pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0012637**
Facility Type	**Industrial**	APS ID	**1092916**
Major / Minor	**Major**	Authorization ID	**1447468**

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

Applicant and Facility Information

Applicant Name	**Monroe Energy LLC**	Facility Name	**Trainer Refinery**
Applicant Address	Trainer Refinery, 4101 Post Road	Facility Address	4101 Post Road
	Trainer, PA 19061-5052		Trainer, PA 19061
Applicant Contact	Mark Schuck	Facility Contact	Elizabeth Clapp
Applicant Phone	(610) 364-8082	Facility Phone	(610) 364-8395
Client ID	296139	Site ID	270501
SIC Code	2911	Municipality	Trainer Borough
SIC Description	Manufacturing - Petroleum Refining	County	Delaware
Date Application Received	June 2, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Permit Renewal

Summary of Review

The applicant requests renewal of an NPDES permit to discharge treated process wastewater, noncontact cooling water and stormwater from Trainer Refinery facility to Stoney Creek, Marcus Hook and the Delaware River Estuary.

Trainer Refinery processes raw material (Crude Oil) into petroleum-related products including gasoline, fuel oils, kerosene, and liquefied petroleum gas. The production processes utilized at the refinery include atmospheric distillation, vacuum distillation, crude oil desalting, fluidized catalytic cracking, hydrocracking, hydrotreating, reforming, and alkylation. The Refinery has been in operation under various owners since 1922.

The advanced wastewater treatment plant (AWWTP) at the facility is divided into five treatment sections (1) primary treatment includes the API separator, primary filter feed sump, and five primary sand filters. Together these provide physical and chemical processes for the removal of coarse solids, suspended solids, and oil and grease. In addition, the pH is adjusted in-line prior to wastewater entering the primary sand filters. (2) Secondary treatment includes the equalization tank, biological aeration tank, and three secondary clarifiers. Together these provide equalization of flow and pollutant loading, biological treatment, pollutant degradation, solids thickening, and water clarification. (3) Tertiary treatment includes six Tertiary sand filters that remove any suspended solids carried over from the secondary treatment section. (4) Oily sludge treatment and disposal includes a DAF thickening system, and a filter press. Together these systems thicken and dewater sludge and solids removed from the API separator and primary sand filters. (5) Biological sludge treatment and disposal includes a DAF thickening system, biological sludge conditioning system and a filter press. Together these thicken and dewater biological sludge that is wasted from the biological process in the secondary treatment section. Sources of wastewater that are treated through the AWWTP include aboveground bulk storage tank water draining, boiler blowdown, bundle cleaning pad effluent, cooing tower blowdown, infiltration water, laboratory wastes, pump cooling water, service water, steam trap condensate, stormwater, and surface skimming from Marcus Hook and Stoney Creek Guard Basins.

The design capacity of the plant is 4.3 mgd. No upgrades are planned within the next five years.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	February 13, 2024
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	02/13/3024

Summary of Review

The following chemicals are used for the wastewater treatment: Sulfuric acid, Caustic soda, Sodium hypochlorite, Ferric chloride, Phosphoric acid, Lime, Novus CE7090, FoamTrol AF3561, PolyFloc CD1434, KlarAid CDP1339, PolyFloc CB1434 and Foamtrol AF1440.

The following chemical additives are listed in the application:

(1) Cortrol IS3000 (2) Cortrol OS5300 (3) EnvTech Cleaning & Gas Freeing Solution (4) ETI-929 (5) Foamtrol AF1440 (6) Ferroquest FQ 7101 (7) Gengard GN7210 (8) Gengard GN7300 (9) Gengard GN8203 (10) Inhibitor AZ8104 (11) Kleen BC9532 (12) Predator MR2513 (13) Solus AP23 (14) Spectrus BD1500 (15) Spectrus BD1501E (16) Spectrus NX1100 (17) Spectrus NX1106 (18) Steamate LSA1791 (19) Steamate LSA1793 (20) Steamate LSA1808 (21) Steamate NA0660 (22) ZymeFlow UN657

All these chemical additives are approved in the past. Revised chemical additive notifications are submitted.

The following one new chemical additive is proposed to use at the facility and submitted the chemical additive notification form: Spectrus BD1501E.

Monroe is currently implementing and planning several projects that include upgrades to equipment and the construction of new process units to maintain a safe working environment for employees and maximize protection of the environment. The projects are described below:

> Monroe is on schedule with implementation of the project to install three cooling towers to provide closed-cycle cooling water to the refinery instead of withdrawing once-through cooling water from the Delaware River. The Area 3 Cooling Tower was brought online November 2018 and the non-contact cooling water discharge to Stoney Creek via Outfall 002 was eliminated. The remaining once-through cooling water currently discharges non-contact cooling water to Marcus Hook Creek through IMP 101. The FCC and Alky Cooling Towers are expected to be completed by the target dates of November 30, 2023 and December 31, 2028 respectively.
>
> Refinery's once-through cooling water system will continue to operate following the installation of the cooling towers, albeit at lower rates. Also, water withdrawn from the Delaware River will continue to supply fire water to all areas of the Refinery in case of emergencies.

Outfall 001 discharges the combined effluent form the Marcus Hook Guard Basin IMP 101 and the AWWTP IMP 201. Discharge is continuous. The maximum discharge rate will be 38.3 mgd after the installation of the second cooling tower and 21.3 mgd after the installation of all three cooling towers (after December 31, 2028) according to the submitted application.

Outfall 002 from Stoney Creek Guard Basin has not actively discharged since the Area 3 Cooling Tower began Operation. Flow ceased on October 5, 2018. Stormwater accumulates in the basin and is pumped to the AWWTP. Permanently installed skimmers in both guard basins allow for the removal of floating material and retention of the flow encourages solids to settle. Settled solids are periodically removed and disposed off site. There is still a potential to discharge through this outfall, therefore keeping Outfall 002 in the permit with the existing permitted flow 0.0432 mgd.

The following are the changes incorporated with this permit renewal:

1. The current permitted discharge from AWWTP through IMP 201 is 3.5 mgd. The discharge flow has been averaging 3.1 mgd and with the implementation of the FCC cooling tower with blowdown directed to the AWWT flow through the plant, the subsequent discharge is projected to increase to an average flow of 3.5 mgd . Ultimately after the last cooling tower implementation, IMP 201 discharge is projected to increase to an average flow of 3.8 mgd. The maximum flow is listed as 4.3 mgd in the application after the implementation of FCC cooling tower (November 30, 2023). Permit is prepared for the maximum discharge flow rate.

2. With the implementation of the FCC cooing tower in 4th quarter 2023, the discharge to IMP 101 will be greatly reduced. Monroe is requesting a tiered permit for IMP 101 with an initial discharge rate of 34 mgd and an ultimate discharge rate of 17 mgd after all three cooling towers are implemented. Minimal heat exchanger backwash water be discharged through IMP 101 under post FCC and Alky cooling tower conditions. All equipment on once-through cooling water will be transitioned to cooling water with the installation of the third cooling tower. The one exception is a box cooler located in the Isocracker unit that will remain on once-through cooling water with flows ranging from 0.7 to 1.4 mgd.

Summary of Review

The draft permit is prepared in two tiers for IMP 101; first tier starting from effective date (after the installation of the second cooling tower) to start-up of all three cooling towers (December 31, 2028) and second tier starting from the start-up of all three cooling towers to the expiration date.

The second-tier permit is prepared based on the dilution factors and the discharge flow (6.9 mgd) used in the CORMIX modeling conducted by the facility in 2016. This discharge flow is different compared to what is requested in the permit renewal application. We recommend the facility to conduct a CORMIX modeling to establish the dilution factors for the appropriate discharge flow expected to be after the installation of three cooling towers and submit the results at least 6 months before submitting the next permit renewal application. That way the future limits can be calculated appropriately. Or if necessary, the permittee may request an amendment based on the CORMIX modeling during the permit term.

3. Monroe is requesting the continuation of the existing thermal variance for the duration of the next 5-year NPDES permit cycle at IMP 101. Justification for this request is that the thermal loading through IMP101 will be significantly reduced with the implementation of two additional cooling towers. The significant benefits associated with this reduction in thermal load to Marcus Hook Creek have been evaluated through stream modeling and an assessment of the effects on habitat.

