pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027103**
Facility Type	**Municipal**	APS ID	**955083**
Major / Minor	**Major**	Authorization ID	**1206612**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**DELCORA**	Facility Name	**DELCORA STP**
Applicant Address	100 East Fifth Street, P O Box 999	Facility Address	3201 W Front Street
	Chester, PA 19016-0999		Chester, PA 19013-1829
Applicant Contact	Charles Hurst	Facility Contact	Charles Hurst
Applicant Phone	(610) 876-5523	Facility Phone	(610) 876-5523
Client ID	42332	Site ID	454804
Ch 94 Load Status	Projected Hydraulic Overload	Municipality	Chester City
Connection Status	Self-Imposed Connection Prohibition	County	Delaware
Date Application Received	November 1, 2017	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility, Pretreatment
Purpose of Application	Permit Renewal.		

Summary of Review

The applicant requests renewal of an NPDES permit to discharge treated sewage from DELCORA STP in the City of Chester, Delaware County. The receiving stream is Delaware River Estuary Zone 4 and is classified as WWF.

The current permit is a two-tier permit for a flow of 44 mgd before the completion of plant expansion and 50 mgd after the completion of plant expansion. The renewal is prepared in one tier for a flow of 44 mgd. Currently DELCORA is not sure when the expansion of the plant is happening or how much would be the actual expanded flow. The permit can be amended appropriately when needed.

The DELCORA STP receives wastewater from residential, commercial and industrial users located within the municipalities of the City of Chester, Marcus Hook Borough, Nether Providence township, Brookhaven Borough, Eddystone Borough, Upland Borough, Lower Chichester Township, Trainer Borough, Parkside Borough, Chester Township, Rose Valley Borough, as well as the users serviced by the Central Delaware County Authority and the Southern Delaware County Authority sewage collection systems. The plant also receives municipal sludge and residual waste from several municipal treatment plants and industrial users outside the DELCORA STP's service area.

The industrial users listed in the application are the following:

1. Alloy Surfaces Company
2. Braskem America, Inc.
3. First Time US Generics
4. Container Research Corporation
5. Esschem, Inc.
6. Eldredge Inc.
7. Marcus Hook Energy

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	January 15, 2021
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	01/15/2021

Summary of Review

8. Kimberly-Clark of PA, LLC
9. Liberty Electric Power, LLC
10. Monarch Environmental
11. Norquay Technologies, Inc
12. Monroe Energy, LLC
13. Polyurethane Specialties Co.
14. Pyromet
15. Pyromet Recycling, LLC
16. Quala Systems
17. Alloy Surfaces Company Inc. Plant 1
18. Pennsylvania Machine Works, Inc.
19. Olympic Tool and Machine Corporation
20. Ace Linen Services, Inc.
21. Atlantic Waste Disposal Inc.
22. Delaware County Linen
23. Barry Callebaut
24. Burlington County Board of Chosen Freeholders
25. P.Q. Corporation
26. Salem County Improvement Authority
27. Charles City County Landfill
28. Chelton House Products
29. Choice Party Linens, Inc.
30. Cintas- Aston
31. Cott Beverage, Inc.
32. FPL Energy Marcus Hook 50 LP
33. King George Landfill
34. Nalco Res-Kem, LLC
35. New Morgan Landfill Company, Inc.
36. SECCRA
37. Sunoco Partners Marketing & Terminals L.P.
38. Sustainable Decarbonization Services
39. Waste Management of PA
40. WaWa Beverage Co.
41. Cumberland County Improvement Auth.
42. Cumberland County Landfill
43. Delaware County Solid Waste Authority
44. FC Pennsylvania Stadium, LLC

The treatment processes consist of grit removal/screening, primary settling, secondary biological treatment via return activated sludge, disinfection via chlorine contact and post aeration. The STP includes one mechanical bar screen, two grit removal chambers, eight primary clarifiers, four aeration tanks, five final clarifiers, two chlorine contact tanks, three gravity belt thickeners, two incinerators, two grease concentrators and four belt filter presses.

Waste solids and biosolids are consolidated via belt filter presses and incinerated. The inert ash is stored on site in ash silos, and ultimately disposed of at a landfill.

DRBC Docket No. D-1992-018 CP-4, was approved on March 13, 2019 for this facility.

The treatment plant is permitted for 50 mgd (hydraulic capacity and annual average flow) under DEP issued WQM permits.

There are four stormwater outfalls, 028, 029, 030 and 031 at the site, all discharging to Delaware River Estuary. Only outfall 028 requires monitoring. No changes to the stormwater outfalls in the permit.

Summary of Review

There are 26 CSO outfalls along the Delaware River, Chester Creek and Ridley Creek as follows:

Outfalls	Interceptor/Regulator Locations	Latitudes	Longitudes	Name of Receiving Streams
002	Front and Booth	39°49'30"	75°23'31"	Delaware River
003	Front and Highland	39°49'34"	75°23'11"	Delaware River
004	Front and Hayes	39°50'36"	75°23'07"	Delaware River
005	Front and Townsend	39°49'46"	75°22'53"	Delaware River
007	Delaware and Reaney	39°49'51"	75°22'45"	Delaware River
008	2nd and Tilghman	39°50'05"	75°22'22"	Delaware River
009	2nd and Lloyd	39°50'14"	75°22'10"	Delaware River
010	5th and Pusey	39°50'26"	75°22'19"	Delaware River
011	2nd and Parker	39°50'26"	75°21'54"	Delaware River
013	2nd and Welsh	39°50'37"	75°21'17"	Delaware River
014	3rd and Upland	39°50'50"	75°21'05"	Delaware River
032	2nd and Avenue of The States	39°50'34"	75°21'25"	Delaware River
012	2nd and Edgmont	39°50'42"	75°21'38"	Chester Creek
019	14th and Crozer Hospital	39°51'24"	75°21'54"	Chester Creek
020	Kerlin and Finland	39°51'24"	75°22'27"	Chester Creek
021	9th and Sproul	39°51'08"	75°21'49"	Chester Creek
022	6th and Sproul	39°50'56"	75°21'47"	Chester Creek
023	3rd and Edgmont	39°50'45"	75°21'42"	Chester Creek
024	3rd and Dock	39°50'44"	75°21'43"	Chester Creek
025	5th and Penn	39°50'49"	75°21'50"	Chester Creek
026	7th and Penn	39°50'58"	75°21'55"	Chester Creek
015	4th and Melrose	39°51'03"	75°20'48"	Ridley Creek
016	8th and McDowell	39°51'15"	75°20'53"	Ridley Creek
017	9th and Campbell	39°51'16"	75°20'51"	Ridley Creek
018	Sun Drive and Hancock Street	39°51'47"	75°20'57"	Ridley Creek
033	Elkington Boulevard and Ridley Creek	39°52'22"	75°22'29"	Ridley Creek

On December 15, 2003 US EPA adopted TMDLs for PCBs for Zones 2, 3, 4 and 5 of the Delaware River Estuary. These TMDLs are established using a multi-step procedure where the DRBC water quality standards are used as the basis for the Stage 1 TMDLs. Permittee submitted a PMP for PCBs to DRBC in October 2005 and it was approved on January 17, 2006. PCB Pollution Minimization Plan activities have been going on since then. The requirement to continue implementation of the PMP is included in the permit. The semi-annual monitoring of PCBs (dry weather and wet weather) is also continued.

The permittee has submitted a Long-Term Control Plan (LTCP) and schedule which currently are under review by EPA and DEP. Once the LTCP is approved, the NPDES permit will be modified to incorporate the LTCP and schedule. This language is incorporated in the CSO condition in the Part C of the permit.

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:

City of Chester - October 31, 2017
Delaware County - October 31, 2017

Summary of Review

Permit Conditions:

A. No Stormwater
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Chlorine Optimization
E. Operator Notification
F. TMDL/WLA Data
G. Treatment for Peak Design Flow
H. Raw Sewage Pump Station Overflow
I. TDS Condition
J. Fecal Coliform Requirement
K. Wastewater from Natural Gas Process
L. CSO Reopener
M. DO limit exemption
N. Combined Sewer Overflows
O. Pretreatment Program Implementation
P. Solids Management
Q. WET Testing
R. Requirements for Stormwater Outfalls
S. PCBs Requirement

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	44
Latitude	39º 49' 25.00"	Longitude	-75º 23' 22.00"
Quad Name	Marcus Hook	Quad Code	2042
Wastewater Description:	Treated Sewage		
Receiving Waters	Delaware River Estuary	Stream Code	0002
NHD Com ID	133072429	RMI	80.71
Q_{7-10} Flow (cfs)	4072	Q_{7-10} Basis	Spread sheet – flows into the Delaware River Estuary
Watershed No.	3-G	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Delaware River Estuary PCB TMDLs

There is no public water supply intake downstream of the discharge.

Treatment Facility Summary

Treatment Facility Name: DELCORA STP

The following are the most recent WQM permits.

WQM Permit No.	Issuance Date
2313401	3/22/2013
WQG02231301	3/22/2013
2313403	3/12/2014
WQG02231419	1/6/2015
2316401	7/19/2016
2316405	1/30/2017
2316406	6/6/2017
2309408 A-1	12/27/2017
2318401	4/24/2018
2320401	05/08/2020
2320402	06/22/2020

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	50

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
50	125000	Projected Hydraulic Overload	Belt Filtration	Incineration

Compliance History

DMR Data for Outfall 001 (from September 1, 2019 to August 31, 2020)

Parameter	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19
Flow (MGD) Average Monthly	41.03	31.47	31.32	31.59	37.33	35.89	36.15	35.05	37.44	30.15	31.27	28.66
Flow (MGD) Daily Maximum	82.69	48.68	47.69	46.61	66.58	51.38	50.32	60.76	67.98	43.6	26.67	35.18
pH (S.U.) Instantaneous Minimum	6.6	6.4	6.25	6.47	6.41	6.48	6.59	6.61	6.5	6.28	6.41	6.31
pH (S.U.) Instantaneous Maximum	6.94	6.86	6.79	6.9	6.73	6.89	6.97	6.93	7.03	6.84	6.99	7.02
TRC (mg/L) Average Monthly	0.5	0.4	< 0.4	0.4	< 0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRC (mg/L) Instantaneous Maximum	0.97	1.0	0.72	0.87	0.84	0.9	0.83	0.83	1.3	0.79	0.95	0.89
CBOD5 (lbs/day) Average Monthly	< 3301	< 1530	< 1171	4185	5032	3303	4294	3219	3258	1796	< 1731	< 1381
CBOD5 (lbs/day) Raw Sewage Influent Average Monthly	89103	70072	72301	74711	82558	69241	85337	88648	65402	65906	77453	73180
CBOD5 (lbs/day) Weekly Average	< 9085	3196	1428	11233	10698	3783	5137	5268	5055	2036	2684	1729
CBOD5 (mg/L) Average Monthly	< 8.0	< 5.0	< 4.0	15.0	14.0	11.0	14.0	10.0	10.0	7.0	< 6.0	< 6.0
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	251.43	236.53	248.22	253.28	244.07	218.50	258.06	279.06	197.62	246	279.26	271.86
CBOD5 (mg/L) Weekly Average	< 15.0	10.0	5.0	42.0	23.0	12.0	17.0	14.0	14.0	8.0	9.0	7.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	74251	78303	75947	76917	73723	63276	83019	78465	79881	66735	75201	64084

BOD5 (mg/L) Raw Sewage Influent Average Monthly	204.32	271.57	263.12	267.63	226.37	196.11	259.09	242.94	227.59	253	270.75	237.73
CBOD20 (lbs/day) Average Monthly	< 4952	< 2295	< 1756	6278	7549	4954	6442	4829	5525	2694	< 2596	< 2071
CBOD20 (%) Percent Removal Minimum Monthly Average	94.65	97.54	97.86	93.43	94.70	93.78	93.96	95.28	93.56	96.67	96.73	97.67
TSS (lbs/day) Average Monthly	4553	2049	1757	4873	5365	4457	5627	4665	5376	3201	3241	2616
TSS (lbs/day) Raw Sewage Influent Average Monthly	99948	94142	89514	80057	86347	78705	84701	86504	83403	74765	87548	69781
TSS (lbs/day) Weekly Average	12328	4413	2226	12473	8667	4830	7078	6379	7686	3916	4900	3194
TSS (mg/L) Average Monthly	11.0	7.0	7.0	18.0	16.0	15.0	19.0	15.0	16.0	13.0	12.0	11.0
TSS (mg/L) Raw Sewage Influent Average Monthly	266.47	316.42	306.63	273.47	251.99	245.53	253.14	268.87	249.57	277	310.46	260.97
TSS (mg/L) Weekly Average	21.0	14.0	8.0	47.0	22.0	18.0	23.0	19.0	20.0	15.0	15.0	13.0
Total Dissolved Solids (mg/L) Average Monthly	527	575	560	412	502	562	558	543	607	749	708	735
Total Dissolved Solids (mg/L) Daily Maximum	593	687	679	454	620	760	649	738	842	824	839	959
Oil and Grease (lbs/day) Average Monthly	< 1711	< 1312	< 1306	< 1336	< 1557	< 1497	< 1752	< 1462	< 1579	< 1257	< 1585	< 1195
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Oil and Grease (mg/L) Instantaneous Maximum	< 5.0	< 5.0	< 5.0	7.0	< 5.0	< 5.0	23.0	5.0	6.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	13	9	< 5	< 6	> 11	8	> 27.97	14	17.0	< 15	25	16

Fecal Coliform (No./100 ml) 90% of Samples					307.6	23.8	410.6	307.6	165.0	260.3	190.4	
Fecal Coliform (No./100 ml) Instantaneous Maximum	157.6	435.2	17.9	261.3								61.3
Ammonia (mg/L) Average Monthly	3.27	1.27	4.1	9.69	6.04	11.45	11.81	10.02	10.48	3.51	3.15	6.51
Nitrate (mg/L) Average Monthly	6.11	5.1	< 2.6	< 1.00	< 1	0.53	< 0.58	< 1.16	< 2.03	4.26	< 5.12	5.21
Nitrate (mg/L) Daily Maximum	8.17	6.07	4.2	< 1.00	< 1	0.59	< 1	2.02	3.6	5.22	8.39	9.42
Nitrite (mg/L) Average Monthly	0.271	< 0.1	2.503	< 0.100	0.35	0.338	< 0.425	< 0.881	< 0.6	0.74	0.43	1.435
Nitrite (mg/L) Daily Maximum	0.422	< 0.1	2.825	< 0.100	0.4	0.405	0.75	1.815	0.98	0.97	0.76	4.955
TKN (mg/L) Average Monthly	5.32	4.94	7.19	18.8	9.83	15.84	16.74	15.39	15.4	6.78	6.45	9.62
Total Cadmium (mg/L) Average Monthly	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Total Copper (mg/L) Average Monthly	0.0031	0.0041	0.0040	0.0038	0.0077	0.0076	0.012	< 0.013	0.0071	0.0058	0.0045	0.0028
Total Cyanide (mg/L) Average Monthly	0.0230	0.0180	0.0280	0.0370	0.0240	0.1200	0.0070	0.014	0.043	0.03	0.0150	0.03
Total Lead (mg/L) Average Monthly	< 0.001	< 0.0010	< 0.001	< 0.0010	< 0.0010	< 0.0010	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Total Zinc (mg/L) Average Monthly	0.0230	0.0310	0.0230	0.0300	0.0370	0.0390	0.057	0.028	0.025	0.027	0.0190	0.029
Chlorodibromo-methane (mg/L) Average Monthly	0.0008	0.0062	0.0007	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0011	0.0010	0.0012
Dichlorobromo-methane (mg/L) Average Monthly	0.0015	0.0047	0.0011	0.0008	0.0010	0.0009	< 0.0005	0.0009	0.0014	0.002	0.0017	0.0021
PCBs (Dry Weather) (pg/L) Daily Maximum			1650						722			
PCBs (Wet Weather) (pg/L) Daily Maximum			2510						2660			

DMR Data for Outfall 028 (from September 1, 2019 to August 31, 2020)

Parameter	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19
pH (S.U.) Daily Maximum									7.53			
CBOD5 (mg/L) Daily Maximum									6.2			
COD (mg/L) Daily Maximum									27			
TSS (mg/L) Daily Maximum									137			
Oil and Grease (mg/L) Daily Maximum									< 4			
TKN (mg/L) Daily Maximum									1.1			
Total Phosphorus (mg/L) Daily Maximum									0.26			
Dissolved Iron (mg/L) Daily Maximum									< 0.060			

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2019 to: August 31, 2020

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	12/31/19	IMAX	1.3	mg/L	1.0	mg/L
CBOD5	05/31/20	Wkly Avg	11233	lbs/day	10500	lbs/day
CBOD5	04/30/20	Wkly Avg	10698	lbs/day	10500	lbs/day
CBOD5	05/31/20	Wkly Avg	42.0	mg/L	29.0	mg/L
TSS	05/31/20	Wkly Avg	47.0	mg/L	45.0	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 44
Latitude 39º 49' 25.00" **Longitude** -75º 23' 22.00"
Wastewater Description: Treated sewage

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	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)

Water Quality Based Limits

Parameters	Monthly Ave. Conc (mg/l)	Weekly Ave Conc. (mg/l)	Inst. Max. (mg/l)	Basis
$CBOD_5$	19	29	38	Existing*
$CBOD_5$	7,000 lbs/day	10,500 lbs/day		Existing*
CBOD5 % removal**	89.25% (min. monthly average			DRBC
Total Suspended Solids	30	45	60	DRBC
TDS	1000			DRBC
NH_3 –N (May 1 – Sep 30)	15			BPJ/BAT***
NH_3 –N (Oct 1 – Apr 30)	23			BPJ/BAT***
NO3-N	Report			existing
NO_2 –N	Report			existing
TKN	Report			existing
Total N	Report			SOP
Total P	Report			SOP
Dissolved Oxygen****			4.0 (Inst.Min.)	BPJ/SOP
Oil and Grease	15		30	Ch. 95.2

Total Residual Chlorine	0.5		1.0	Spread sheet
Fecal Coliform	200/100ml		1000/100ml	Ch. 92a /DRBC
PH	6.0 to 9.0 std. units at all times			Ch. 93

* These limits were historically established in the permit based on the previously approved DRBC Docket dated June 15, 2016. These existing limits are carried over to the new permit to maintain the plant's current treatment quality.

** CBOD20 mass loading and CBOD20 % removal requirements are eliminated from the permit. CBOD5 % removal requirement is included in place of CBOD20 % removal. Reference: DRBC Docket No. D-1992-018 CP-4.

*** Review of the monitoring results shows these limits are easily achievable. These limits are established to maintain the plant's current treatment quality while DRBC is planning to come up with an ammonia criterion for Estuary. Seasonal limit period is adjusted to be consistent with the swimming season for simplicity for monitoring and reporting purposes.

****Discharge is exempted to meet the Inst.Min. limitation of 4.0 mg/l during the high flow periods when the daily max flow exceeds 66 MGD.

According to the permittee, during large wet weather events resulting in daily effluent flows exceeding 66 MGD, the dissolved oxygen effluent limitation of 4.0 mg/L is not consistently attainable. During normal flow, the effluent discharge cascades over two weirs that effectuates turbulence resulting in aeration of the effluent prior to final discharge. At high flows, the cascading effect is minimized thereby reducing the final turbulence and aeration of the effluent resulting in low DO. Based on a review of the 2017-2020 data, permittee requested an exemption from the 4.0 mg/L DO limit at daily flows exceeding 66 MGD to address this issue.

Total N, Total P and DO are the new parameters in the permit.

A "Reasonable Potential Analysis" determined the following are parameters of concern:

Parameter (a)	Maximum concentration reported (ug/l) (b)	Most Stringent Criterion (ug/l) (c)	Max. allowable concentration c*5.2/12.8	recommendation
Total Dissolved Solids	1004000	500000		Limit based on DRBC docket
Chloride	347000	250000		Monitor*
Bromide	1100	N/A		Monitor*
Sulfate	164000	250000		Monitor*
Total Antimony	13	5.6	29.12	No monitoring
Total Cadmium	<5	0.25	1.3	Monitor/existing*****
Total Copper	18	9.0	46.8	Monitor/existing**
Free Available Cyanide	22	5.2	27.04	Monitor***
Total Phenols (Phenolics)	8	5	26	No monitoring
Chlorodibromomethane	6.7	0.4	5.12	Monitor/existing****
Dichlorobromomethane	7.2	0.55	7.04	Monitor/existing****
Total Lead	<15	2.5	13	Monitor/existing*****

Total Zinc	69	117	608.4	Monitor/existing ******
Total Cyanide	58	NA	NA	Monitor/existing******

Dilution factor 5.2 is based on DRBC. Dilution factor 12.8 is based on harmonic mean flow (10,029 cfs), which is used if the criteria is based on human health CRL.

*as the major constituents of TDS, Chloride, Bromide, and Sulfate are required to monitor because of the elevated concentration of TDS.

**existing monitoring is recommended based on DRBC docket.

***only 3 sampling results are available. Monitoring is included to collect more data to be evaluated at the next renewal.

****out of 12 sample analyses, only one sample is above the allowable concentration. The average is below the allowable concentration. The criteria are based on human health and there is no public water downstream of discharge. Continue monitoring is recommended.

***** out of 12 sample analyses only one sample is above the allowable concentration (reported less than). All the other results are very low.

******existing monitoring is continued because of the large number of industrial users.

Anti-Backsliding

N/A

Development of Effluent Limitations

Outfall No. 028 **Design Flow (MGD)** 0
Latitude 39º 49' 30.00" **Longitude** -75º 23' 45.00"
Wastewater Description: Stormwater

Outfall No. 029 **Design Flow (MGD)** 0
Latitude 39º 49' 30.00" **Longitude** -75º 23' 30.00"
Wastewater Description: Stormwater

Outfall No. 030 **Design Flow (MGD)** 0
Latitude 39º 49' 30.00" **Longitude** -75º 23' 45.00"
Wastewater Description: Stormwater

Outfall No. 031 **Design Flow (MGD)** 0
Latitude 39º 49' 30.00" **Longitude** -75º 23' 30.00"
Wastewater Description: Stormwater

Outfall 028 is required to be monitored for the following existing stormwater parameters: pH, CBOD5, COD, TSS, Oil and Grease, TKN, Total P, and Dissolved Iron. Outfalls 029, 030 and 031 are not required to be monitored similar to the existing permit.

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:

The dilution series used for the tests was: 100%, 50%, 25%, 12.5%, and 6.25%. The Target Instream Waste Concentrations (TIWCs) to be used for analysis of the results are: 62% for Acute and 18% for Chronic.

Summary of Four Most Recent Test Results

NOEC/LC50 Data Analysis

	***Ceriodaphnia* Results (% Effluent)**			***Pimephales* Results (% Effluent)**			
Test Date	**NOEC Survival**	**NOEC Reproduction**	**LC50**	**NOEC Survival**	**NOEC Growth**	**LC50**	**Pass? ***
04/24/2018	100	12.5	>100	100	100	>100	No*
01/23/2018	100	100	>100	100	100	>100	yes
10/17/2017	100	50	>100	50	50	>100	yes
07/18/2017	100	100	>100	100	100	>100	yes

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

* 04/25/2017 Chronic test (Ceriodaphnia) was also Failed with a reported Reproduction NOEC of <6.25 %

Is there reasonable potential for an excursion above water quality standards based on the results of these tests?

☒ **YES** ☐ **NO**

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Based on the review of the past WET tests, there is no reasonable potential to exceed the Acute WET limit (TUa = 1.6) established in the DRBC docket.

Chronic test results show reasonable potential to exceed the WLA established by DRBC.

Considering the size of the discharge and the various industrial users discharging at the facility, Quarterly Chronic and Acute WET testing throughout the permit term will be included in the permit with the standard condition from PADEP WET SOP.

Based on recommendation from DRBC the existing TIWCc (18%) and TIWCa (62%) are continued in the new permit.

The dilution series for the Chronic test will be 5%, 9%, 18%, 59% and 100% and the dilution series for the Acute test will be 16%, 31%, 62%, 81% and 100% according to WET SOP.

WET Limits

Has reasonable potential been determined? ☒ YES ☐ NO

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

The WLA established for this facility by DRBC, 5.5 TUc is recommended as limit in the new permit for the species Ceriodaphnia. Reference: "Wasteload Allocations for Volatile Organics and toxicity: Phase I TMDLs for Toxic Pollutants in the Delaware River Estuary" dated December 1998.

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	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.0	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5)	7000	10500	XXX	19.0	29.0 Wkly Avg	38	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
CBOD5 Minimum % Removal (%)	XXX	XXX	XXX	89.25 Min Mo Avg	XXX	XXX	1/day	Calculation
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	11000	16500	XXX	30.0	45.0 Wkly Avg	60	1/day	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Oil and Grease	5500	XXX	XXX	15	XXX	30	1/day	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia-Nitrogen Oct 1 - Apr 30	8440	XXX	XXX	23.0	XXX	46	2/month	24-Hr Composite
Ammonia-Nitrogen May 1 - Sep 30	5500	XXX	XXX	15.0	XXX	30	2/month	24-Hr Composite
Nitrate as N	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Nitrite an N	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Cadmium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Cyanide, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Lead, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Sulfate, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Chloride	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Bromide	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Chlorodibromomethane	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Dichlorobromomethane	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
PCBs Dry Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
PCBs Wet Weather Analysis (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	24-Hr Composite
Toxicity, Acute - Ceriodaphnia Survival (TUa)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	5.5	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	5.5	XXX	1/quarter	24-Hr Composite
Toxicity, Acute - Pimephales Survival (TUa)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Toxicity, Chronic - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

Outfall 028, 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/year	Grab
CBOD5	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
TKN	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab