clearly identifiable and must be able to be immediately downloaded by anyone accessing the site in a format that enables additional analysis (*e.g.,* comma-separated values text file format). When the facility initially creates, or later changes, the web address (*i.e.,* Uniform Resource Locator (URL)) at any point, they must notify EPA via the "contact us" form on EPA's Effluent Guidelines website and the permitting authority or control

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authority within 14 days of creating the website or making the change. The facility's ELG website must also have a "contact us" form or a specific email address posted on the website for the public to use to submit questions and issues relating to the availability of information on the website.

(2)

(i) When an owner or operator subject to this section already maintains a "CCR Rule Compliance Data and Information" website pursuant to 40 CFR 257.107, the postings required under this section may be made to the existing "CCR Rule Compliance Data and Information" website and shall be delineated under a separate heading that shall state "ELG Rule Compliance Data and Information." When electing to use an existing website pursuant to this paragraph (c)(2), the facility shall notify EPA via the "contact us" form on EPA's Effluent Guidelines website and the permitting authority or control authority no later than July 8, 2024, or upon first becoming subject to paragraphs (d) through (o) of this section, whichever is later.

(ii) When the same owner or operator is subject to the provisions of this part for multiple facilities, the owner or operator may comply with the requirements of this section by using the same internet site for multiple facilities provided the ELG website clearly delineates information by the name of each facility.

(3) Unless otherwise required in this section, the information required to be posted to the ELG website must be made available to the public for at least 10 years following the date on which the information was first posted to the ELG website, or the length of the permit plus five years, whichever is longer. All required information must be clearly identifiable and must be able to be immediately downloaded by anyone accessing the site in a format that enables additional analysis (*e.g.*, comma-separated values text file format).

(4) Unless otherwise required in this section, the information must be posted to the ELG website:

(i) Within 30 days of submitting the information to the permitting authority or control authority; or

(ii) Where information was submitted to the permitting authority or control authority prior to July 8, 2024, by July 8, 2024.

(i) ***Requirements for facilities seeking protections under this part*** —

(1) ***Certification statement.*** For sources seeking to apply the protections of the permit conditions in § 423.18(a), and for each instance that § 423.18(a) is applied, a one-time certification shall be submitted to the permitting authority, or control authority in the case of an indirect discharger, no later than:

(i) In the case of an order or agreement under § 423.18(a)(1), 30 days from receipt of the order or agreement attached pursuant to paragraph (i)(2)(ii) of this section; or

(ii) In the case of an "Emergency" or "Major Disaster" under § 423.18(a)(2), 30 days from the date that a load balancing need arose.

(2) ***Contents.*** A certification statement must include the following:

(i) The qualifying event from the list in § 423.18(a), the individual or entity that issued or triggered the event, and the date that such an event was issued or triggered.

(ii) A copy of any documentation of the qualifying event from the individual or entity listed under paragraph (i)(2)(i) of this section, or, where such documentation does not exist, other documentation with indicia of reliability for the permitting authority to confirm the qualifying event.

(iii) An analysis and accompanying narrative discussion which demonstrates that an electric generating unit would have qualified for the subcategory at issue absent the event detailed in paragraph (i)(2)(i) of this section, including the material data, assumptions, and methods used.

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(3) ***Termination of need statement.*** For sources filing a certification statement under paragraph (i)(1) of this section, and for each such certification statement, a one-time termination of need statement shall be submitted to the permitting authority, or control authority in the case of an indirect discharger, no later than 30 days from when the source is no longer subject to increased production from the qualifying event.

(4) ***Contents.*** A termination of need statement must include a narrative discussion including the date the qualifying event terminated, or if it has not terminated, why the source believes the capacity utilization will no longer be elevated to a level requiring the protection of § 423.18.

(j) ***Requirements for facilities voluntarily meeting limits in this part*** —

(1) ***Notice of Planned Participation.*** For sources opting to comply with the Voluntary Incentives Program requirements of § 423.13(g)(3)(i) by December 31, 2028, a Notice of Planned Participation shall be made to the permitting authority no later than October 13, 2021.

(2) ***Contents.*** A Notice of Planned Participation shall identify the facility opting to comply with the Voluntary Incentives Program requirements of § 423.13(g)(3)(i), specify what technology or technologies are projected to be used to comply with those requirements, and provide a detailed engineering dependency chart and accompanying narrative demonstrating when and how the system(s) and any accompanying disposal requirements will be achieved by December 31, 2028.

(3) ***Annual progress report.*** After submission of the Notice of Planned Participation in paragraph (j)(1) of this section, a progress report shall be filed with the permitting authority, or control authority in the case of an indirect discharger.

(4) ***Contents.*** An annual progress report shall detail the completion of interim milestones presented in the engineering dependency chart from the Notice of Planned Participation since the previous progress report, provide a narrative discussion of completed, missed, or delayed milestones, and provide updated milestones.

(5) ***Rollover certification.*** Where, prior to October 13, 2020, a discharger has already provided a notice to the permitting authority of opting to comply with the Voluntary Incentives Program requirements of § 423.13(g)(3)(i), such notice will satisfy paragraph (j)(1) of this section. However, where details required by paragraph (j)(2) of this section were missing from the previously provided notice, those details must be provided in the first annual progress report, no later than October 13, 2021.

(l) ***Requirements for facilities seeking to transfer between applicable limitations in a permit under this part*** —

(1) ***Notice of Planned Participation.*** For sources which have filed a Notice of Planned Participation under paragraph (f)(1), (g)(1), or (j)(1) of this section and intend to make changes that would qualify them for a different set of requirements under § 423.13(o), a Notice of Planned Participation shall be made to the permitting authority, or to the control authority in the case of an indirect discharger, no later than the dates stated in § 423.13(o)(1).

(2) ***Contents.*** A Notice of Planned Participation shall include a list of the electric generating units for which the source intends to change compliance alternatives. For each such electric generating unit, the notice shall list the specific provision under which this transfer will occur, the reason such a transfer is warranted, and a narrative discussion demonstrating that each electric generating unit will be able to maintain compliance with the relevant provisions.

(m) ***Notice of material delay*** —

(1) ***Notice.*** Within 30 days of experiencing a material delay in the milestones set forth in paragraph (g)(2), (h)(2), or (j)(2) of this section and where such a delay may preclude permanent cessation of coal combustion or compliance with the voluntary incentives program limitations by December 31, 2028, a facility shall file a notice of material delay with the permitting authority, or control authority in the case of an indirect discharger.

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40 CFR Part 423 (up to date as of 12/22/2025)
Steam Electric Power Generating Point Source Category **40 CFR 423.19(m)(2)**

(2) ***Contents.*** The contents of such a notice shall include the reason for the delay, the projected length of the delay, and a proposed resolution to maintain compliance.

Appendix A to Part 423—126 Priority Pollutants

001 Acenaphthene

002 Acrolein

003 Acrylonitrile

004 Benzene

005 Benzidine

006 Carbon tetrachloride (tetrachloromethane)

007 Chlorobenzene

008 1,2,4-trichlorobenzene

009 Hexachlorobenzene

010 1,2-dichloroethane

011 1,1,1-trichloreothane

012 Hexachloroethane

013 1,1-dichloroethane

014 1,1,2-trichloroethane

015 1,1,2,2-tetrachloroethane

016 Chloroethane

018 Bis(2-chloroethyl) ether

019 2-chloroethyl vinyl ether (mixed)

020 2-chloronaphthalene

021 2,4, 6-trichlorophenol

022 Parachlorometa cresol

023 Chloroform (trichloromethane)

024 2-chlorophenol

40 CFR Part 423 (up to date as of 12/22/2025)
Steam Electric Power Generating Point Source Category

40 CFR 423.19(o)(3)(vii)

025 1,2-dichlorobenzene

026 1,3-dichlorobenzene

027 1,4-dichlorobenzene

028 3,3-dichlorobenzidine

029 1,1-dichloroethylene

030 1,2-trans-dichloroethylene

031 2,4-dichlorophenol

032 1,2-dichloropropane

033 1,2-dichloropropylene (1,3-dichloropropene)

034 2,4-dimethylphenol

035 2,4-dinitrotoluene

036 2,6-dinitrotoluene

037 1,2-diphenylhydrazine

038 Ethylbenzene

039 Fluoranthene

040 4-chlorophenyl phenyl ether

041 4-bromophenyl phenyl ether

042 Bis(2-chloroisopropyl) ether

043 Bis(2-chloroethoxy) methane

044 Methylene chloride (dichloromethane)

045 Methyl chloride (dichloromethane)

046 Methyl bromide (bromomethane)

047 Bromoform (tribromomethane)

048 Dichlorobromomethane

051 Chlorodibromomethane

052 Hexachlorobutadiene

053 Hexachloromyclopentadiene

054 Isophorone

055 Naphthalene

056 Nitrobenzene

057 2-nitrophenol

058 4-nitrophenol

059 2,4-dinitrophenol

060 4,6-dinitro-o-cresol

061 N-nitrosodimethylamine

062 N-nitrosodiphenylamine

063 N-nitrosodi-n-propylamin

064 Pentachlorophenol

065 Phenol

066 Bis(2-ethylhexyl) phthalate

067 Butyl benzyl phthalate

068 Di-N-Butyl Phthalate

069 Di-n-octyl phthalate

070 Diethyl Phthalate

071 Dimethyl phthalate

072 1,2-benzanthracene (benzo(a) anthracene

073 Benzo(a)pyrene (3,4-benzo-pyrene)

074 3,4-Benzofluoranthene (benzo(b) fluoranthene)

075 11,12-benzofluoranthene (benzo(b) fluoranthene)

076 Chrysene

077 Acenaphthylene

078 Anthracene

079 1,12-benzoperylene (benzo(ghi) perylene)

080 Fluorene

081 Phenanthrene

082 1,2,5,6-dibenzanthracene (dibenzo(,h) anthracene)

083 Indeno (,1,2,3-cd) pyrene (2,3-o-pheynylene pyrene)

084 Pyrene

085 Tetrachloroethylene

086 Toluene

087 Trichloroethylene

088 Vinyl chloride (chloroethylene)

089 Aldrin

090 Dieldrin

091 Chlordane (technical mixture and metabolites)

092 4,4-DDT

093 4,4-DDE (p,p-DDX)

094 4,4-DDD (p,p-TDE)

095 Alpha-endosulfan

096 Beta-endosulfan

097 Endosulfan sulfate

098 Endrin

099 Endrin aldehyde

100 Heptachlor

101 Heptachlor epoxide (BHC-hexachlorocyclohexane)

102 Alpha-BHC

103 Beta-BHC

104 Gamma-BHC (lindane)

105 Delta-BHC (PCB-polychlorinated biphenyls)

106 PCB-1242 (Arochlor 1242)

107 PCB-1254 (Arochlor 1254)

108 PCB-1221 (Arochlor 1221)

109 PCB-1232 (Arochlor 1232)

110 PCB-1248 (Arochlor 1248)

111 PCB-1260 (Arochlor 1260)

112 PCB-1016 (Arochlor 1016)

113 Toxaphene

114 Antimony

115 Arsenic

116 Asbestos

117 Beryllium

118 Cadmium

119 Chromium

120 Copper

121 Cyanide, Total

122 Lead

123 Mercury

124 Nickel

125 Selenium

126 Silver

127 Thallium

126 Silver

128 Zinc

129 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD)

APPENDIX H

STEAM ELECTRIC GENERATING FACILITIES

I. APPLICABILITY

The requirements in Appendix H apply to stormwater discharges associated with industrial activity from Steam Electric Generating facilities as identified by the following SIC Code: 4911. Specifically, this appendix applies to steam electric power generation using coal, natural gas, oil, or nuclear energy to produce a steam source, including dual fuel facilities that could employ a steam boiler. Stormwater discharges from gas turbine facilities (provided the facility is not a dual-fuel facility that includes a steam boiler), combined-cycle facilities where no supplemental fuel oil is burned (and the facility is not a duel-fuel facility that includes a steam boiler), Cogeneration facilities (combined heat and power) utilizing a gas turbine, and ancillary facilities (e.g., fleet centers and substations) that are not contiguous to a steam electric generating facility do not require permit coverage. Other facilities may be required to comply with this appendix if notified by DEP in writing.

II. SECTOR-SPECIFIC DISCHARGE PROHIBITIONS

This General Permit does not cover the following discharges in this sector and an individual permit is required for such discharges: runoff from coal storage piles at steam electric generating facilities and other non-stormwater discharges, subject to effluent limitation guidelines at 40 CFR Part 423.

III. MONITORING REQUIREMENTS

The permittee must monitor and report analytical results for the pollutants listed below on Discharge Monitoring Reports (DMRs) for representative outfalls, subject to footnotes provided. The benchmark values listed below are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two or more consecutive monitoring periods, the permittee shall take action in accordance with Part C V.I of this General Permit.

Pollutant	Monitoring Requirements [1],[2]		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Total Nitrogen (mg/L) [3]	1 / 6 months	Calculation	XXX
Total Phosphorus (mg/L)	1 / 6 months	Grab	XXX
pH (S.U.)	1 / 6 months	Grab	9.0
Total Suspended Solids (TSS) (mg/L)	1 / 6 months	Grab	100
Oil and Grease (mg/L)	1 / 6 months	Grab	30
Total Iron (mg/L)	1 / 6 months	Grab	XXX

Footnotes

(1) In accordance with Part C V.C, the permittee shall conduct additional monitoring if specified by DEP in the letter authorizing permit coverage or other correspondence.

(2) This is the minimum number of sampling events required. Permittees may optionally perform additional sampling.

(3) Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

IV. SECTOR-SPECIFIC BMPs

In addition to the BMPs contained in Part C II of the General Permit, the permittee shall implement, at a minimum, all of the following BMPs that are applicable to the processes in place at the facility for which coverage under this General Permit is approved.

A. Fugitive Dust Emissions.

Minimize fugitive dust emissions from coal handling areas to minimize the tracking of coal dust off-site that could be discharged in stormwater through implementation of control measures including but not limited to the following: install specially designed tires; and wash vehicles in a designated area before they leave the site and control the wash water.

B. Delivery Vehicles.

Minimize contamination of stormwater runoff from delivery vehicles arriving at the plant site. Implement procedures to inspect delivery vehicles arriving at the plant site as necessary to minimize discharges of pollutants in stormwater. Ensure the overall integrity of the body or container of the delivery vehicle and implement procedures to deal with leakage or spillage from delivery vehicles.

C. Fuel Oil Unloading Areas.

Minimize contamination of precipitation or surface runoff from fuel oil unloading areas. Use containment curbs in unloading areas unless determined by the permittee to be infeasible and authorized by DEP in writing. In addition, ensure personnel familiar with spill prevention and response procedures are available to respond expeditiously in the event of a leak or spill during deliveries. Ensure that any leaks or spills are immediately contained and cleaned up, and use spill and overflow protection devices (e.g., drip pans, drip diapers, or other containment devices placed beneath fuel oil connectors to contain potential spillage during deliveries or from leaks at the connectors).

D. Chemical Loading and Unloading.

Minimize contamination of precipitation or surface runoff from chemical loading and unloading areas. Use containment curbs at chemical loading and unloading areas to contain spills, where practicable. In addition, ensure personnel familiar with spill prevention and response procedures are available to respond expeditiously in the event of a leak or spill during deliveries. Ensure leaks and spills are immediately contained and cleaned up and, where practicable, load and unload in covered areas and store chemicals indoors.

E. Miscellaneous Loading and Unloading Areas.

Minimize contamination of precipitation or surface runoff from loading and unloading areas through implementation of control measures including but not limited to the following: cover the loading area; install grading, curbing, or berming around the loading area to divert run-on; locate the loading and unloading equipment and vehicles so that leaks are contained in existing containment and flow diversion systems; or equivalent procedures.

F. Liquid Storage Tanks.

Minimize contamination of surface runoff from above-ground liquid storage tanks through implementation of control measures including but not limited to the following: use protective guards around tanks; use containment curbs; install spill and overflow protection; use dry cleanup methods; or equivalent measures.

G. Large Bulk Fuel Storage Tanks.

Minimize contamination of surface runoff from large bulk fuel storage tanks. Use containment berms (or their equivalent).

H. Spill Reduction Measures

Minimize the potential for an oil or chemical spill. Visually inspect as part of your routine facility inspection the structural integrity of all above-ground tanks, pipelines, pumps, and related equipment that may be exposed to stormwater, and make any necessary repairs immediately.

I. Oil-Bearing Equipment in Switchyards.

Minimize contamination of surface runoff from oil-bearing equipment in switchyard areas. Use level grades and gravel surfaces to retard flows and limit the spread of spills or collect runoff in perimeter ditches.

J. Residue-Hauling Vehicles.

Inspect all residue-hauling vehicles for proper covering over the load, adequate gate sealing, and overall integrity of the container body. Repair vehicles without load covering or adequate gate sealing, or with leaking containers or beds.

K. Ash Loading Areas.

Reduce or control the tracking of ash and residue from ash loading areas. Clear the ash building floor and immediately adjacent roadways of spillage, debris, and excess water as necessary to minimize discharges of pollutants in stormwater.

L. Areas Adjacent to Disposal Ponds or Landfills.

Minimize contamination of surface runoff from areas adjacent to disposal ponds or landfills. Reduce ash residue that may be tracked on to access roads traveled by residue handling vehicles and reduce ash residue on exit roads leading into and out of residue handling areas.

Attachment A

Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01561000	Brush Creek at Gapsville, Pa.	39.956	-78.254	36.8	N
01562000	Raystown Branch Juniata River at Saxton, Pa.	40.216	-78.265	756	N
01562500	Great Trough Creek near Marklesburg, Pa.	40.350	-78.130	84.6	N
01563200	Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa.	40.429	-77.991	960	Y
01563500	Juniata River at Mapleton Depot, Pa.	40.392	-77.935	2,030	Y
01564500	Aughwick Creek near Three Springs, Pa.	40.213	-77.925	205	N
01565000	Kishacoquillas Creek at Reedsville, Pa.	40.655	-77.583	164	N
01565700	Little Lost Creek at Oakland Mills, Pa.	40.605	-77.311	6.52	N
01566000	Tuscarora Creek near Port Royal, Pa.	40.515	-77.419	214	N
01566500	Cocolamus Creek near Millerstown, Pa.	40.566	-77.118	57.2	N
01567000	Juniata River at Newport, Pa.	40.478	-77.129	3,354	Y
01567500	Bixler Run near Loysville, Pa.	40.371	-77.402	15.0	N
01568000	Sherman Creek at Shermans Dale, Pa.	40.323	-77.169	207	N
01568500	Clark Creek near Carsonville, Pa.	40.460	-76.751	22.5	LF
01569000	Stony Creek nr Dauphin, Pa.	40.380	-76.907	33.2	N
01569800	Letort Spring Run near Carlisle, Pa.	40.235	-77.139	21.6	N
01570000	Conodoguinet Creek near Hogestown, Pa.	40.252	-77.021	470	LF
01570500	Susquehanna River at Harrisburg, Pa.	40.255	-76.886	24,100	Y
01571000	Paxton Creek near Penbrook, Pa.	40.308	-76.850	11.2	N
01571500	Yellow Breeches Creek near Camp Hill, Pa.	40.225	-76.898	213	N
01572000	Lower Little Swatara Creek at Pine Grove, Pa.	40.538	-76.377	34.3	N
01572025	Swatara Creek near Pine Grove, Pa.	40.533	-76.402	116	N
01572190	Swatara Creek near Inwood, Pa.	40.479	-76.531	167	N
01573000	Swatara Creek at Harper Tavern, Pa.	40.403	-76.577	337	N
01573086	Beck Creek near Cleona, Pa.	40.323	-76.483	7.87	N
01573160	Quittapahilla Creek near Bellegrove, Pa.	40.343	-76.562	74.2	N
01573500	Manada Creek at Manada Gap, Pa.	40.397	-76.709	13.5	N
01573560	Swatara Creek near Hershey, Pa.	40.298	-76.668	483	N
01574000	West Conewago Creek near Manchester, Pa.	40.082	-76.720	510	N
01574500	Codorus Creek at Spring Grove, Pa.	39.879	-76.853	75.5	Y
01575000	South Branch Codorus Creek near York, Pa.	39.921	-76.749	117	Y
01575500	Codorus Creek near York, Pa.	39.946	-76.755	222	Y
01576000	Susquehanna River at Marietta, Pa.	40.055	-76.531	25,990	Y
01576085	Little Conestoga Creek near Churchtown, Pa.	40.145	-75.989	5.82	N
01576500	Conestoga River at Lancaster, Pa.	40.050	-76.277	324	N
01576754	Conestoga River at Conestoga, Pa.	39.946	-76.368	470	N
01578310	Susquehanna River at Conowingo, Md.	39.658	-76.174	27,100	Y
01578400	Bowery Run near Quarryville, Pa.	39.895	-76.114	5.98	N
01580000	Deer Creek at Rocks, Md.	39.630	-76.403	94.4	N
01581500	Bynum Run at Bel Air, Md.	39.541	-76.330	8.52	N
01581700	Winters Run near Benson, Md.	39.520	-76.373	34.8	N
01582000	Little Falls at Blue Mount, Md.	39.604	-76.620	52.9	N
01582500	Gunpowder Falls at Glencoe, Md.	39.550	-76.636	160	Y
01583000	Slade Run near Glyndon, Md.	39.495	-76.795	2.09	N
01583100	Piney Run at Dover, Md.	39.521	-76.767	12.3	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01565000	1941–2008	37	17.6	18.6	28.6	20.3	32.4	24.4
01565700	1965–1981	17	.4	.4	.9	.5	1.1	.8
01566000	1913–2008	52	4.3	7.9	18.8	12.4	25.6	19.2
01566500	1932–1958	27	1.7	2.4	4.0	3.2	5.7	4.9
01567000	[2]1974–2008	35	504	534	725	589	857	727
01567000	[3]1901–1972	72	311	367	571	439	704	547
01567500	1955–2008	54	2.0	2.2	3.3	2.6	3.8	3.1
01568000	1931–2008	78	12.7	15.5	25.5	19.2	32.0	26.0
01568500	[2]1943–1997	55	1.8	2.3	4.3	2.7	5.0	3.1
01569000	1939–1974	14	2.6	4.0	7.4	5.1	9.4	7.8
01569800	1978–2008	31	15.9	17.0	24.4	18.4	26.1	20.3
01570000	[3]1913–1969	35	—	63.1	110	76.1	124	95.3
01570000	[2]1971–2008	38	63.1	69.3	109	78.3	125	97.8
01570500	[3]1901–1972	72	2,310	2,440	4,000	2,830	4,950	3,850
01570500	[2]1974–2008	35	3,020	3,200	5,180	3,690	6,490	4,960
01571000	1941–1995	16	.1	.2	.6	.3	1.2	.8
01571500	1911–2008	62	81.6	86.8	115	94.0	124	105
01572000	1921–1984	14	2.1	2.3	4.8	3.0	6.5	4.5
01572025	1990–2008	17	15.2	16.4	26.7	18.5	34.6	27.7
01572190	1990–2008	17	19.1	20.5	36.2	23.9	45.8	35.3
01573000	1920–2008	89	18.0	22.0	52.0	30.8	69.2	50.9
01573086	1965–1981	17	.5	.6	2.6	.8	3.3	1.1
01573160	1977–1994	18	26.9	29.6	46.4	33.6	51.9	39.5
01573500	1939–1958	20	1.3	1.4	2.5	1.8	3.2	2.6
01573560	1977–2008	30	50.3	62.0	104	76.9	131	108
01574000	1930–2008	79	8.0	11.1	32.0	17.7	47.0	33.9
01574500	[2]1968–2008	41	14.2	24.0	35.9	29.4	42.0	33.3
01574500	[3]1930–1966	34	2.3	7.1	11.5	9.3	14.8	12.7
01575000	[2]1973–1995	23	.7	1.4	6.7	3.2	12.0	9.3
01575000	[3]1929–1971	43	.1	.6	10.3	2.3	15.0	6.1
01575500	[2]1948–1996	49	12.1	18.7	41.3	23.9	50.0	33.8
01576000	[3]1933–1972	40	2,100	2,420	4,160	2,960	5,130	4,100
01576000	[2]1974–2008	35	2,990	3,270	5,680	3,980	7,180	5,540
01576085	1984–1995	12	.4	.5	.8	.7	1.2	1.2
01576500	1931–2008	78	27.2	38.6	79.4	49.1	97.3	66.1
01576754	1986–2008	23	74.2	84.9	151	106	189	147
[4]01578310	1969–2008	40	549	2,820	5,650	4,190	7,380	6,140
01578400	1964–1981	18	1.4	1.5	2.7	1.9	3.2	2.5
[4]01580000	1928–2008	81	19.7	22.8	48.1	28.1	51.8	35.4
[4]01581500	1946–2008	28	.2	.3	1.2	.8	1.7	1.5
[4]01581700	1969–2008	40	4.7	5.5	17.5	8.1	18.3	12.0
[4]01582000	1946–2008	63	11.3	12.5	25.0	15.5	28.0	20.3
[4]01582500	1979–2008	27	41.2	43.9	78.8	53.8	90.6	74.1
[4]01583000	1949–1981	33	.3	.3	.7	.3	1.0	.6
[4]01583100	1984–2008	15	2.1	2.4	5.5	3.2	6.0	4.2

Attachment B

WQM 7.0 Modeling Output Values
Toxics Management Spreadsheet Output Values
Thermal Modeling

Run #1 -Flow Rate 0.0144 MGD

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
58.500	Crane Clean	PA0009920	0.014	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
58.500	Crane Clean	1.77	50	1.77	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
58.500	Crane Clean	.41	25	.41	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
58.50	Crane Clean	25	25	25	25	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	**58.500**	278.61	10845.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.097	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.75	8.25	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Crane Clean	PA0009920	0.0144	0.0144	0.0144	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	**44.300**	200.56	25990.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.097	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.75	8.25	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
58.500	0.014	23.750	8.250
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
695.317	1.123	619.236	1.342
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.000	0.00	0.934
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	7.122	Tsivoglou	5
Reach Travel Time (days)			
0.647			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.065	2.00	0.00	7.70
0.129	2.00	0.00	7.70
0.194	2.00	0.00	7.70
0.259	2.00	0.00	7.70
0.323	2.00	0.00	7.70
0.388	2.00	0.00	7.70
0.453	2.00	0.00	7.70
0.517	2.00	0.00	7.70
0.582	2.00	0.00	7.70
0.647	2.00	0.00	7.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
58.500	1047.63	0.00	1047.63	.0223	0.00104	1.123	695.32	619.24	1.34	0.647	23.75	8.25
Q1-10 Flow												
58.500	984.77	0.00	984.77	.0223	0.00104	NA	NA	NA	1.30	0.669	23.75	8.25
Q30-10 Flow												
58.500	1204.77	0.00	1204.77	.0223	0.00104	NA	NA	NA	1.45	0.598	23.75	8.25

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☐
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.94	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.15	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Run #2- Flow Rate 0.0576 MGD

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
58.500	Crane Clean	PA0009920	0.058	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
58.500	Crane Clean	1.77	50	1.77	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
58.500	Crane Clean	.42	25	.42	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
58.50	Crane Clean	25	25	25	25	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	**58.500**	278.61	10845.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.097	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.75	8.25	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Crane Clean	PA0009920	0.0576	0.0576	0.0576	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	**44.300**	200.56	25990.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.097	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.75	8.25	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
58.500	0.058	23.750	8.249
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
695.345	1.123	619.269	1.342
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.001	0.00	0.934
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	7.122	Tsivoglou	5
Reach Travel Time (days)			
0.647			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.065	2.00	0.00	7.70
0.129	2.00	0.00	7.70
0.194	2.00	0.00	7.70
0.259	2.00	0.00	7.70
0.323	2.00	0.00	7.70
0.388	2.00	0.00	7.70
0.453	2.00	0.00	7.70
0.517	2.00	0.00	7.70
0.582	2.00	0.00	7.70
0.647	2.00	0.00	7.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
58.500	1047.63	0.00	1047.63	.0891	0.00104	1.123	695.35	619.27	1.34	0.647	23.75	8.25
Q1-10 Flow												
58.500	984.77	0.00	984.77	.0891	0.00104	NA	NA	NA	1.30	0.669	23.75	8.25
Q30-10 Flow												
58.500	1204.77	0.00	1204.77	.0891	0.00104	NA	NA	NA	1.45	0.598	23.75	8.25

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☐
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.94	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.15	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Run #1

Discharge Information

Instructions | Discharge | Stream

Facility: Crane Clean Energy NPDES Permit No.: PA0009920 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Industrial wastewater effluent

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
19.152	135	7.7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		214									
	Chloride (PWS)	mg/L											
	Bromide	mg/L	<	0.6									
	Sulfate (PWS)	mg/L		55.5									
	Fluoride (PWS)	mg/L	<	0.2									
Group 2	Total Aluminum	µg/L		200									
	Total Antimony	µg/L	<	10									
	Total Arsenic	µg/L	<	5									
	Total Barium	µg/L		43									
	Total Beryllium	µg/L	<	2									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L	<	2.5									
	Hexavalent Chromium	µg/L	<	10									
	Total Cobalt	µg/L	<	2.5									
	Total Copper	µg/L		14									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	µg/L		140									
	Total Iron	µg/L		580									
	Total Lead	µg/L	<	3									
	Total Manganese	µg/L		140									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	10									
	Total Phenols (Phenolics) (PWS)	µg/L		6									
	Total Selenium	µg/L	<	10									
	Total Silver	µg/L	<	2									
	Total Thallium	µg/L	<	10									
	Total Zinc	µg/L		70									
	Total Molybdenum	µg/L	<	10									
	Acrolein	µg/L	<	30									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	5									
	Benzene	µg/L	<	1									
	Bromoform	µg/L	<	2									

Group 3	Carbon Tetrachloride	µg/L	<	1									
	Chlorobenzene	µg/L	<	1									
	Chlorodibromomethane	µg/L	<	1									
	Chloroethane	µg/L	<	1									
	2-Chloroethyl Vinyl Ether	µg/L	<	2									
	Chloroform	µg/L		1.3									
	Dichlorobromomethane	µg/L	<	1									
	1,1-Dichloroethane	µg/L	<	1									
	1,2-Dichloroethane	µg/L	<	1									
	1,1-Dichloroethylene	µg/L	<	1									
	1,2-Dichloropropane	µg/L	<	1									
	1,3-Dichloropropylene	µg/L	<	1									
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<	1									
	Methyl Bromide	µg/L	<	2									
	Methyl Chloride	µg/L	<	1									
	Methylene Chloride	µg/L		1.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	1									
	Tetrachloroethylene	µg/L	<	1									
	Toluene	µg/L	<	1									
	1,2-trans-Dichloroethylene	µg/L	<	1									
	1,1,1-Trichloroethane	µg/L	<	1									
	1,1,2-Trichloroethane	µg/L	<	1									
	Trichloroethylene	µg/L	<	1									
	Vinyl Chloride	µg/L	<	2									
Group 4	2-Chlorophenol	µg/L	<	7.5									
	2,4-Dichlorophenol	µg/L	<	7.5									
	2,4-Dimethylphenol	µg/L	<	7.5									
	4,6-Dinitro-o-Cresol	µg/L	<	7.5									
	2,4-Dinitrophenol	µg/L	<	15.1									
	2-Nitrophenol	µg/L	<	7.5									
	4-Nitrophenol	µg/L	<	7.5									
	p-Chloro-m-Cresol	µg/L	<	7.5									
	Pentachlorophenol	µg/L	<	15.1									
	Phenol	µg/L	<	7.5									
	2,4,6-Trichlorophenol	µg/L	<	7.5									
Group 5	Acenaphthene	µg/L	<	1.4									
	Acenaphthylene	µg/L	<	1.4									
	Anthracene	µg/L	<	1.4									
	Benzidine	µg/L	<	47.2									
	Benzo(a)Anthracene	µg/L	<	1.4									
	Benzo(a)Pyrene	µg/L	<	1.4									
	3,4-Benzofluoranthene	µg/L	<	1.4									
	Benzo(ghi)Perylene	µg/L	<	1.4									
	Benzo(k)Fluoranthene	µg/L	<	1.4									
	Bis(2-Chloroethoxy)Methane	µg/L	<	2.8									
	Bis(2-Chloroethyl)Ether	µg/L	<	2.8									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	2.8									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.8									
	4-Bromophenyl Phenyl Ether	µg/L	<	2.8									
	Butyl Benzyl Phthalate	µg/L	<	2.8									
	2-Chloronaphthalene	µg/L	<	2.8									
	4-Chlorophenyl Phenyl Ether	µg/L	<	2.8									
	Chrysene	µg/L	<	1.4									
	Dibenzo(a,h)Anthrancene	µg/L	<	1.4									
	1,2-Dichlorobenzene	µg/L	<	1									
	1,3-Dichlorobenzene	µg/L	<	1									
	1,4-Dichlorobenzene	µg/L	<	1									
	3,3-Dichlorobenzidine	µg/L	<	15.1									
	Diethyl Phthalate	µg/L	<	7.5									
	Dimethyl Phthalate	µg/L	<	7.5									
	Di-n-Butyl Phthalate	µg/L	<	2.8									
	2,4-Dinitrotoluene	µg/L	<	2.8									

	2,6-Dinitrotoluene	µg/L	<	2.8										
	Di-n-Octyl Phthalate	µg/L	<	7.5										
	1,2-Diphenylhydrazine	µg/L	<	2.8										
	Fluoranthene	µg/L	<	1.4										
	Fluorene	µg/L	<	1.4										
	Hexachlorobenzene	µg/L	<	2.8										
	Hexachlorobutadiene	µg/L	<	2.8										
	Hexachlorocyclopentadiene	µg/L	<	7.5										
	Hexachloroethane	µg/L	<	2.8										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.4										
	Isophorone	µg/L	<	2.8										
	Naphthalene	µg/L	<	1.4										
	Nitrobenzene	µg/L	<	2.8										
	n-Nitrosodimethylamine	µg/L	<	2.8										
	n-Nitrosodi-n-Propylamine	µg/L	<	2.8										
	n-Nitrosodiphenylamine	µg/L	<	2.8										
	Phenanthrene	µg/L	<	1.4										
	Pyrene	µg/L	<	1.4										
	1,2,4-Trichlorobenzene	µg/L	<	2.8										
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Crane Clean Energy, NPDES Permit No. PA0009920, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Susquehanna River** No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	58.5	278	10845			Yes
End of Reach 1	006685	44.3	200	25990			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	58.5	0.0966	1047.9									91	8.25		
End of Reach 1	44.3	0.0966										91	8.25		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	58.5														
End of Reach 1	44.3														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Crane Clean Energy, NPDES Permit No. PA0009920, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All | ○ Inputs | ○ Results | ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.030 Analysis Hardness (mg/l): 112.48 Analysis pH: 7.90

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,537	
Total Antimony	0	0		0	1,100	1,100	2,254	
Total Arsenic	0	0		0	340	340	697	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	43,024	
Total Boron	0	0		0	8,100	8,100	16,595	
Total Cadmium	0	0		0	2.258	2.4	4.93	Chem Translator of 0.939 applied
Total Chromium (III)	0	0		0	627.355	1,985	4,067	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	33.4	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	195	
Total Copper	0	0		0	15.013	15.6	32.0	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	73.384	94.8	194	Chem Translator of 0.774 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.37	Chem Translator of 0.85 applied
Total Nickel	0	0		0	517.204	518	1,062	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.938	4.63	9.49	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	133	
Total Zinc	0	0		0	129.455	132	271	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	6.15	
Acrylonitrile	0	0		0	650	650	1,332	

Benzene	0	0		0	640	640	1,311	
Bromoform	0	0		0	1,800	1,800	3,688	
Carbon Tetrachloride	0	0		0	2,800	2,800	5,737	
Chlorobenzene	0	0		0	1,200	1,200	2,459	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	36,878	
Chloroform	0	0		0	1,900	1,900	3,893	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	30,732	
1,1-Dichloroethylene	0	0		0	7,500	7,500	15,366	
1,2-Dichloropropane	0	0		0	11,000	11,000	22,536	
1,3-Dichloropropylene	0	0		0	310	310	635	
Ethylbenzene	0	0		0	2,900	2,900	5,941	
Methyl Bromide	0	0		0	550	550	1,127	
Methyl Chloride	0	0		0	28,000	28,000	57,366	
Methylene Chloride	0	0		0	12,000	12,000	24,585	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,049	
Tetrachloroethylene	0	0		0	700	700	1,434	
Toluene	0	0		0	1,700	1,700	3,483	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	13,932	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	6,146	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	6,966	
Trichloroethylene	0	0		0	2,300	2,300	4,712	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,147	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,483	
2,4-Dimethylphenol	0	0		0	660	660	1,352	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	164	
2,4-Dinitrophenol	0	0		0	660	660	1,352	
2-Nitrophenol	0	0		0	8,000	8,000	16,390	
4-Nitrophenol	0	0		0	2,300	2,300	4,712	
p-Chloro-m-Cresol	0	0		0	160	160	328	
Pentachlorophenol	0	0		0	21.532	21.5	44.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	942	
Acenaphthene	0	0		0	83	83.0	170	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	615	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.02	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	61,463	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	9,219	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	553	
Butyl Benzyl Phthalate	0	0		0	140	140	287	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	

Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,680	
1,3-Dichlorobenzene	0	0		0	350	350	717	
1,4-Dichlorobenzene	0	0		0	730	730	1,496	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	8,195	
Dimethyl Phthalate	0	0		0	2,500	2,500	5,122	
Di-n-Butyl Phthalate	0	0		0	110	110	225	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,278	
2,6-Dinitrotoluene	0	0		0	990	990	2,028	
1,2-Diphenylhydrazine	0	0		0	15	15.0	30.7	
Fluoranthene	0	0		0	200	200	410	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	20.5	
Hexachlorocyclopentadiene	0	0		0	5	5.0	10.2	
Hexachloroethane	0	0		0	60	60.0	123	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	20,488	
Naphthalene	0	0		0	140	140	287	
Nitrobenzene	0	0		0	4,000	4,000	8,195	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	34,829	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	615	
Phenanthrene	0	0		0	5	5.0	10.2	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	266	

☑ ***CFC*** CCT (min): 720 PMF: 0.205 Analysis Hardness (mg/l): 96.323 Analysis pH: 8.13

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	

Total Antimony	0	0		0	220	220	1,819	
Total Arsenic	0	0		0	150	150	1,240	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	33,891	
Total Boron	0	0		0	1,600	1,600	13,226	
Total Cadmium	0	0		0	0.240	0.26	2.18	Chem Translator of 0.911 applied
Total Chromium (III)	0	0		0	71.875	83.6	691	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	85.9	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	157	
Total Copper	0	0		0	8.674	9.03	74.7	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	54,553	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.416	3.03	25.1	Chem Translator of 0.796 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	7.49	Chem Translator of 0.85 applied
Total Nickel	0	0		0	50.384	50.5	418	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	41.2	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	107	
Total Zinc	0	0		0	114.448	116	959	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	24.8	
Acrylonitrile	0	0		0	130	130	1,075	
Benzene	0	0		0	130	130	1,075	
Bromoform	0	0		0	370	370	3,058	
Carbon Tetrachloride	0	0		0	560	560	4,629	
Chlorobenzene	0	0		0	240	240	1,984	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	28,931	
Chloroform	0	0		0	390	390	3,224	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	25,625	
1,1-Dichloroethylene	0	0		0	1,500	1,500	12,399	
1,2-Dichloropropane	0	0		0	2,200	2,200	18,185	
1,3-Dichloropropylene	0	0		0	61	61.0	504	
Ethylbenzene	0	0		0	580	580	4,794	
Methyl Bromide	0	0		0	110	110	909	
Methyl Chloride	0	0		0	5,500	5,500	45,464	
Methylene Chloride	0	0		0	2,400	2,400	19,839	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	1,736	
Tetrachloroethylene	0	0		0	140	140	1,157	
Toluene	0	0		0	330	330	2,728	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	11,573	
1,1,1-Trichloroethane	0	0		0	610	610	5,042	
1,1,2-Trichloroethane	0	0		0	680	680	5,621	
Trichloroethylene	0	0		0	450	450	3,720	

Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	909	
2,4-Dichlorophenol	0	0		0	340	340	2,810	
2,4-Dimethylphenol	0	0		0	130	130	1,075	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	132	
2,4-Dinitrophenol	0	0		0	130	130	1,075	
2-Nitrophenol	0	0		0	1,600	1,600	13,226	
4-Nitrophenol	0	0		0	470	470	3,885	
p-Chloro-m-Cresol	0	0		0	500	500	4,133	
Pentachlorophenol	0	0		0	16.519	16.5	137	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	752	
Acenaphthene	0	0		0	17	17.0	141	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	488	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.83	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	49,597	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	7,522	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	446	
Butyl Benzyl Phthalate	0	0		0	35	35.0	289	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	1,323	
1,3-Dichlorobenzene	0	0		0	69	69.0	570	
1,4-Dichlorobenzene	0	0		0	150	150	1,240	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	6,613	
Dimethyl Phthalate	0	0		0	500	500	4,133	
Di-n-Butyl Phthalate	0	0		0	21	21.0	174	
2,4-Dinitrotoluene	0	0		0	320	320	2,645	
2,6-Dinitrotoluene	0	0		0	200	200	1,653	
1,2-Diphenylhydrazine	0	0		0	3	3.0	24.8	
Fluoranthene	0	0		0	40	40.0	331	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	16.5	
Hexachlorocyclopentadiene	0	0		0	1	1.0	8.27	
Hexachloroethane	0	0		0	12	12.0	99.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	17,359	

Naphthalene	0	0		0	43	43.0	355	
Nitrobenzene	0	0		0	810	810	6,696	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	28,105	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	488	
Phenanthrene	0	0		0	1	1.0	8.27	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	215	

☑ ***THH*** CCT (min): 720 PMF: 0.205 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	46.3	
Total Arsenic	0	0		0	10	10.0	82.7	
Total Barium	0	0		0	2,400	2,400	19,839	
Total Boron	0	0		0	3,100	3,100	25,625	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	2,480	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	8,266	
Total Mercury	0	0		0	0.050	0.05	0.41	
Total Nickel	0	0		0	610	610	5,042	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	

Total Thallium	0	0		0	0.24	0.24	1.98	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	24.8	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	827	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	47.1	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	273	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	562	
Methyl Bromide	0	0		0	100	100.0	827	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	471	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	827	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	82,661	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	248	
2,4-Dichlorophenol	0	0		0	10	10.0	82.7	
2,4-Dimethylphenol	0	0		0	100	100.0	827	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	16.5	
2,4-Dinitrophenol	0	0		0	10	10.0	82.7	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	33,064	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	579	
Anthracene	0	0		0	300	300	2,480	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	

Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	1,653	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.83	
2-Chloronaphthalene	0	0		0	800	800	6,613	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	8,266	
1,3-Dichlorobenzene	0	0		0	7	7.0	57.9	
1,4-Dichlorobenzene	0	0		0	300	300	2,480	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	4,960	
Dimethyl Phthalate	0	0		0	2,000	2,000	16,532	
Di-n-Butyl Phthalate	0	0		0	20	20.0	165	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	165	
Fluorene	0	0		0	50	50.0	413	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	33.1	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	281	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	82.7	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	165	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.58	

☑ ***CRL*** CCT (min): 720 PMF: 0.291 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	1.97	
Benzene	0	0		0	0.58	0.58	19.0	
Bromoform	0	0		0	7	7.0	230	
Carbon Tetrachloride	0	0		0	0.4	0.4	13.1	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	26.3	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	31.2	
1,2-Dichloroethane	0	0		0	9.9	9.9	325	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	29.5	
1,3-Dichloropropylene	0	0		0	0.27	0.27	8.86	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	

Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	656	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	6.56	
Tetrachloroethylene	0	0		0	10	10.0	328	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	18.1	
Trichloroethylene	0	0		0	0.6	0.6	19.7	
Vinyl Chloride	0	0		0	0.02	0.02	0.66	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.98	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	49.2	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.003	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.033	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.003	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.033	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.33	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.98	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	10.5	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	3.94	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.003	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	1.64	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	1.64	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	1.64	

1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.98	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.003	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.33	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	3.28	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.033	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.023	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.16	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	108	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	985	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Antimony	Report	Report	Report	Report	Report	µg/L	46.3	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	Report	Report	Report	Report	Report	µg/L	2.18	CFC	Discharge Conc > 10% WQBEL (no RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	21.4	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	3.28	5.12	20.5	32.0	51.3	µg/L	20.5	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	25.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	41.2	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	6.08	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	0.32	0.49	1.98	3.1	4.96	µg/L	1.98	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	174	AFC	Discharge Conc > 10% WQBEL (no RP)

Acrolein	0.63	0.98	3.94	6.15	9.85	µg/L	3.94	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Vinyl Chloride	0.1	0.16	0.66	1.02	1.64	µg/L	0.66	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Pentachlorophenol	0.16	0.25	0.98	1.54	2.46	µg/L	0.98	CRL	Discharge Conc ≥ 50% WQBEL (RP)
3,3-Dichlorobenzidine	0.26	0.41	1.64	2.56	4.1	µg/L	1.64	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Hexachlorobutadiene	0.052	0.082	0.33	0.51	0.82	µg/L	0.33	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Hexachlorocyclopentadiene	1.05	1.64	6.57	10.2	16.4	µg/L	6.57	AFC	Discharge Conc ≥ 50% WQBEL (RP)
1,2,4-Trichlorobenzene	0.092	0.14	0.58	0.9	1.45	µg/L	0.58	THH	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Arsenic	82.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	19,839	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Chromium (III)	691	µg/L	Discharge Conc < TQL
Total Cobalt	125	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	2,480	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	54,553	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	8,266	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.41	µg/L	Discharge Conc < TQL
Total Nickel	418	µg/L	Discharge Conc ≤ 10% WQBEL

Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Molybdenum	N/A	N/A	No WQS
Acrylonitrile	1.97	µg/L	Discharge Conc < TQL
Benzene	19.0	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	230	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	13.1	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	827	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	26.3	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	23,637	µg/L	Discharge Conc < TQL
Chloroform	47.1	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	31.2	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	325	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	273	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	29.5	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	8.86	µg/L	Discharge Conc ≤ 25% WQBEL
Ethylbenzene	562	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	722	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	36,769	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	656	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	6.56	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	328	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	471	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	827	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	3,940	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	18.1	µg/L	Discharge Conc ≤ 25% WQBEL
Trichloroethylene	19.7	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chlorophenol	248	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	82.7	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	827	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	16.5	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	82.7	µg/L	Discharge Conc ≤ 25% WQBEL
2-Nitrophenol	10,505	µg/L	Discharge Conc < TQL
4-Nitrophenol	3,020	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	210	µg/L	Discharge Conc < TQL
Phenol	33,064	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	49.2	µg/L	Discharge Conc < TQL
Acenaphthene	109	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	2,480	µg/L	Discharge Conc < TQL
Benzidine	0.003	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.033	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.003	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.033	µg/L	Discharge Conc < TQL

Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.33	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.98	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	1,653	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	10.5	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	355	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.83	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	6,613	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	3.94	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.003	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,077	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	57.9	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	959	µg/L	Discharge Conc ≤ 25% WQBEL
Diethyl Phthalate	4,960	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	3,283	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Butyl Phthalate	144	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	1.64	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	1.64	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.98	µg/L	Discharge Conc < TQL
Fluoranthene	165	µg/L	Discharge Conc < TQL
Fluorene	413	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.003	µg/L	Discharge Conc < TQL
Hexachloroethane	3.28	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.033	µg/L	Discharge Conc < TQL
Isophorone	281	µg/L	Discharge Conc < TQL
Naphthalene	184	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	82.7	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.023	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.16	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	108	µg/L	Discharge Conc < TQL
Phenanthrene	6.57	µg/L	Discharge Conc < TQL
Pyrene	165	µg/L	Discharge Conc < TQL