4. DRBC is currently evaluating the water quality standards for the Delaware River, and the Ammonia-Nitrogen and Total Nitrogen limits may need to be changed according to DRBC's determination. A BAT Ammonia limit which is easily achievable by the facility is established in the draft permit.

<u>Stormwater Outfalls:</u>

Outfall 003: drains a portion of a roadway near the refinery main entry gate and an area of limited propane storage to Marcus Hook. Outfall 015 is listed as representative outfall. No monitoring is required similar to the existing permit.

Outfall 005: drains a roadway to Marcus Hook. Existing stormwater parameters, pH, COD, TSS, NO2&NO3-N, Total Phosphorus, Total Lead, Total Zinc, Total Iron, and Total Aluminum are required to be monitored. Total Nitrogen is also included to be consistent with Appendix F of the General Stormwater permit, which is applicable to this type of facility.

Outfall 006: drains a roadway near a product blending area and a railroad right -of-way to Stoney Creek. Monitoring requirements are similar to Outfall 005. Existing PCB monitoring is also continued.

Outfall 007: drains roadways and open areas near process units to Stoney creek. Existing stormwater parameters pH, COD, TSS, NO2&NO3-N, Total Phosphorus, Total Lead, Total Zinc, Total Iron, and Total Aluminum are required to be monitored. Existing Total Copper and PCB monitoring also be continued. Total Nitrogen is included to be consistent with Appendix F of the General Stormwater permit, which is applicable to this type of facility.

Outfall 008: drains roadways and open areas near process units and maintenance shops to Stoney creek. Monitoring requirements are similar to Outfall 005. Existing PCB monitoring is also continued.

Outfall 011: drains a roadway and an open vegetated area to Delaware River. Outfall 015 is listed as representative outfall. No monitoring is required similar to the existing permit.

Outfall 012: drains a roadway and an open vegetated area to Delaware River. The existing stormwater parameters pH, COD, TSS, NO2&NO3-N, Total Phosphorus, Total Lead, Total Zinc, Total Iron, and Total Aluminum are required to be monitored. Existing Total Copper monitoring also be continued. Total Nitrogen is included to be consistent with Appendix F of the General Stormwater permit, which is applicable to this type of facility.

Outfall 013: drains a roadway and an open vegetated area to Marcus Hook Creek. Monitoring requirements are similar to Outfall 012.

Outfall 014: drains the LPG Terminal, parking lot, and overflow (> 2-year storm) from an open vegetated rain garden to Marcus Hook. Outfall 015 is listed as representative outfall. No monitoring is required similar to the existing permit.

Summary of Review

Outfall 015: drains roadway and impervious equipment storage area near AWWTP and overflow (>2-year storm) from an open retention basin to Marcus Hook. Monitoring requirements are similar to Outfall 005.

Review of stormwater sampling results shows Total Aluminum and Total Iron concentrations are elevated at the stormwater discharges from the site. This will be reevaluated at the next permit renewal.

Similar to the existing requirements, Outfalls 006, 007, and 008 are required to be monitored for PCBs annually during a wet weather flow and Monitoring Point 201 annually during a dry weather flow. 2022 PCB PMP shows a reduction of 89.9%, 51.4% and 81.5% for Outfalls 006, 007 and 008 respectively and an increase of approximately 652 % over the baseline loading for the Monitoring Point 201. DEP recommends investigating and if necessary, to make modifications to PMP and implement measures to reduce the PCB loading to Delaware River Estuary. The existing PCB PMP and monitoring requirement is included in Part C of the draft permit.

Clean Water Act § 316(b) – Cooling Water Intake Structures:

On August 15, 2014, EPA promulgated Clean Water Act Section 316(b) regulations applicable to cooling water intake structures. The regulations established best technology available (BTA) standards to reduce impingement mortality and entrainment of all life stages of fish and shellfish at existing power generating and manufacturing facilities. The Final Rule took effect on October 14, 2014. Regulations implementing the 2014 Final Rule (and the previously promulgated Phase I Rule) are provided in 40 CFR Part 125, Subparts I and J for new facilities and existing facilities, respectively. Associated NPDES permit application requirements for facilities with cooling water intake structures are provided in 40 CFR Part 122, Subpart B – Permit Application and Special NPDES Program Requirements (§ 122.21(r)).

Applicability Criteria for Existing Facilities

As an existing facility, Monroe Energy, LLC Trainer Refinery falls under 40 CFR part 125, Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act (§§ 125.90 – 125.99). Pursuant to the applicability criteria given by § 125.91(a), Trainer Refinery would be subject to the requirements of §§ 125.94 – 125.99 if:

(1) The facility is a point source;

(2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and

(3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

Monroe Energy, LLC operates a petroleum refining operation that utilizes water from a cooling water intake structure (CWIS) located on the tidal portion of the Delaware River. The CWIS extends approximately 250 feet into the river. Water passes through trash racks into a flume extending through the shoreline break wall 10 feet above the river bottom. Onshore, water travels through a canal through three sets of removable screens with ¾ inch and ½ inch mesh sizes. The intake has a 124 MGD DIF and an AIF of 42 MGD after installation of the first of three cooling towers.

The facility operates a non-contact cooling system that operates 24 hours a day year-round. 88% of the water is used exclusively for cooling purposes and the rest is as service water and fire suppression. Through screen velocity (TSV) was reported as 0.90 fps based on AIF after installation of the first cooling tower.

To meet BTA requirements to minimize adverse impacts from impingement mortality and entrainment the permittee will continue to follow the schedule to construct the final cooling tower and convert to a closed-cycle cooling (CCC) system resulting in an estimated 94% reduction in AIF and a TSV 0.10 fps. In addition, the facility will conduct one year of seasonal entrainment sampling after completion of construction. This meets the required alternatives for impingement mortality and satisfies the site-specific entrainment standards based on required considerations discussed below.

1.) Numbers and types of organisms entrained

The facility conducted entrainment sampling between March and July in 2021 after the first cooling tower became operational resulting in an AIF and TSV of 52.3 MGD and 0.90 fps respectively. During that time samples were collected every six hours

Summary of Review

over a 24-hour period on 10 different days resulting in 40 samples. Approximately 100 cubic meters of intake water were collected during each event. Below is a table showing the numbers and types of organisms collected during sampling.

	Taxa Collected																			
Sample Date	Alosa spp.	American eel	American shad	Bay anchovy	Carp/goldfish	Centrarchidae	Channel catfish	Clupeidae	Cyprinidae	Cyprinidae/darter	Gizzard shad	Goldfish/carp	Ictaluridae	Morone spp.	Striped bass	Tessellated darter	Unidentifiable spp.	White perch	Yellow perch	Total
3/25/2021																				0
4/8/2021																				0
4/22/2021	21						5		1	2						1	1	27	1	59
5/6/2021			4					46	9		43			264	152	3	408	39		968
5/20/2021	5		1				1	88	98		30		1	3	8	12	12	9		268
6/3/2021	3							136	31					8	42		8	35		263
6/17/2021							1	13				4		3	1	2		6		30
6/24/2021	3				1	1		31	8				1		6	1		2		54
7/8/2021		1						7												8
7/22/2021				1																1
Total	32	1	5	1	1	1	7	321	147	2	73	4	2	278	209	19	429	118	1	1651
% of Total	2%	0%	0%	0%	0%	0%	0%	19%	9%	0%	4%	0%	0%	17%	13%	1%	26%	7%	0%	

No eggs, larvae, or juveniles of state or federally listed threatened or endangered species were identified during entrainment sampling. Peak collection was observed in early May. The most abundant families entrained during the study were Moronidae (white perch, striped bass, *Morone* spp.) making up 37% of the abundance and Clupeidae (American shad, gizzard shad, *Alosa* spp., Clupeidae spp.) making up an additional 23%. The 2021 entrainment study did not draw any conclusions about the impact to the aquatic community. A previous study in 2001 concluded impacts would be minimal considering the amount of water withdrawn compared to the proportional flow in the Delaware River. The current application submittal continues to support that. Further details are provided in the Entrainment BTA Worksheet.

2.) Impact of changes in particulate emission or other pollutants

Permit application materials do not include a description of changes in particulate emission or other pollutants associated with alternative technologies. PA DEP approved Monroe's Title V Operating Permit No. 23-00003 for construction of the cooling towers.

3.) Land Availability

Permit application materials do not include a description of land availability in regard to installation of alternative technologies. Cooling towers will be installed in accordance with the construction schedule.

4.) Remaining useful plant life

Permit application materials do not include an estimation of the remaining useful plant life.

5.) Social Benefits and Cost of Technologies

R(10) and R(11) reports were not submitted.

Services Comments

Comments provided by the PA FBC Division of Environmental Services were received 12/29/23 and supported the installation of the cooling towers to greatly reduce the amount of water withdrawn and resulting in an TSV below 0.5 fps. Comments from NOAA Fisheries Office of Protected Resources were received 11/14/23 and stated the TSV under 0.5 fps

Summary of Review

would not be achieved until after installation of the final cooling tower, and the screen mesh size is bigger than the standard 3/8 inch square likely causing significantly greater entrainment.

Conclusion

The selected method of compliance with the impingement mortality BTA standard was installation of a CCC system resulting in an estimated 94% reduction in AIF and a TSV below 0.5 fps at AIF. As stated, no state or federally listed threatened or endangered species were identified during the 2021 entrainment sampling effort. The entrainment sampling report did not include any conclusions regarding the impacts to aquatic life however a previous report and comments by PA FBC pointed to the small percentage of the source waterbody being withdrawn. Comments from NOAA suggested reduction of screen mesh size to the standard 3/8 inch square to reduce entrainment. An additional year of entrainment sampling post construction and operation of all three cooling towers will be required to continue to inform future permit renewals. The comment from NOAA suggesting reduction of screen mesh size to the standard 3/8 inch square to reduce entrainment will be considered in future permit renewals based on the additional entrainment sampling.

Public Participation

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.

Act 14 Notifications:

Delaware County	-	May 5, 2023
Trainer Borough	-	May 5, 2023
Marcus Hook Borough	-	May 8, 2023

Appropriate public notice is also published in the local newspaper for four consecutive weeks.

Permit Conditions:

A. Acquire Necessary Property Rights
B. Proper Sludge Disposal
C. WQM Permit Requirement
D. BAT/ELG
E. Chlorine Optimization
F. TMDL/WLA Analysis
G. 316 (a) Modification
H. WQM Permits
I. Thermal Requirement
J. Stormwater Credits
K. CORMIX Modeling
L. WETT Requirement
M. Chemical Additives
N. Heat Rejection Rates
O. Stormwater Condition
P. PCB/PMP Requirement
Q. Cooling Water Intake
R. Hydrostatic Discharge

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	.0432
Latitude	39º 49' 28.62"	Longitude	-75º 24' 0.71"
Quad Name	Marcus Hook, PA-NJ-DEL	Quad Code	09-22-3
Wastewater Description:	Stormwater, steam trap condensate, and heat exchanger cooling water backwash.		
Receiving Waters	Stoney Creek (WWF)	Stream Code	00517
NHD Com ID	25602657	RMI	0.208
Q_{7-10} Flow (cfs)	0.0031	Q_{7-10} Basis	USGS stream stats (previous fact sheet)
Watershed No.	3-G	Chapter 93 Class.	WWF
Assessment Status	Impaired		
Cause(s) of Impairment	cause unknown, flow regime modification, habitat alterations, siltation		
Source(s) of Impairment	habitat modification - other than hydromodification, urban runoff/storm sewers		

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	38.3/6.89
Latitude	39º 49' 14.98"	Longitude	-75º 24' 33.53"
Quad Name	Marcus Hook, PA-NJ-DEL	Quad Code	09-22-3
Wastewater Description:	IW Process Effluent with ELG, Noncontact Cooling Water (NCCW), Stormwater, steam condensate, and backwash from water softening system. Combined flow from IMP 101 and IMP 201		
Receiving Waters	Marcus Hook Creek (WWF, MF) (Tidal)	Stream Code	00511
NHD Com ID	25602829	RMI	0.417
Q_{7-10} Flow (cfs)	*	Q_{7-10} Basis	Tidal Discharge
Watershed No.	3-G	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	cause unknown, flow regime modification, habitat alterations, metals, siltation		
Source(s) of Impairment	habitat modification - other than hydromodification, landfills, urban runoff/storm sewers,		

* Q7-10, 4081 cfs from DRBC spreadsheet is used for the first tier of the draft permit. 1% of stream flow is considered as available for dilution.

Treatment Facility Summary

Treatment Facility Name: Trainer Refinery

WQM Permit No.	Issuance Date
2371207	11/28//2012
2372201	11/26/2012
2376203	11/26/2012
2386201	11/26//2012

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Other Processes (Industrial Waste),Tertiary	Activated Sludge With Solids Removal, Oil and Grease Removal (Skim/Septr)	No Disinfection	3.5

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
4.3		Not Overloaded		

Compliance History

DMR Data for Outfall 001 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum						1.0						
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum						1.0						
Chronic WET - Pimephales Survival (TUc) Daily Maximum						1.0						
Chronic WET - Pimephales Growth (TUc) Daily Maximum						1.0						

DMR Data for Outfall 002 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
TSS (mg/L) Intake Average Monthly	56	24	36	27	28	37	43	44	61	92	58	87
TSS (mg/L) Intake Daily Maximum	140	70	98	89	70	50	100	76	220	204	84	170
Total Dissolved Solids (mg/L) Intake Average Monthly	144	146	179	159	191	176	369	491	659	475	211	176
Total Dissolved Solids (mg/L) Intake Daily Maximum	160	180	210	180	550	210	730	870	790	680	308	230

Total Aluminum (mg/L) Intake Average Quarterly			0.47			0.95			1.08			1.09
Total Aluminum (mg/L) Intake Daily Maximum			0.64			2.14			1.15			2.70
Total Cadmium (mg/L) Intake Average Quarterly			< 0.001			< 0.001			< 0.001			< 0.001
Total Cadmium (mg/L) Intake Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.001
Total Copper (mg/L) Intake Average Quarterly			< 0.01			< 0.01			< 0.01			< 0.01
Total Copper (mg/L) Intake Daily Maximum			< 0.01			< 0.01			< 0.01			< 0.01
Total Silver (mg/L) Intake Average Quarterly			< 0.002			< 0.002			< 0.002			< 0.002
Total Silver (mg/L) Intake Daily Maximum			< 0.002			< 0.002			< 0.002			< 0.002

DMR Data for Outfall 005 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						7.9						8.13
COD (mg/L) Daily Maximum						22						64
TSS (mg/L) Daily Maximum						28						260
Nitrate-Nitrite (mg/L) Daily Maximum						2.5						E
Total Phosphorus (mg/L) Daily Maximum						0.20						0.38
Total Aluminum (mg/L) Daily Maximum						1.070						3.520

Total Iron (mg/L) Daily Maximum						1.5						7.0
Total Lead (mg/L) Daily Maximum						0.0018						0.0358
Total Zinc (mg/L) Daily Maximum						0.0139						0.163

DMR Data for Outfall 006 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						8.2						7.82
COD (mg/L) Daily Maximum						13						6.9
TSS (mg/L) Daily Maximum						58						170
Nitrate-Nitrite (mg/L) Daily Maximum						2.32						0.54
Total Phosphorus (mg/L) Daily Maximum						0.17						0.43
Total Aluminum (mg/L) Daily Maximum						0.847						3.940
Total Iron (mg/L) Daily Maximum						1.2						9.4
Total Lead (mg/L) Daily Maximum						0.0014						0.0416
Total Zinc (mg/L) Daily Maximum						0.0124						0.133
PCBs (Wet Weather) (pg/L) Daily Maximum						1380						

DMR Data for Outfall 007 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						7.8						7.44
COD (mg/L) Daily Maximum						10						81
TSS (mg/L) Daily Maximum						24						610

Nitrate-Nitrite (mg/L) Daily Maximum						2.32						0.72
Total Phosphorus (mg/L) Daily Maximum						0.16						0.92
Total Aluminum (mg/L) Daily Maximum						1.020						13.9
Total Copper (mg/L) Daily Maximum						< 0.010						0.061
Total Iron (mg/L) Daily Maximum						1.5						27
Total Lead (mg/L) Daily Maximum						0.0017						0.0984
Total Zinc (mg/L) Daily Maximum						0.0132						0.460
PCBs (Wet Weather) (pg/L) Daily Maximum						14000						

DMR Data for Outfall 008 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						7.9						7.69
COD (mg/L) Daily Maximum						13						55
TSS (mg/L) Daily Maximum						25						330
Nitrate-Nitrite (mg/L) Daily Maximum						2.27						1.13
Total Phosphorus (mg/L) Daily Maximum						0.17						0.52
Total Aluminum (mg/L) Daily Maximum						0.841						18.7
Total Iron (mg/L) Daily Maximum						1.2						10
Total Lead (mg/L) Daily Maximum						0.0014						0.0679
Total Zinc (mg/L) Daily Maximum						0.0111						0.847

PCBs (Wet Weather) (pg/L) Daily Maximum						2520						

DMR Data for Outfall 012 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						8.10						7.67
COD (mg/L) Daily Maximum						8.4						45
TSS (mg/L) Daily Maximum						29						110
Nitrate-Nitrite (mg/L) Daily Maximum						2.38						1.45
Total Phosphorus (mg/L) Daily Maximum						0.16						0.42
Total Aluminum (mg/L) Daily Maximum						0.858						2.77
Total Copper (mg/L) Daily Maximum						< 0.010						0.0186
Total Iron (mg/L) Daily Maximum						1.2						5
Total Lead (mg/L) Daily Maximum						0.0015						0.0562
Total Zinc (mg/L) Daily Maximum						0.0121						0.0463

DMR Data for Outfall 013 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						8.0						7.79
COD (mg/L) Daily Maximum						8.4						100
TSS (mg/L) Daily Maximum						26						290
Nitrate-Nitrite (mg/L) Daily Maximum						2.32						0.81
Total Phosphorus (mg/L) Daily Maximum						0.17						0.54

Total Aluminum (mg/L) Daily Maximum						0.962						7.900
Total Copper (mg/L) Daily Maximum						< 0.010						0.0426
Total Iron (mg/L) Daily Maximum						1.4						15
Total Lead (mg/L) Daily Maximum						0.0016						0.0378
Total Zinc (mg/L) Daily Maximum						0.0117						0.152

DMR Data for Outfall 015 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
pH (S.U.) Daily Maximum						7.9						8.00
COD (mg/L) Daily Maximum						20						14
TSS (mg/L) Daily Maximum						24						3.0
Nitrate-Nitrite (mg/L) Daily Maximum						2.40						< 0.10
Total Phosphorus (mg/L) Daily Maximum						0.20						0.43
Total Aluminum (mg/L) Daily Maximum						3.120						0.0519
Total Iron (mg/L) Daily Maximum						4.7						< 0.2
Total Lead (mg/L) Daily Maximum						0.0058						< 0.0005
Total Zinc (mg/L) Daily Maximum						0.0361						< 0.010

DMR Data for Outfall 101 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Flow (MGD) Average Monthly	37.15	36.77	33.72	33.48	33.73	42.475	41.922	42.764	46.157	50.221	47.611	42.836
Flow (MGD) Daily Maximum	38.64	39.54	35.58	34.68	36.45	44.389	44.481	44.536	50.809	52.303	50.986	44.602

pH (S.U.) Instantaneous Minimum	7.2	7.8	7.6	7.5	7.5	6.6	7.4	7.4	7.9	7.7	7.6	7.5
pH (S.U.) Instantaneous Maximum	8.0	7.9	7.9	7.9	7.9	7.1	8.3	7.5	8.0	7.9	7.8	7.8
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
Temperature (ºF) Instantaneous Maximum	102	95	86	84	82	81	94	96	107	109	109	108
Heat Rejection Rate (MBTUs/day) Daily Maximum	9154	9599	9728	9582	8877	10361	9934	9578	9244	9562	9733	9685
TSS (lbs/day) Effluent Net Average Monthly	3891	1879.9	16152.5	194.8	0.0	350.7	1027.8	169.3	2457.6	0.0	0.0	0.0
TSS (lbs/day) Effluent Net Daily Maximum	15132	7519.8	77596.7	779.3	0.0	1046.9	5138.9	677.2	9830.4	0.0	0.0	0.0
TSS (mg/L) Average Monthly	21.5	17.9	74.2	10.1	9.8	21.0	18.4	13.1	17.5	36.1	16.6	16.9
TSS (mg/L) Effluent Net Average Monthly	12.2	6.3	56.1	0.7	0.0	1.0	2.8	0.5	6.1	0.0	0.0	0.0
TSS (mg/L) Intake Average Monthly	56	24	36	27	28	37	43	44	61	92	58	87
TSS (mg/L) Daily Maximum	52.0	41.0	280.0	14.0	12.0	31.0	32.0	26.0	32.0	56.0	22.5	25.5
TSS (mg/L) Effluent Net Daily Maximum	47.0	25.0	269.0	2.8	0.0	3.0	14.0	2.0	24.5	0.0	0.0	0.0
TSS (mg/L) Intake Daily Maximum	140	70	98	89	70	50	100	76	220	204	84	170
Total Dissolved Solids (mg/L) Average Monthly	132	145	174	160	150	150	284	320	523	474	221	168

Total Dissolved Solids (mg/L) Effluent Net Average Monthly	0.00	0.00	2.0	0.0	7.5	2.5	2.0	0.0	10.0	11.2	14.8	6.0
Total Dissolved Solids (mg/L) Intake Average Monthly	144	146	179	159	191	176	369	491	659	475	211	176
Total Dissolved Solids (mg/L) Daily Maximum	150	160	190	170	160	160	370	520	750	650	296	200
Total Dissolved Solids (mg/L) Effluent Net Daily Maximum	0.00	0.00	10.0	0.0	20.0	10.0	10.0	0.0	40.0	30.0	29.0	15.0
Total Dissolved Solids (mg/L) Intake Daily Maximum	160	180	210	180	550	210	730	870	790	680	308	230
Oil and Grease (lbs/day) Average Monthly	< 979	< 1055	< 978	< 868	< 892	< 1333	< 1051	< 999	< 1182	< 1321	< 1194	< 1078
Oil and Grease (mg/L) Average Monthly	< 6.3	< 6.3	< 6.3	< 6.2	< 5.7	< 6.0	< 6.1	< 6.1	< 6.1	< 6.3	< 6.0	< 6.1
Oil and Grease (mg/L) Instantaneous Maximum	< 6.7	7.5	8.1	< 6.8	< 6.2	7.5	< 6.4	< 6.7	< 6.3	< 6.8	< 6.3	< 6.7
Total Aluminum (mg/L) Average Quarterly			0.41			1.35			0.72			0.97
Total Aluminum (mg/L) Effluent Net Average Quarterly			0.000			0.673			0.000			0.645
Total Aluminum (mg/L) Intake Average Quarterly			0.47			0.95			1.08			1.09
Total Aluminum (mg/L) Daily Maximum			0.41			1.59			0.72			0.97
Total Aluminum (mg/L) Effluent Net Daily Maximum			0.000			1.345			0.000			0.645

Total Aluminum (mg/L) Intake Daily Maximum			0.64			2.14			1.15			2.70
Total Cadmium (mg/L) Average Quarterly			< 0.0005			< 0.0008			< 0.0005			< 0.0005
Total Cadmium (mg/L) Effluent Net Average Quarterly			0.000			< 0.0003			0.000			0.00
Total Cadmium (mg/L) Intake Average Quarterly			< 0.001			< 0.001			< 0.001			< 0.001
Total Cadmium (mg/L) Daily Maximum			< 0.0005			< 0.0010			< 0.0005			< 0.0005
Total Cadmium (mg/L) Effluent Net Daily Maximum			0.000			< 0.001			0.000			0.00
Total Cadmium (mg/L) Intake Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.001
Total Copper (mg/L) Average Quarterly			< 0.01			< 0.01			< 0.01			< 0.01
Total Copper (mg/L) Effluent Net Average Quarterly			0.000			0.000			0.000			0.00
Total Copper (mg/L) Intake Average Quarterly			< 0.01			< 0.01			< 0.01			< 0.01
Total Copper (mg/L) Daily Maximum			< 0.01			< 0.01			< 0.01			< 0.01
Total Copper (mg/L) Effluent Net Daily Maximum			0.000			0.000			0.000			0.00
Total Copper (mg/L) Intake Daily Maximum			< 0.01			< 0.01			< 0.01			< 0.01
Total Iron (mg/L) Average Quarterly			0.87			1.65			1.10			1.90
Total Iron (mg/L) Effluent Net Average Quarterly			0.01			0.60			0.00			1.20
Total Iron (mg/L) Intake Average Quarterly			0.86			1.58			1.53			1.99

Total Iron (mg/L) Daily Maximum			0.87			1.90			1.10			1.90
Total Iron (mg/L) Effluent Net Daily Maximum			0.01			1.19			0.00			1.20
Total Iron (mg/L) Intake Daily Maximum			1.20			3.80			1.80			4.80
Total Lead (mg/L) Average Quarterly			0.002			0.003			0.003			0.003
Total Lead (mg/L) Effluent Net Average Quarterly			0.000			0.001			0.00			0.002
Total Lead (mg/L) Intake Average Quarterly			0.002			0.003			0.003			0.004
Total Lead (mg/L) Daily Maximum			0.002			0.003			0.003			0.003
Total Lead (mg/L) Effluent Net Daily Maximum			0.000			0.002			0.00			0.002
Total Lead (mg/L) Intake Daily Maximum			0.002			0.005			0.004			0.010
TOC (mg/L) Effluent Net Instantaneous Maximum	0.0	0.3	0.5	0.5	0.4	0.5	0.4	0.1	0.2	0.3	1.0	1.2
TOC (mg/L) Instantaneous Maximum	5.1	3.5	3.7	4.3	3.4	3.8	3.7	3.4	3.3	3.4	4.1	4.8
TOC (mg/L) Intake Instantaneous Maximum	5.9	3.6	4.8	3.9	3.4	3.8	3.4	3.6	3.6	3.3	3.4	11.4

DMR Data for Outfall 201 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Flow (MGD) Average Monthly	2.90	2.84	2.68	2.92	2.77	2.930	2.733	2.862	2.951	3.232	3.325	3.228
Flow (MGD) Daily Maximum	3.43	3.61	3.53	4.14	3.07	3.530	3.364	3.227	3.396	3.768	3.737	3.961

pH (S.U.) Instantaneous Minimum	7.1	7.1	6.6	6.9	7.0	7.2	7.2	7.2	7.4	7.2	7.1	7.0
pH (S.U.) Instantaneous Maximum	7.8	7.7	7.8	7.8	7.9	7.9	7.8	8.2	8.1	7.9	8.9	7.7
DO (mg/L) Instantaneous Minimum	7.0	6.6	7.6	6.9	6.3	6.0	8.0	6.0	6.0	5.0	5.0	6.8
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
BOD5 (lbs/day) Average Monthly	< 55	136	158	276	340	349	103	89	347	508	320	210
BOD5 (lbs/day) Daily Maximum	71	352	307	399	605	686	194	149	680	789	583	629
BOD5 (mg/L) Average Monthly	< 2.3	6.1	7.0	11.0	14.7	13.4	4.4	3.8	13.4	17.9	11.4	8.1
BOD5 (mg/L) Daily Maximum	2.8	14.0	14.0	16.0	26.0	26.0	10.0	5.9	25.0	26.0	19.9	26.5
CBOD20 (lbs/day) Average Monthly	254	404	302	399	599	1140	211	309	953	765	372	398
COD (lbs/day) Average Monthly	728	1005	1045	1283	1094	1561	891	887	1482	2049	1598	1244
COD (lbs/day) Daily Maximum	1058	1961	1376	1628	1369	2475	1420	1284	2203	2704	2612	2364
COD (mg/L) Average Monthly	29.9	45.4	46.2	51.8	47.4	60.5	38.1	37.5	59.2	72.9	56.6	46.6
COD (mg/L) Daily Maximum	44.0	78.0	54.0	72.0	59.0	92.0	55.0	52.0	83.0	91.0	89.0	81.0
TSS (lbs/day) Average Monthly	< 192	< 188	229	292	325	410	241	276	280	601	526	374
TSS (lbs/day) Daily Maximum	432	528	375	415	597	837	796	360	364	1296	1405	811
TSS (mg/L) Average Monthly	< 8.0	< 8.4	10.4	11.7	14.0	16.0	10.6	11.7	11.3	21.9	18.5	14.0
TSS (mg/L) Daily Maximum	19.0	21.0	19.0	18.0	24.0	33.0	36.0	16.0	16.0	42.7	47.9	28.0
Total Dissolved Solids (lbs/day) Effluent Net Average Monthly	17706	12579	13303	18223	13552	15346	17251	16126	17812	19714	16516	15480

Total Dissolved Solids (lbs/day) Effluent Net Daily Maximum	24821	16717	16707	30497	17095	22253	21004	21880	25006	23391	18359	19365
Total Dissolved Solids (mg/L) Average Monthly	759	589	613	729	604	610	752	696	731	721	593	588
Total Dissolved Solids (mg/L) Effluent Net Average Monthly	747.8	576.9	599.2	717.0	585.9	602.4	741.4	682.2	712.8	708.6	587.5	583.4
Total Dissolved Solids (mg/L) Intake Average Monthly	144	146	179	159	191	176	369	491	659	475	211	176
Total Dissolved Solids (mg/L) Daily Maximum	990	690	780	940	700	760.0	960	980.0	900	790	700	670.0
Total Dissolved Solids (mg/L) Effluent Net Daily Maximum	980.0	678.7	767.7	932.0	687.0	755.8	943.8	972.7	882.8	769.7	694.0	666.1
Total Dissolved Solids (mg/L) Intake Daily Maximum	160	180	210	180	550	210	730	870	790	680.0	308.0	230
Oil and Grease (lbs/day) Average Monthly	< 162.0	< 150.6	< 174.8	< 173.6	< 155.4	< 163.3	< 144.4	< 154.9	< 150.7	< 213.3	< 174.1	< 158.4
Oil and Grease (lbs/day) Daily Maximum	205	177	302	254	312	228	192	199	174	311	205	178
Oil and Grease (mg/L) Average Monthly	< 6.7	< 6.6	< 7.7	< 6.6	< 6.7	< 6.5	< 6.3	< 6.2	< 6.0	< 7.8	< 6.2	< 5.9
Oil and Grease (mg/L) Daily Maximum	8.9	8.4	13.7	8.1	13.1	8.7	7.6	7.4	6.9	11.6	7.2	6.8
Total Nitrogen (mg/L) Average Monthly	6.75	6.23	12.48	11.35	16.99	9.02	10.75	4.65	13.1	7.8	9.4	17.651
Total Nitrogen (mg/L) Daily Maximum	10.40	6.23	12.48	11.35	17	9.02	10.8	4.7	13.1	7.8	9.4	17.7
Ammonia (lbs/day) Average Monthly	10	31	14	147	147	130	15	10	175	182	131	185
Ammonia (lbs/day) Daily Maximum	11	117	37	271	326	325	60	16	257	239	246	297

Ammonia (mg/L) Average Monthly	< 0.4	< 1.4	< 0.6	< 5.7	6.2	< 5.3	< 0.7	< 0.4	7.0	6.7	4.7	7.1
Ammonia (mg/L) Daily Maximum	< 0.4	5.3	1.7	12.0	13.1	14.6	2.7	0.6	9.7	9.8	9.3	12.2
Total Phosphorus (lbs/day) Average Monthly	19	13	12	15	13	10	15	20	13	18	46	34
Total Phosphorus (lbs/day) Daily Maximum	27	18	19	19	19	13	19	25	15	25	87	59
Total Phosphorus (mg/L) Average Monthly	0.8	0.6	0.6	0.6	0.6	0.4	0.7	0.8	0.5	0.7	1.7	1.3
Total Phosphorus (mg/L) Daily Maximum	1.2	0.76	0.96	0.7	0.8	0.5	0.9	1.1	0.6	0.8	3.2	2.3
Total Aluminum (lbs/day) Average Monthly	12.6	34.2	9.3	15.0	15.6	16.77	17.84	10.76	5.64	29.39	10.21	3.46
Total Aluminum (lbs/day) Daily Maximum	13.4	34.2	9.3	15.0	15.6	16.77	27.64	10.76	5.64	38.56	10.21	3.46
Total Aluminum (mg/L) Average Monthly	0.51	1.36	0.47	0.46	0.63	0.62	0.81	0.43	0.20	0.97	0.37	0.13
Total Aluminum (mg/L) Daily Maximum	0.59	1.36	0.47	0.46	0.63	0.62	1.25	0.43	0.20	1.27	0.37	0.13
Total Antimony (mg/L) Average Monthly	0.01	0.04	0.01	0.007	0.014	0.015	0.040	0.009	0.004	0.004	0.006	0.009
Total Antimony (mg/L) Daily Maximum	0.02	0.04	0.01	0.007	0.014	0.015	0.044	0.009	0.004	0.007	0.006	0.009
Hexavalent Chromium (lbs/day) Average Monthly	< 0.2	< 0.39	< 0.35	< 0.55	< 0.23	< 0.2531	< 0.2339	< 0.2368	< 0.2473	< 0.2628	< 0.2794	< 0.2616
Hexavalent Chromium (lbs/day) Daily Maximum	< 0.3	1.57	1.46	1.32	< 0.25	< 0.2875	< 0.2691	< 0.2532	< 0.2832	< 0.2877	< 0.2890	< 0.2947
Hexavalent Chromium (mg/L) Average Monthly	< 0.010	< 0.018	< 0.016	< 0.023	< 0.010	< 0.00997	< 0.01	< 0.01	< 0.01	< 0.00947	< 0.00992	< 0.00998
Hexavalent Chromium (mg/L) Daily Maximum	< 0.010	0.071	0.074	0.064	< 0.010	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.013

Total Chromium (lbs/day) Average Monthly	0.05	< 0.06	< 0.03	0.03	0.06	0.08	0.05	0.06	0.06	< 0.06	< 0.10	< 0.09
Total Chromium (lbs/day) Daily Maximum	0.07	0.19	0.05	0.05	0.08	0.30	0.09	0.09	0.11	0.12	0.12	< 0.12
Total Chromium (mg/L) Average Monthly	0.002	< 0.0027	< 0.0013	0.0013	0.0026	0.0033	0.0023	0.0026	0.0025	< 0.0022	< 0.0035	< 0.0036
Total Chromium (mg/L) Daily Maximum	0.003	0.009	0.002	0.003	0.004	0.012	0.004	0.004	0.004	0.004	0.004	< 0.004
Free Cyanide (mg/L) Average Monthly	< 0.00785	< 0.006	< 0.006	< 0.006	0.006	0.011	< 0.00645	0.0079	< 0.006	< 0.005	< 0.005	0.01
Free Cyanide (mg/L) Daily Maximum	< 0.0097	< 0.006	< 0.006	< 0.006	< 0.006	0.011	0.0069	0.0079	< 0.006	< 0.005	< 0.005	0.01
Total Selenium (lbs/day) Average Monthly	0.84	0.55	0.50	0.84	0.44	0.50	0.63	0.25	0.26	0.39	0.39	0.87
Total Selenium (lbs/day) Daily Maximum	0.93	0.85	0.65	0.97	0.57	0.62	0.80	0.34	0.36	0.43	0.39	0.87
Total Selenium (mg/L) Average Monthly	0.03	0.03	0.02	0.03	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.03
Total Selenium (mg/L) Daily Maximum	0.04	0.04	0.03	0.05	0.03	0.02	0.03	0.01	0.01	0.01	0.01	0.04
Total Sulfide (lbs/day) Average Monthly	< 1.2	< 1.3	< 1.8	< 3.9	< 4.6	< 5.1	< 4.7	< 4.7	< 4.9	< 5.3	< 5.6	< 5.3
Total Sulfide (lbs/day) Daily Maximum	< 1.4	2.1	2.2	< 6.5	< 5.0	< 5.9	< 5.4	< 5.1	< 5.7	< 6.3	< 6.0	< 6.6
Total Sulfide (mg/L) Average Monthly	< 0.05	< 0.06	< 0.08	< 0.15	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Total Sulfide (mg/L) Daily Maximum	< 0.05	0.09	0.10	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Total Phenolics (lbs/day) Average Monthly	< 1.19	< 1.09	< 1.12	< 1.17	< 0.46	< 0.50	< 0.47	< 0.47	< 0.48	< 0.53	< 0.55	< 0.46
Total Phenolics (lbs/day) Daily Maximum	< 1.43	< 1.26	< 1.43	< 1.38	< 0.50	< 0.55	< 0.54	< 0.51	0.57	1.02	< 0.57	< 0.58
Total Phenolics (mg/L) Average Monthly	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Total Phenolics (mg/L) Daily Maximum	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.03	< 0.02	< 0.02

PCBs (Dry Weather) (pg/L) Daily Maximum						5750						

Compliance History

Effluent Violations for Outfall 101, from: July 1, 2022 To: May 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	03/31/23	Daily Max	77596.7	lbs/day	32920	lbs/day
TSS	03/31/23	Avg Mo	56.1	mg/L	30.0	mg/L
TSS	03/31/23	Daily Max	269.0	mg/L	60.0	mg/L

Effluent Violations for Outfall 201, from: July 1, 2022 To: May 31, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Phosphorus	07/31/22	Daily Max	87	lbs/day	83	lbs/day

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** .0432
Latitude 39º 49' 30.61" **Longitude** -75º 24' 1.61"
Wastewater Description: Stormwater, steam trap condensate, and heat exchanger cooling water back wash

EFFLUENT PARAMETER	WATER QUALITY / TECHNOLOGY BASED LIMITS					
	MONTHLY AVERAGE		DAILY MAXIMUM		INST. MAX.	BASIS FOR LIMIT
	CONC. (MG/L)	LOAD (LBS/DAY)	CONC. (MG/L)	LOAD (LBS/ DAY)	CONC. (MG/L)	
Total Suspended Solids	30		60		75	DRBC
Oil and Grease	15				30	Chapt. 95.2
Temperature					110º F	DRBC
Total Residual Chlorine	0.022				0.051	Previous Spread sheet
pH (STD)			6.0 (Inst. Min.)		9.0	Chapt. 95.2
TDS	Monitor					Existing requirement, carrying over

*No discharge from this outfall. The above existing limits are recommended to carry over to the draft permit. No concern for other parameters based on the review of the sample results submitted for additional parameters. Existing Al, Cd, Cu and Ag monitoring requirements are eliminated from the permit. Also, all the intake monitoring requirements are eliminated since this outfall no longer receives once-through cooling water from Delaware River Intake.

IMP 101 **Design Flow (MGD)** 34.0 (2.6 after the installation of all 3 cooling towers)

Wastewater Description: Non-contact cooling water, stormwater, steam trap condensate and backwash from water softening system

EFFLUENT PARAMETER	WATER QUALITY / TECHNOLOGY BASED LIMITS					
	MONTHLY AVERAGE		DAILY MAXIMUM		INST. MAX.	
	CONC. (MG/L)	LOAD (LBS/DAY)	CONC. (MG/L)	LOAD (LBS/DAY)	CONC. (MG/L)	BASIS FOR LIMIT
Total Organic Carbon			5.0			40 CFR 419.22(d) and 419.23(e) for once through cooling water. No WQ criterion
Total Suspended Solids	30		60		75	Net limit based on DRBC requirements
Oil and Grease	15				30	Chap. 95.2
Temperature					110º F	DRBC
Total Residual Chlorine*	0.16				0.5	Existing limit, carrying over.
pH (STD)			6.0 (Inst. Min.)		9.0	Chap. 95.2
Heat Rejection Rate			34878 MBTU/day			**

No changes in the existing limits.

*for the 2nd tier of the permit TRC is calculated as 0.5 mg/l Average Monthly and 1.17 mg/l Inst. Maximum.

** Heat Rejection Rate is calculated proportionally for the reduced flow based on the existing Heat Rejection Rate (67470 MBTUs/day for a flow of 65.77 mgd). For the 2nd tier of the permit, after the installation of three cooling towers, no need to include this parameter. A heat dissipation length guideline (3,500 ft) as defined in DRBC's WQRs will be met at all time steps after the implementation of 3 cooling towers. A part C condition for the temperature limits for Tidal Delaware River is included for the 2nd tier of the permit.

***CBOD20 minimum percent removal is eliminated from the permit at the 2018 permit renewal.

Based on the reasonable potential analysis following are the parameters of concern (for the1st tier of the permit) :

Effluent Parameter	Reported in application/DMR (ug/l)	Most Stringent Criterion (1) (ug/l)	Max. allowable concentration (1) x 1.78	Concerns/comments
TDS	800000	500000		Monitoring*
Total Aluminum	1590	750	1335	Monitoring*
Total Cadmium	<0.8	0.22	0.39	Monitoring*
Total Copper	13	9.0	16.0	Monitoring*
Total Iron	1900	1500	2670	Monitoring*
Total Lead	4.7	2.5	4.45	Monitoring*
Total Phenols	<50	5		No Monitoring/No PWS downstream
Total Thallium	0.4	0.24	0.43	Monitoring**

Discharge is to Marcus Hook Creek which is tidal at the outfall location.

Q7-10, 4081 cfs from DRBC spreadsheet is used for the first tier of the draft permit.
1% of stream flow is considered as available for dilution = 40.81 cfs = 26.4 mgd
Dilution factor = (Qs+Qd)/Qd = (34.0+26.4)/34.0 = 1.78

***** Effluent Net values are significantly low, reported in the eDMRs. According to the permittee the facility is not adding any chemicals to the cooling water system and therefore not contributing any of these pollutants to the discharge. No process water discharge through this outfall and major portion of the discharge is the incoming Delaware River water. Possibly the source of these pollutants is the Delaware River water. Monitoring is required at the Delaware River intake and the outfall similar to the existing permit. Considering the significant reduction of this discharge after the completion of the cooling tower project this approach is acceptable.

****** Similar to the other parameters at this outfall, monitoring is included to calculate the Effluent net discharge concentration. This is a new parameter.

Based on CORMIX modeling conducted by the facility in 2016, the DRBC calculated dilution factors for Outfall 001. An acute dilution factor of 1.1 and chronic dilution factor of 4.7 for the future discharge conditions, which is after the installation of all three cooling towers (December 31, 2028) are calculated. A future discharge rate of 10.65 cfs (6.89 mgd total for MP101 and MP201) is used for the CORMIX study.

Therefore, for the 2nd tier of the permit 2.6 mgd is considered as the discharge flow through MP101 (the total discharge from MP101 and 201 is 6.89 mgd based on the 2016 CORMIX modeling) and is used for calculating the effluent limits for the 2nd tier of the permit term. The permittee may need to conduct an updated CORMIX study to revise these permit limits appropriately.

Effluent Parameter	Reported in application/DMR (ug/l)	Most Stringent Criterion (ug/l) (1)	Max. allowable concentration (1) x *	Concerns/comments
TDS	800000	500000		Monitoring***
Total Aluminum	1590	750	825	Monitoring***
Total Cadmium	<0.8	0.22	1.034	Monitoring***
Total Copper**	13	13.44	14.78	Monitoring***
Total Iron	1900	1500	7050	Monitoring***
Total Lead	4.7	2.5	11.75	Monitoring***
Total Phenols	<50	5		No Monitoring/No PWS downstream
Total Thallium	0.4	0.24	1.13	Monitoring

***** acute dilution factor of 1.1 and chronic dilution factor of 4.7 based on the CORMIX study which are used appropriately.
** For Copper, maximum allowable concentration is governed by AFC.
******* Effluent Net values are significantly low, reported in the eDMRs. It is reasonable to assume that the source of these pollutant source is Delaware River. The 2nd tier permit limits will be effective from January 1, 2029 after the installation of the three cooling towers. It is appropriate to include monitoring for these parameters after the installation of all three cooling towers. This will be reevaluated at the next permit renewal based on the actual discharge concentration of the pollutants and the appropriately done CORMIX study based on the expected discharge flow after the installation of the three cooling towers. Even after all three cooling towers are operational, most flow discharging through IMP 101 will be once through cooling water from the river. Therefore, Effluent Net monitoring is continued for these parameters.

IMP 201 **Design Flow (MGD)** 4.3

Wastewater Description: Industrial wastewater treatment plant effluent consists of process wastewater, miscellaneous wastewater, and stormwater.

	TECHNOLOGY BASED LIMITS								
	BPT				**BAT**				
	MONTHLY AVERAGE		**DAILY MAXIMUM**		**MONTHLY AVERAGE**		**DAILY MAXIMUM**		
EFFLUENT PARAMETER	**CONC. (MG/L)**	**LOAD (LBS/DAY)**	**CONC. (MG/L)**	**LOAD (LBS/DAY)**	**CONC. (MG/L)**	**LOAD (LBS/DAY)**	**CONC. (MG/L)**	**LOAD (LBS/DAY)**	**BASIS FOR LIMIT**
BOD5		2522		4540					40 CFR 419.24 (a)
TSS		2018		3164					40 CFR 419.24 (a)
Oil and Grease		733		1376					40 CFR 419.24 (a)

COD						17608		33130	40 CFR 419.23 (a)
Ammonia as N						1376		3026	40 CFR 419.23 (a)
Sulfide						13.3		29.7	40 CFR 419.23 (a)
Phenolics		16.5		33.93		11		45.4	40 CFR 419.22 (a) and 419.23(c)(1)(i)
Total Chromium		40.33		68.78		12.8		37	40 CFR 419.22(a) and 419.23 (c)(1)(i)
Hexavalent Chromium		2.57		5.5		1.1		2.4	40 CFR 419.22 (a) and 419.23(c)(1)(i)

* All these existing limits are calculated based on a process feedstock rate of 195,000 barrels of crude oil per stream day and from previous fact sheet.

EFFLUENT PARAMETER	WATER QUALITY BASED LIMITS					
	MONTHLY AVERAGE		DAILY MAXIMUM		INST. MAX.	BASIS FOR LIMIT
	CONC. (MG/L)	LOAD (LBS/DAY)	CONC. (MG/L)	LOAD (LBS/DAY)	CONC. (MG/L)	
BOD5		1000				DRBC (equivalent to 1500 lbs/day CBOD20 allocation)
CBOD20		1500				DRBC docket no. D-1986-041-3
TSS	30		60		75	DRBC
Oil and Grease	15				30	Chap. 95.2
COD						No water quality criteria
Ammonia as N	20					*
Sulfide						No water quality criteria
Total Dissolved Solids**	1000		2000		2500	DRBC
pH (STD)			6.0 (inst.min.)		9.0	Chap. 95.2

Total Residual Chlorine***	0.16				0.51	Existing limit carrying over
Total Phosphorus	2.0		4.0		5.0	Existing / chemical additive use / Chap.96.5
Dissolved Oxygen					5.0 (Inst.Min.)	Chapter 93
Total Nitrogen	Report					Data collection/SOP
PFOA****	Report					Data collection/SOP
PFOS****	Report					Data collection/SOP
HFPO-DA****	Report					Data collection/SOP
PFBS***	Report					Data collection/SOP

*****BAT limit which is easily achievable by the facility. This is consistent with other similar dischargers in the Delaware Estuary. Please note that ammonia limit may get more stringent once the DRBC make a determination.

**The blowdown water from cooling towers will make a slight increase in the effluent concentration from IMP 201. TDS monitoring is incorporated at IMP 201 and limit is incorporated at Outfall 001 and facility is expected to meet this limit.

***TRC monitoring is required regularly because of the use of chlorine containing wastewater chemicals.

******** These are new parameters required to be monitored according to our new guidance. The permittee may discontinue monitoring for these parameters if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittee must enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.

Based on the reasonable potential analysis following are the parameters of concern:

Effluent Parameter	Reported in application	Most Stringent Criterion (1)	Max. allowable concentration (1) x 7.14	Concerns/comments
TDS	1300000	500000		Monitoring*
Total Aluminum	2170	750	5355	Recommend existing Limit**
Total Antimony	44	5.6	165.76	Monitoring***
Hexavalent Chromium	4.7	10	71.4	Recommend existing technology limit
Total Copper	<4.0	9.0	64.26	No monitoring
Free Cyanide	12	4	28.56	Monitoring
Total Selenium	66	4.6	32.84	Recommend existing limit
Total Silver	<2.0	3.2	22.85	No monitoring
Total Thallium	0.4	0.24	7.10	No monitoring ***

Discharge is to Marcus Hook Creek which is tidal at the outfall location. Q7-10, 4081 cfs from DRBC spreadsheet is used
1% of stream flow is considered as available for dilution = 40.81 cfs = 26.4 mgd

Dilution factor = (Qs + Qd)/Qd = (26.4 + 4.3) /4.3 = 7.14

Qhm = 7.43 * $(Q7\text{-}10)^{0.874}$ = 190.02 cfs = 123 mgd

Dilution factor using Qhm = (123 + 4.3)/4.3 = 29.6

* Limit is included at Outfall 001.
**Existing limit was established as daily maximum since it is based on acute criterion.
***Harmonic Mean Flow is used for calculation since it is based on human health criterion.

The effluent limitations for Monitoring Point 201 are based on dry weather flow condition. A special condition is included in Part C of the permit for the permittee to calculate the stormwater credits during wet weather conditions. This is based on the BPT Effluent limitations for contaminated runoff, 40 CFR.419.22(e)(2) as follows:

Parameter	30 Day Average lb/1000 Gallons of Stormwater	Daily Maximum lb/1000 Gallons of Stormwater
BOD5	0.22	0.40
Total Suspended Solids	0.18	0.28
Chemical Oxygen Demand	1.5	3.0
Oil and Grease	0.067	0.13
Total Phenolics	0.0014	0.0029
Chromium, Total	0.0018	0.0050
Chromium, Hexavalent	0.00023	0.00052

This is an existing condition historically included in the permit.

Anti-Backsliding

N/A

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☒ Other: **annually**

The dilution series used for the tests was: 100%, 90%, 79%, 40%, and 20%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 79%

Before the startup of the third cooling tower:

WET Summary and Evaluation

Facility Name	Trainer Refinery
Permit No.	PA0012637
Design Flow (MGD)	38.3
Q_{7-10} Flow (cfs)	40.81
PMF_a	0.148
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/13/19	10/20/20	10/12/21	11/15/22
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/13/19	10/20/20	10/12/21	10/15/22
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/12/19	10/19/20	10/11/21	11/14/22
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/12/19	10/19/20	10/11/21	11/14/22
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**59** % Effluent
Dilution Series	**15, 30, 59, 80, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

After the startup of all three cooling towers:

WET Summary and Evaluation

Facility Name	Trainer Refinery
Permit No.	PA0012637
Design Flow (MGD)	6.9
Q_{7-10} Flow (cfs)	40.81
PMF_a	0.099
PMF_c	0.684

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/13/19		10/12/21	11/15/22
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/13/19	10/20/20	10/12/21	10/15/22
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/12/19	10/19/20	10/11/21	11/14/22
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	8/12/19		10/11/21	11/14/22
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	Chronic
TIWC	**28** % Effluent
Dilution Series	**7, 14, 28, 64, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

Based on the review of the WET test reports, test of significant toxicity (TST) was performed using DEP's WET Analysis Spreadsheet. There is no reasonable potential, and no WET limits are recommended. Annual WET testing is recommended. Similar to the existing permit, WET monitoring is at Outfall 001 where the effluent from Monitoring Points 101 and 201 combines. It is not possible to collect flow-proportioned samples at Outfall 001 with the current infrastructure. Therefore, requirement to collect time-based samples is included in the WET condition. The standard WET condition based on the DEP WET SOP is incorporated in Part C of the draft permit.

Proposed Effluent Limitations and Monitoring Requirements

Outfall 001, Effective Period: 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		
Total Dissolved Solids Effluent Net	Report	Report Daily Max	XXX	1000.0	2000.0	2500	2/week	Calculation
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	See Permit	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 002, Effective Period: 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		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.02	XXX	0.05	1/week	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	XXX	110	Continuous	Recorded
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	75	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15	XXX	30	1/week	3 Grabs/24 Hours

Proposed Effluent Limitations and Monitoring Requirements

Outfall 005, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 006, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
PCBs Wet Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 007, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
PCBs Wet Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 008, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
PCBs Wet Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 012, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 013, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 015, Effective Period: 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 101, Effective Period: Permit Effective Date through December 31, 2028.

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 Quarterly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.16 Avg Mo	XXX	0.5	1/week	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	XXX	110	Continuous	Recorded
Heat Rejection Rate (MBTUs/day)	XXX	34878	XXX	XXX	XXX	XXX	1/day	Calculation
Total Suspended Solids Intake	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Suspended Solids Effluent Net	8506	17013	XXX	30.0 Avg Mo	60.0	75	1/week	Calculation
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Dissolved Solids Intake	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Dissolved Solids Effluent Net	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	Calculation
Oil and Grease	4253	XXX	XXX	15 Avg Mo	XXX	30	1/week	3 Grabs/24 Hours
Aluminum, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Aluminum, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation

Outfall 101, Continued (from Permit Effective Date through December 31, 2028)

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 Quarterly	Daily Maximum	Instant. Maximum		
Aluminum, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Cadmium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Cadmium, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Cadmium, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Copper, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Copper, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Iron, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Iron, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Iron, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Lead, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Lead, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Thallium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Thallium, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Thallium, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Total Organic Carbon Intake	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab
Total Organic Carbon	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab

Outfall 101, Continued (from Permit Effective Date through December 31, 2028)

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 Quarterly	Daily Maximum	Instant. Maximum		
Total Organic Carbon Effluent Net	XXX	XXX	XXX	XXX	XXX	5.0	1/week	Calculation

Proposed Effluent Limitations and Monitoring Requirements

Outfall 101, Effective Period: January 1, 2029 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	Daily Maximum	Minimum	Average Quarterly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5 Avg Mo	XXX	1.17	1/week	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	XXX	110	Continuous	Recorded
Total Suspended Solids Intake	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Suspended Solids Effluent Net	650	1300	XXX	30.0 Avg Mo	60.0	75	1/week	Calculation
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Dissolved Solids Intake	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	24-Hr Composite
Total Dissolved Solids Effluent Net	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	Calculation
Oil and Grease	325	XXX	XXX	15 Avg Mo	XXX	30	1/week	3 Grabs/24 Hours
Aluminum, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Aluminum, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Aluminum, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation

Outfall 101, Continued (from January 1, 2029 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	Daily Maximum	Minimum	Average Quarterly	Daily Maximum	Instant. Maximum		
Cadmium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Cadmium, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Cadmium, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Copper, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Copper, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Iron, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Iron, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Iron, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Lead, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Lead, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Lead, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Thallium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Thallium, Total Intake	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Thallium, Total Effluent Net	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Calculation
Total Organic Carbon Intake	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab
Total Organic Carbon Effluent Net	XXX	XXX	XXX	XXX	XXX	5.0	1/week	Calculation
Total Organic Carbon	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab

Proposed Effluent Limitations and Monitoring Requirements

Outfall 201, Effective Period: 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	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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.16	XXX	0.50	1/week	Grab
Biochemical Oxygen Demand (BOD5)	1000	2000	XXX	28.0	56.0	70	2/week	24-Hr Composite
BOD, carbonaceous, 20 day, 20 C	1500	XXX	XXX	XXX	XXX	XXX	2/month	24-Hr Composite
Chemical Oxygen Demand (COD)	17608	33130	XXX	491.0	924.0	1228	2/week	24-Hr Composite
Total Suspended Solids	1076	2152	XXX	30.0	60.0	75	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	2/week	24-Hr Composite
Oil and Grease	538	1076	XXX	15.0	30.0	30	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen	717	1434	XXX	20.0	40.0	50	2/week	24-Hr Composite
Total Phosphorus	72	143	XXX	2.0	4.0	5	2/month	24-Hr Composite
Aluminum, Total	Report	166	XXX	Report	4.64	4.64	1/month	24-Hr Composite

Outfall 201, 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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Antimony, Total	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Chromium, Hexavalent	1.1	2.4	XXX	0.03	0.07	0.08	2/week	24-Hr Composite
Chromium, Total	13	37	XXX	0.36	1.03	1.03	2/week	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Selenium, Total	1.08	2.15	XXX	0.03	0.06	0.08	1/month	24-Hr Composite
Sulfide, Total	13	30	XXX	0.36	0.84	0.9	2/week	24-Hr Composite
Phenolics, Total	11	34	XXX	0.31	0.95	0.95	2/week	24-Hr Composite
PCBs Dry Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PFOS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite