

Application Type Renewal
Facility Type Municipal
Major / Minor Major

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0026531
APS ID 1067869
Authorization ID 1403924

Applicant and Facility Information

Applicant Name	<u>Downingtown Area Regional Authority</u>	Facility Name	<u>DARA Water Pollution Control Plant</u>
Applicant Address	<u>6 W. Lancaster Avenue</u> <u>Downingtown, PA 19335-2825</u>	Facility Address	<u>550 S. Brandywine Avenue</u> <u>Downingtown, PA 19335-3418</u>
Applicant Contact	<u>Herbert Mays</u>	Facility Contact	<u>John Wilson</u>
Applicant Phone	<u>(610) 269-4084</u>	Facility Phone	<u>(610) 269-8121</u>
Client ID	<u>34859</u>	Site ID	<u>254958</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>East Caln Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Chester</u>
Date Application Received	<u>July 1, 2022</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u></u>	If No, Reason	<u>Major Facility, Pretreatment</u>
Purpose of Application	<u>Permit Renewal</u>		

Summary of Review

Downingtown Area Regional Authority (DARA) requests renewal of an NPDES permit to discharge treated sewage from its DARA Water Pollution Control Plant to East Branch Brandywine Creek. The facility is located in East Caln Township, Chester County.

The municipalities served by this facility are Downingtown Borough, Caln Township, East Caln Township, Uwchlan Township and West Whiteland Township.

The treatment processes include flow equalization, grit and screenings removal, primary sedimentation, activated sludge treatment with nitrification, chemical phosphorus removal, secondary sedimentation, mixed-media filtration, chlorination, and post aeration. Biosolids generated during wastewater treatment are gravity thickened and dewatered with belt filter presses. Lime is then added to the dewatered biosolids to meet Class B Solids pathogen and vector attraction requirements before ultimate disposal through land application or sanitary land filling.

Currently the following wastewater treatment chemicals are used at the plant: Chlorine, Sodium Bisulfide, Ferric Chloride, Polymer, and Lime.

According to the application, plant expansion being explored, and municipalities have commenced Act 537 planning related to their long-term sewage treatment needs.

Review of eDMRs show many effluent violations in the past year. No comments received from Operations section.

The applicant is implementing an EPA approved pretreatment program. The existing Part C condition to continue implementation of the pretreatment program is recommended to continue in the draft permit. The following are the industries connected to the sewer system:

Approve	Deny	Signatures	Date
X		<i>Sara Abraham</i> Sara Reji Abraham, E.I.T. / Project Manager	September 26, 2023
X		<i>Pravin Patel</i> Pravin C. Patel, P.E. / Environmental Engineer Manager	09/27/2023

Summary of Review

- (i) Kim Manufacturing
- (ii) Pepperidge Farm
- (iii) Victory Brewing
- (iv) AGC Americas
- (v) Johnson Matthey

The receiving water is designated for Warm Water Fishes (WWF) and Migratory Fishes (MF) and is considered impaired according to DEP's "Integrated Water Quality Monitoring and Assessment Report". The receiving water is in the Christina River Basin, which has an approved Total Maximum Daily Load (TMDL) (EPA addendum August 23, 2006). Effluent limits included in the draft NPDES permit are consistent with the Department's Christina Low-Flow TMDL reallocation letter to the EPA dated June 27, 2012, which was published in the Pennsylvania Bulletin on November 3, 2012.

High Flow Nutrients and Low Dissolved Oxygen TMDL: The WLAs listed in the High Flow TMDL (Table 2-2) are identical to the WLAs listed in the Low Flow TMDL (Table 14). Since the WLAs for the former Sunoco Downingtown Papermill Facility were reallocated to DARA and Overlook Road Farm WWTP, the effluent limits for DARA and Overlook Road Farm WWTP are consistent with the Christina River Basin High Flow Nutrients and Low Dissolved Oxygen TMDL.

Bacteria and Sediment TMDL: The permit includes a fecal coliform limit of 200 # /100 ml and a TSS limit of 30 mg/l, which are consistent with the WLAs listed in Table 2-2 of the Christina Bacteria and Sediment TMDL.

The existing permit has a copper monitoring requirement. DARA participated with a group that submitted a copper WER study to the DEP in 1999. The EPA approved a dissolved Cu WER of 5.1 for DARA. The existing permit has a condition which requires the permittee to submit an updated site-specific copper criteria study within the term of the existing permit. The permittee submitted a BLM study plan for developing a site-specific criterion for copper on December 31, 2021 and is under review by Central Office, Water Quality Division.

A Part C condition is established in the draft permit that is a part of the stipulation of settlement DARA filed with Environmental Hearing Board (EHB Docket No. 2021-127-L) in relation with DEP's requirement of BLM usage for developing SSC. The condition requires the permittee to submit a completed SSCS report within 3 months of the study completion.

Influent monitoring for CBOD5, TSS and BOD5 are recommended for the draft permit to check compliance with the 85% removal requirement and Chapter 94 requirement. This requirement is consistent with the requirements of other similar dischargers in the area.

Based on the Toxic Management Spreadsheet calculation, new parameters Free Cyanide, Total Iron, Total Phenols and Total Zinc are included in the draft permit.

Sulfate and Bromide monitoring are eliminated from the permit because there is no concern for these parameters.

Sludge use and disposal description and location(s): Land application on various sites located in Lancaster and Lebanon counties.

Outfall 002 discharges stormwater from the site to East Branch Brandywine Creek. The current monitoring requirements and BMPs are continued in the draft 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.

Summary of Review

Act 14 Notifications:

East Caln Township	-	June 27, 2022
Chester County	-	June 22, 2022

Permit Conditions:

- A. No Stormwater
- B. Acquire Necessary Property Rights
- C. Proper Sludge Disposal
- D. Chlorine Optimization
- E. Small Stream Discharge
- F. Operator Notification
- G. Fecal Coliform Reporting
- H. Pretreatment Program Implementation
- I. Solids Management
- J. Site-Specific Criteria Study
- K. WET Condition
- L. Stormwater Outfalls Requirement

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	7.5
Latitude	39° 59' 44.66"	Longitude	-75° 42' 16.52"
Quad Name	Unionville	Quad Code	1940
Wastewater Description: Treated Sewage Effluent			
Receiving Waters	East Branch Brandywine Creek (WWF, MF)	Stream Code	00229
NHD Com ID	26107162	RMI	7.78
Drainage Area	85.1 sq.mi.	Yield (cfs/mi ²)	0.21
Q ₇₋₁₀ Flow (cfs)	17.7	Q ₇₋₁₀ Basis	Previous fact sheet * (DFLOW)
Elevation (ft)	217		
Watershed No.	3-H	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	cause unknown, flow regime modification		
Source(s) of Impairment	municipal point source discharges, urban runoff/storm sewers		
TMDL Status	Final	Name	Christina River Basin
Nearest Downstream Public Water Supply Intake	Pennsylvania American		
PWS Waters	East Branch Brandywine Creek		

*Used DFLOW with daily data between 1996 to 2011 which produces a Q₇₋₁₀ flow of 12.6 cfs. The drainage area at the gage is 60.6 sq. mi., resulting in a yield of 0.2079 cfs/square mile.

USGS GAGE STATION 01480700 EAST BRANCH BRANDYWINE CREEK NEAR DOWNINGTOWN, PA –
Lat 40° 02' 05", long 75° 42' 32", Chester County, Hydrologic Unit 02040205, 20 feet downstream from bridge on Dowlin Forge Road, and 2.2 mi north of Downingtown. DRAINAGE AREA - 60.6 sq. mi.

Treatment Facility Summary				
Treatment Facility Name: Dara Water Pollution Control Plant				
WQM Permit No.		Issuance Date		
1598403 A-2		07/17/2013		
1598403 A-1		06/04/2007		
1506406		09/19/2006		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	7.5
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
10.88	21000	Not Overloaded	Gravity thickening, belt filtration	Land application/sanitary land filling

Compliance History

DMR Data for Outfall 001 (from July 1, 2021 to June 30, 2022)

Parameter	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21
Flow (MGD) Average Monthly	6.10	6.98	7.60	6.25	6.14	5.94	5.50	5.25	5.77	5.73	5.73	5.54
Flow (MGD) Daily Maximum	7.92	14.33	13.69	10.47	8.51	8.56	7.03	5.91	10.84	6.31	8.94	6.60
pH (S.U.) Instantaneous Minimum	7.2	7.2	6.8	6.8	6.8	6.8	6.9	7.1	6.8	6.7	6.9	6.9
pH (S.U.) Instantaneous Maximum	7.5	7.5	7.5	7.3	7.2	7.2	7.5	7.5	7.5	7.5	7.3	7.7
DO (mg/L) Minimum	7.6	7.7	7.1	4.7	7.4	7.7	5.4	7.1	6.6	1.5	7.3	7.1
TRC (mg/L) Average Monthly	0.1	0.1	0.5	0.4	0.4	0.4	0.50	0.5	0.6	0.6	0.4	0.4
TRC (mg/L) Instantaneous Maximum	0.5	0.7	1.5	0.9	0.7	1.0	0.80	1.0	1.3	2.4	0.6	0.6
CBOD5 (lbs/day) Average Monthly	< 396	< 1402	3322	1531	807	965	< 764	977	< 216	3029	< 156	< 110
CBOD5 (lbs/day) Weekly Average	< 573	3933	5590	3551	919	1742	< 1724	2256	422	3765	229	< 120
CBOD5 (mg/L) Average Monthly	< 8	< 24	50	29	16	18	< 18	22	< 4	63	< 3	< 2
CBOD5 (mg/L) Weekly Average	< 11	69	95	66	19	31	42	49	8	79	4	< 3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	17112	14181	16151	12649	14933	16333	13500	16702	21692	10548	15129	13985
BOD5 (mg/L) Raw Sewage Influent Average Monthly	338	255	249	256	301	272	281	321	333	184	313	275
TSS (lbs/day) Average Monthly	< 597	< 2724	5416	2301	1198	1790	1120	2658	1072	6663	391	< 82

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TSS (lbs/day) Raw Sewage Influent Average Monthly	13362	13196	11586	11945	12997	15804	12336	18444	22559	9432	13886	14306
TSS (lbs/day) Weekly Average	689	7146	8338	5379	1503	2806	2413	7165	2137	10949	548	< 77
TSS (mg/L) Average Monthly	< 11	< 47	84	42	23	35	26	58	18	139	8	< 2
TSS (mg/L) Raw Sewage Influent Average Monthly	262	238	188	242	264	264	256	355	384	166	292	281
TSS (mg/L) Weekly Average	13	125	141	95	28	52	59	155	35	231	11	< 2
Total Dissolved Solids (lbs/day) Average Monthly	31611			17596			24255			22623		
Total Dissolved Solids (lbs/day) Daily Maximum	31611			17596			24255			22623		
Total Dissolved Solids (mg/L) Average Monthly	486			419			498			487		
Total Dissolved Solids (mg/L) Daily Maximum	486			419			498			487		
Fecal Coliform (No./100 ml) Geometric Mean	< 6	< 62	< 38	45	81	124	76	< 46	< 17	> 2043	< 7	< 3
Fecal Coliform (No./100 ml) 90% of Samples	27	9800	727	121	1000	500	690	490	171	2580000	136	2
Total Nitrogen (lbs/day) Average Monthly	698	< 953	421	769	1069	853	698	< 707	598	< 316	< 648	< 909
Total Nitrogen (mg/L) Average Monthly	< 13	< 15	8	15	21	18	15	< 16	13	< 7	< 16	< 17
Ammonia (lbs/day) Average Monthly	< 6	< 236	335	< 166	< 19	< 72	< 379	489	378	829	< 16	< 5
Ammonia (mg/L) Average Monthly	< 0.1	< 3.9	5.0	< 3.2	< 0.4	< 1.3	< 8.4	11.2	7.8	17.4	< 0.3	< 0.1
Total Phosphorus (lbs/day) Average Monthly	89.5	72.1	162.8	160.4	141.5	136	< 82.2	89.8	55.8	176.5	94.9	73.4

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Total Phosphorus (mg/L) Average Monthly	1.7	1.2	2.4	3.1	2.8	2.7	< 1.8	2.0	1.1	3.7	2.0	1.6
Total Copper (lbs/day) Average Monthly	0.438	0.660	1.429	2.013	0.989	1.404	0.398	0.39	0.285	1.864	0.498	0.472
Total Copper (lbs/day) Daily Maximum	0.623	1.436	2.626	6.052	0.989	1.404	0.398	0.39	0.285	1.864	0.498	0.472
Total Copper (mg/L) Average Monthly	0.009	0.011	0.018	0.037	0.019	0.030	0.009	0.009	0.006	0.039	0.012	0.009
Total Copper (mg/L) Daily Maximum	0.012	0.027	0.035	0.109	0.019	0.030	0.009	0.009	0.006	0.039	0.012	0.009
Sulfate (lbs/day) Average Quarterly	1912			1323			1461			1556		
Sulfate (mg/L) Average Quarterly	29			32			30			34		
Chloride (lbs/day) Average Quarterly	9626			6593			6039			6736		
Chloride (mg/L) Average Quarterly	148			157			124			145		
Bromide (lbs/day) Average Quarterly	< 65			< 42			< 49			< 46		
Bromide (mg/L) Average Quarterly	< 1			< 1			< 1.0			< 1		
Total Hardness (lbs/day) Average Monthly	10792	13189	10614	10313	11822	10252	9456	9367	10772	10705	8971	10911
Total Hardness (lbs/day) Daily Maximum	10792	13189	10614	10313	11822	10252	9456	9367	10772	10705	8971	10911
Total Hardness (mg/L) Average Monthly	208	214	213	207	227	219	214	216	227	224	216	208
Total Hardness (mg/L) Instantaneous Maximum	208	214	213	207	227	219	214	216	227	224	216	208
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum	GG			2.5			FF			GG		
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum	GG			2.5			FF			GG		

Chronic WET - Pimephales Survival (TUc) Daily Maximum	GG			2.5			FF			GG		
Chronic WET - Pimephales Growth (TUc) Daily Maximum	GG			2.5			FF			GG		

DMR Data for Outfall 002 (from July 1, 2021 to June 30, 2022)

Parameter	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21
pH (S.U.) Daily Maximum							6.64					
CBOD5 (mg/L) Daily Maximum							5					
COD (mg/L) Daily Maximum							26					
TSS (mg/L) Daily Maximum							52					
Oil and Grease (mg/L) Daily Maximum							< 5					
Fecal Coliform (CFU/100 ml) Daily Maximum							9700					
TKN (mg/L) Daily Maximum							1					
Total Phosphorus (mg/L) Daily Maximum							0.07					
Dissolved Iron (mg/L) Daily Maximum							< 0.02					

Compliance History

Effluent Violations for Outfall 001, from: August 1, 2021 To: June 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
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DO	03/31/22	Min	4.7	mg/L	6.0	mg/L
DO	09/30/21	Min	1.5	mg/L	6.0	mg/L
DO	12/31/21	Min	5.4	mg/L	6.0	mg/L
DO	03/31/22	Min	4.7	mg/L	6.0	mg/L
TRC	10/31/21	Avg Mo	0.6	mg/L	.5	mg/L
TRC	09/30/21	Avg Mo	0.6	mg/L	.5	mg/L
TRC	09/30/21	IMAX	2.4	mg/L	1.6	mg/L
CBOD5	09/30/21	Avg Mo	3029	lbs/day	626	lbs/day
CBOD5	05/31/22	Avg Mo	< 1402	lbs/day	626	lbs/day
CBOD5	03/31/22	Avg Mo	1531	lbs/day	1251	lbs/day
CBOD5	04/30/22	Avg Mo	3322	lbs/day	1251	lbs/day
CBOD5	03/31/22	Avg Mo	1531	lbs/day	1251	lbs/day
CBOD5	11/30/21	Wkly Avg	2256	lbs/day	1877	lbs/day
CBOD5	05/31/22	Wkly Avg	3933	lbs/day	938	lbs/day
CBOD5	09/30/21	Wkly Avg	3765	lbs/day	938	lbs/day
CBOD5	03/31/22	Wkly Avg	3551	lbs/day	1877	lbs/day
CBOD5	03/31/22	Wkly Avg	3551	lbs/day	1877	lbs/day
CBOD5	04/30/22	Wkly Avg	5590	lbs/day	1877	lbs/day
CBOD5	09/30/21	Avg Mo	63	mg/L	10	mg/L
CBOD5	03/31/22	Avg Mo	29	mg/L	20	mg/L
CBOD5	03/31/22	Avg Mo	29	mg/L	20	mg/L
CBOD5	04/30/22	Avg Mo	50	mg/L	20	mg/L

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CBOD5	05/31/22	Avg Mo	< 24	mg/L	10	mg/L
CBOD5	11/30/21	Avg Mo	22	mg/L	20	mg/L
CBOD5	03/31/22	Wkly Avg	66	mg/L	30	mg/L
CBOD5	05/31/22	Wkly Avg	69	mg/L	15	mg/L
CBOD5	12/31/21	Wkly Avg	42	mg/L	30	mg/L
CBOD5	11/30/21	Wkly Avg	49	mg/L	30	mg/L
CBOD5	04/30/22	Wkly Avg	95	mg/L	30	mg/L
CBOD5	03/31/22	Wkly Avg	66	mg/L	30	mg/L
CBOD5	01/31/22	Wkly Avg	31	mg/L	30	mg/L
CBOD5	09/30/21	Wkly Avg	79	mg/L	15	mg/L
TSS	11/30/21	Avg Mo	2658	lbs/day	1877	lbs/day
TSS	09/30/21	Avg Mo	6663	lbs/day	1877	lbs/day
TSS	05/31/22	Avg Mo	< 2724	lbs/day	1877	lbs/day
TSS	03/31/22	Avg Mo	2301	lbs/day	1877	lbs/day
TSS	03/31/22	Avg Mo	2301	lbs/day	1877	lbs/day
TSS	04/30/22	Avg Mo	5416	lbs/day	1877	lbs/day
TSS	04/30/22	Wkly Avg	8338	lbs/day	2815	lbs/day
TSS	03/31/22	Wkly Avg	5379	lbs/day	2815	lbs/day
TSS	03/31/22	Wkly Avg	5379	lbs/day	2815	lbs/day
TSS	09/30/21	Wkly Avg	10949	lbs/day	2815	lbs/day
TSS	11/30/21	Wkly Avg	7165	lbs/day	2815	lbs/day
TSS	05/31/22	Wkly Avg	7146	lbs/day	2815	lbs/day

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TSS	03/31/22	Avg Mo	42	mg/L	30	mg/L
TSS	09/30/21	Avg Mo	139	mg/L	30	mg/L
TSS	01/31/22	Avg Mo	35	mg/L	30	mg/L
TSS	11/30/21	Avg Mo	58	mg/L	30	mg/L
TSS	05/31/22	Avg Mo	< 47	mg/L	30	mg/L
TSS	04/30/22	Avg Mo	84	mg/L	30	mg/L
TSS	03/31/22	Avg Mo	42	mg/L	30	mg/L
TSS	03/31/22	Wkly Avg	95	mg/L	45	mg/L
TSS	03/31/22	Wkly Avg	95	mg/L	45	mg/L
TSS	12/31/21	Wkly Avg	59	mg/L	45	mg/L
TSS	09/30/21	Wkly Avg	231	mg/L	45	mg/L
TSS	11/30/21	Wkly Avg	155	mg/L	45	mg/L
TSS	01/31/22	Wkly Avg	52	mg/L	45	mg/L
TSS	05/31/22	Wkly Avg	125	mg/L	45	mg/L
TSS	04/30/22	Wkly Avg	141	mg/L	45	mg/L
Fecal Coliform	09/30/21	Geo Mean	> 2043	No./100 ml	200	No./100 ml
Fecal Coliform	05/31/22	90%SAMPL ES	9800	No./100 ml	1000	No./100 ml
Fecal Coliform	09/30/21	90%SAMPL ES	2580000	No./100 ml	1000	No./100 ml
Ammonia	11/30/21	Avg Mo	489	lbs/day	375	lbs/day
Ammonia	10/31/21	Avg Mo	378	lbs/day	125	lbs/day
Ammonia	12/31/21	Avg Mo	< 379	lbs/day	375	lbs/day
Ammonia	05/31/22	Avg Mo	< 236	lbs/day	125	lbs/day

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Ammonia	09/30/21	Avg Mo	829	lbs/day	125	lbs/day
Ammonia	09/30/21	Avg Mo	17.4	mg/L	2.0	mg/L
Ammonia	05/31/22	Avg Mo	< 3.9	mg/L	2.0	mg/L
Ammonia	10/31/21	Avg Mo	7.8	mg/L	2.0	mg/L
Ammonia	12/31/21	Avg Mo	< 8.4	mg/L	6.0	mg/L
Ammonia	11/30/21	Avg Mo	11.2	mg/L	6.0	mg/L
Total Phosphorus	03/31/22	Avg Mo	160.4	lbs/day	125	lbs/day
Total Phosphorus	09/30/21	Avg Mo	176.5	lbs/day	125	lbs/day
Total Phosphorus	04/30/22	Avg Mo	162.8	lbs/day	125	lbs/day
Total Phosphorus	03/31/22	Avg Mo	160.4	lbs/day	125	lbs/day
Total Phosphorus	01/31/22	Avg Mo	136	lbs/day	125	lbs/day
Total Phosphorus	02/28/22	Avg Mo	141.5	lbs/day	125	lbs/day
Total Phosphorus	03/31/22	Avg Mo	3.1	mg/L	2.0	mg/L
Total Phosphorus	04/30/22	Avg Mo	2.4	mg/L	2.0	mg/L
Total Phosphorus	02/28/22	Avg Mo	2.8	mg/L	2.0	mg/L
Total Phosphorus	01/31/22	Avg Mo	2.7	mg/L	2.0	mg/L
Total Phosphorus	09/30/21	Avg Mo	3.7	mg/L	2.0	mg/L
Total Phosphorus	03/31/22	Avg Mo	3.1	mg/L	2.0	mg/L

Development of Effluent Limitations

Outfall No. 001
Latitude 39° 59' 44.49"
Wastewater Description: Treated Sewage Effluent

Design Flow (MGD) 7.5
Longitude -75° 42' 16.59"

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 Limitations

The following limitations apply:

Parameters	Monthly Ave. Conc (mg/l)	Weekly Ave Conc. (mg/l)	Inst. Max. (mg/l)	Basis
CBOD ₅ (5/1 to 10/31)	10	15	20	TMDL
CBOD ₅ (11/1 to 4/30)	20	30	40	Existing (seasonal limit)
Dissolved Oxygen			6.0 (Inst. Min.)	TMDL
Total Suspended Solids	30	45	60	Existing/DRBC
TDS	1000	2000 (Daily Max.)	2500	Existing/DRBC
NH ₃ -N (05/01 to 10/31)	2.0		4.0	TMDL
NH ₃ -N (11/1 to 4/30)	6.0		12	Existing (seasonal limit)
Total N	30		60	TMDL
Total P	2.0		4	TMDL
TRC	0.5		1.6	Existing*
Fecal Coliform (# / 100ml)	200 (Geo.Mean)		1000	Ch. 92a /DRBC
E. Coli			Report	Ch. 92a**

Hardness, Total (as CaCO ₃)	Report		Existing***
PH	6.0 to 9.0 std. units at all times		Ch. 93

*On November 21, 2013, DARA submitted an updated site-specific chlorine demand study which confirms that the original BAT/BPJ TRC limit of 0.5 mg/l is still valid. The Department reviewed the results of the chlorine demand study and amended the previous NPDES permit to incorporate a final average monthly TRC limit of 0.5 mg/l.

** E. Coli monitoring is included in the draft permit according to the DEP SOP guidance (Chapter 92.a.61). This is a new requirement and is consistent with the requirements of other similar discharges in the area.

*** Existing Hardness monitoring is continued, as the Copper criterion is based on this parameter. This is for data collection and is consistent with the Copper monitoring.

A "Reasonable Potential Analysis" determined the following parameters were candidates for limitations/monitoring:

Parameter	Limit (mg/l)	SBC	Model
Total Dissolved Solids*	Report	Average Monthly	Toxic Management Spreadsheet (TMS)
Chloride	Report	Average Monthly	TMS
Total Copper**	Report	Average Monthly	TMS
Free Cyanide***	10.1 ug/l	Average Monthly	TMS
Total Iron	Report	Average Monthly	TMS
Total Phenols****	13.2 ug/l	Average Monthly	TMS
Total Zinc	Report	Average Monthly	TMS

*Existing limit is recommended. DRBC regulation 3.10.4.D.2 includes a TDS limit of 1000 mg/l.

**Current copper monitoring is continued in the draft permit. TMS recommended monitoring requirement for copper by using 5.1 as the criteria modifier in TMS run.

*** Three results are provided for Free Cyanide. Two of them are Non-Detect results and the other one is reported as 1ug/l. For one analysis the quantitation level (QL) used is above the recommended target QL which triggered TMS to recommend a limit. Monitoring is included in the draft permit to collect more data and this will be reevaluated at the next permit renewal. We request the permittee to use the recommended TQL for all future analyses.

****Six results are provided for Total Phenols. Only two are reported as detectable and out of those, only one result is ≥ 50% of WQBEL calculated by TMS. Monitoring is included in the draft permit to collect more data and this will be reevaluated at the next permit renewal.

Anti-Backsliding

Sulfate and Bromide monitoring are eliminated from the permit.

Discharge concentrations for Sulfate are much lower than the criterion, and there is no criterion for Bromide. Bromide is reported as Non-Detect results for all analyses. Historically PADEP compared the effluent concentration of Bromide with a threshold of >1.0 mg/l for facilities with flow greater than 0.1 MGD or 10 mg/l for flows less than 0.1 MGD. If this criterion is met, a monitoring requirement was added in the permit. Since PADEP has more than 7-years' worth of data on these special parameters, a monitoring is no longer implemented unless required by other agencies, e.g. DRBC. Therefore, it is recommended that the existing monitoring requirements for Sulfate and Bromide to be removed. This is justified by the anti-backsliding prohibition exception as stated in 40 CFR 122.44(l)(2)(i)(B)(1).

Development of Effluent Limitations
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Outfall No. 002

Design Flow (MGD) 0

Latitude 39° 59' 44.00"

Longitude -75° 42' 12.00"

Wastewater Description: Stormwater

Existing monitoring requirements for pH, CBOD5, COD, TSS, Oil and Grease, Fecal Coliform, TKN, Total Phosphorus and Iron Dissolved are recommended to continue for the Stormwater Outfall 002.

See below attached TMS report:



Discharge Information

Instructions Discharge Stream

Facility: **DARA Water Pollution Control Plant** NPDES Permit No.: **PA0026531** Outfall No.: **001**
Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
7.5	216	7						

				0 if left blank		0.5 if left blank		0 if left blank			1 if left blank			
Discharge Pollutant				Units	Max Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		498										
	Chloride (PWS)	mg/L		158										
	Bromide	mg/L	<	0.1										
	Sulfate (PWS)	mg/L		34										
	Fluoride (PWS)	mg/L												
Group 2	Total Aluminum	µg/L		30										
	Total Antimony	µg/L		0.8										
	Total Arsenic	µg/L	<	1										
	Total Barium	µg/L		21										
	Total Beryllium	µg/L	<	1										
	Total Boron	µg/L	<	200										
	Total Cadmium	µg/L	<	0.1										
	Total Chromium (III)	µg/L	<	1										
	Hexavalent Chromium	µg/L	<	0.25										
	Total Cobalt	µg/L		0.4										
	Total Copper	µg/L		39									5.1	
	Free Cyanide	µg/L	<	10										
	Total Cyanide	µg/L	<	10										
	Dissolved Iron	µg/L		70										
	Total Iron	µg/L		740										
	Total Lead	µg/L	<	1										
	Total Manganese	µg/L		31										
	Total Mercury	µg/L	<	0.2										
	Total Nickel	µg/L	<	3.3										
	Total Phenols (Phenolics) (PWS)	µg/L		10										
	Total Selenium	µg/L	<	1										
	Total Silver	µg/L	<	1										
	Total Thallium	µg/L	<	0.2										
	Total Zinc	µg/L		99										
	Total Molybdenum	µg/L	<	3										
	Acrolein	µg/L	<	0.002										
	Acrylamide	µg/L	<											
	Acrylonitrile	µg/L	<	0.002										
	Benzene	µg/L	<	0.0005										
	Bromoform	µg/L	<	0.0005										

Group 3	Carbon Tetrachloride	µg/L	<	0.0005																		
	Chlorobenzene	µg/L		0.0005																		
	Chlorodibromomethane	µg/L	<	0.0005																		
	Chloroethane	µg/L	<	0.0005																		
	2-Chloroethyl Vinyl Ether	µg/L	<	0.0005																		
	Chloroform	µg/L		0.006																		
	Dichlorobromomethane	µg/L		0.002																		
	1,1-Dichloroethane	µg/L	<	0.0005																		
	1,2-Dichloroethane	µg/L	<	0.0005																		
	1,1-Dichloroethylene	µg/L	<	0.0005																		
	1,2-Dichloropropane	µg/L	<	0.0005																		
	1,3-Dichloropropylene	µg/L	<	0.0005																		
	1,4-Dioxane	µg/L	<	0.05																		
	Ethylbenzene	µg/L	<	0.0005																		
	Methyl Bromide	µg/L	<	0.0005																		
	Methyl Chloride	µg/L	<	0.0005																		
	Methylene Chloride	µg/L	<	0.0005																		
	1,1,2,2-Tetrachloroethane	µg/L	<	0.0005																		
	Tetrachloroethylene	µg/L	<	0.0005																		
	Toluene	µg/L		0.0005																		
	1,2-trans-Dichloroethylene	µg/L	<	0.0005																		
	1,1,1-Trichloroethane	µg/L	<	0.0005																		
	1,1,2-Trichloroethane	µg/L	<	0.0005																		
	Trichloroethylene	µg/L	<	0.0005																		
	Vinyl Chloride	µg/L	<	0.0005																		
Group 4	2-Chlorophenol	µg/L	<	0.1																		
	2,4-Dichlorophenol	µg/L	<	0.1																		
	2,4-Dimethylphenol	µg/L	<	0.1																		
	4,6-Dinitro- α -Cresol	µg/L	<	0.1																		
	2,4-Dinitrophenol	µg/L	<	0.1																		
	2-Nitrophenol	µg/L	<	0.1																		
	4-Nitrophenol	µg/L	<	0.1																		
	p-Chloro-m-Cresol	µg/L	<	0.1																		
	Pentachlorophenol	µg/L	<	0.1																		
	Phenol	µg/L	<	0.1																		
	2,4,6-Trichlorophenol	µg/L	<	0.1																		
Group 5	Acenaphthene	µg/L	<	0.025																		
	Acenaphthylene	µg/L	<	0.025																		
	Anthracene	µg/L	<	0.025																		
	Benzidine	µg/L	<	0.5																		
	Benzo(a)Anthracene	µg/L	<	0.025																		
	Benzo(a)Pyrene	µg/L	<	0.025																		
	3,4-Benzofluoranthene	µg/L	<	0.025																		
	Benzo(ghi)Perylene	µg/L	<	0.025																		
	Benzo(k)Fluoranthene	µg/L	<	0.025																		
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.05																		
	Bis(2-Chloroethyl)Ether	µg/L	<	0.05																		
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.05																		
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.05																		
	4-Bromophenyl Phenyl Ether	µg/L	<	0.05																		
	Butyl Benzyl Phthalate	µg/L	<	0.05																		
	2-Chloronaphthalene	µg/L	<	0.05																		
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.05																		
	Chrysene	µg/L	<	0.025																		
	Dibenzo(a,h)Anthracene	µg/L	<	0.025																		
	1,2-Dichlorobenzene	µg/L	<	0.0005																		
	1,3-Dichlorobenzene	µg/L	<	0.0005																		
	1,4-Dichlorobenzene	µg/L	<	0.0005																		
	3,3-Dichlorobenzidine	µg/L	<	0.0005																		
	Diethyl Phthalate	µg/L	<	0.05																		
	Dimethyl Phthalate	µg/L	<	0.05																		
	Di-n-Butyl Phthalate	µg/L	<	0.05																		
	2,4-Dinitrotoluene	µg/L	<	0.05																		

NPDES Permit Fact Sheet

DARA Water Pollution Control Plant

NPDES Permit No. PA0026531

[illegible]



Stream / Surface Water Information

DARA Water Pollution Control Plant , NPDES Permit No. PA0026531, Outfall 001

Instructions **Discharge** **Stream**

Receiving Surface Water Name: East Branch Brandywine Creek

No. Reaches to Model: 1

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	000229	7.78	217	85.1			Yes
End of Reach 1	000229	4.4	196	90.7		8	Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	7.78	0.1	17.7									114	7		
End of Reach 1	4.4	0.1	19.05												

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	7.78														
End of Reach 1	4.4														



Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

DARA Water Pollution Control Plant , NPDES Permit No. PA0026531, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☐ Hydrodynamics

☒ Wasteload Allocations

☒ AFC

CCT (min): 15

PMF: 0.393

Analysis Hardness (mg/l): 177.79

Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,199	
Total Antimony	0	0		0	1,100	1,100	1,759	
Total Arsenic	0	0		0	340	340	544	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	33,576	
Total Boron	0	0		0	8,100	8,100	12,951	
Total Cadmium	0	0		0	3.522	3.83	6.12	Chem Translator of 0.92 applied
Total Chromium (III)	0	0		0	912.806	2,889	4,619	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	26.1	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	152	
Total Copper	0	0		0	117.873	123	196	Chem Translator of 0.96 and Criteria Modifier of 5.1 applied
Free Cyanide	0	0		0	22	22.0	35.2	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	120.113	170	272	Chem Translator of 0.707 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.63	Chem Translator of 0.85 applied
Total Nickel	0	0		0	761.897	763	1,221	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	8.655	10.2	16.3	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	104	
Total Zinc	0	0		0	190.815	195	312	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	4.8	

Model Results

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DARA Water Pollution Control Plant

NPDES Permit No. PA0026531

Acrylonitrile	0	0	0	650	650	1,039
Benzene	0	0	0	640	640	1,023
Bromoform	0	0	0	1,800	1,800	2,878
Carbon Tetrachloride	0	0	0	2,800	2,800	4,477
Chlorobenzene	0	0	0	1,200	1,200	1,919
Chlorodibromomethane	0	0	0	N/A	N/A	N/A
2-Chloroethyl Vinyl Ether	0	0	0	18,000	18,000	28,780
Chloroform	0	0	0	1,900	1,900	3,038
Dichlorobromomethane	0	0	0	N/A	N/A	N/A
1,2-Dichloroethane	0	0	0	15,000	15,000	23,983
1,1-Dichloroethylene	0	0	0	7,500	7,500	11,992
1,2-Dichloropropane	0	0	0	11,000	11,000	17,588
1,3-Dichloropropylene	0	0	0	310	310	496
Ethylbenzene	0	0	0	2,900	2,900	4,637
Methyl Bromide	0	0	0	550	550	879
Methyl Chloride	0	0	0	28,000	28,000	44,769
Methylene Chloride	0	0	0	12,000	12,000	19,187
1,1,2,2-Tetrachloroethane	0	0	0	1,000	1,000	1,599
Tetrachloroethylene	0	0	0	700	700	1,119
Toluene	0	0	0	1,700	1,700	2,718
1,2-trans-Dichloroethylene	0	0	0	6,800	6,800	10,872
1,1,1-Trichloroethane	0	0	0	3,000	3,000	4,797
1,1,2-Trichloroethane	0	0	0	3,400	3,400	5,436
Trichloroethylene	0	0	0	2,300	2,300	3,677
Vinyl Chloride	0	0	0	N/A	N/A	N/A
2-Chlorophenol	0	0	0	560	560	895
2,4-Dichlorophenol	0	0	0	1,700	1,700	2,718
2,4-Dimethylphenol	0	0	0	660	660	1,055
4,6-Dinitro-o-Cresol	0	0	0	80	80.0	128
2,4-Dinitrophenol	0	0	0	660	660	1,055
2-Nitrophenol	0	0	0	8,000	8,000	12,791
4-Nitrophenol	0	0	0	2,300	2,300	3,677
p-Chloro-m-Cresol	0	0	0	160	160	256
Pentachlorophenol	0	0	0	8.723	8.72	13.9
Phenol	0	0	0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0	0	460	460	735
Acenaphthene	0	0	0	83	83.0	133
Anthracene	0	0	0	N/A	N/A	N/A
Benzidine	0	0	0	300	300	480
Benzo(a)Anthracene	0	0	0	0.5	0.5	0.8
Benzo(a)Pyrene	0	0	0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0	0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0	0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0	0	30,000	30,000	47,966
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0	0	4,500	4,500	7,195
4-Bromophenyl Phenyl Ether	0	0	0	270	270	432
Butyl Benzyl Phthalate	0	0	0	140	140	224

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2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	820	820	1,311
1,3-Dichlorobenzene	0	0		0	350	350	560
1,4-Dichlorobenzene	0	0		0	730	730	1,167
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	4,000	4,000	6,396
Dimethyl Phthalate	0	0		0	2,500	2,500	3,997
Di-n-Butyl Phthalate	0	0		0	110	110	176
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,558
2,6-Dinitrotoluene	0	0		0	990	990	1,583
1,2-Diphenylhydrazine	0	0		0	15	15.0	24.0
Fluoranthene	0	0		0	200	200	320
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	N/A	N/A	N/A
Hexachlorobutadiene	0	0		0	10	10.0	16.0
Hexachlorocyclopentadiene	0	0		0	5	5.0	7.99
Hexachloroethane	0	0		0	60	60.0	95.9
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A
Isophorone	0	0		0	10,000	10,000	15,989
Naphthalene	0	0		0	140	140	224
Nitrobenzene	0	0		0	4,000	4,000	6,396
n-Nitrosodimethylamine	0	0		0	17,000	17,000	27,181
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0		0	300	300	480
Phenanthrene	0	0		0	5	5.0	7.99
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	130	130	208
Aldrin	0	0		0	3	3.0	4.8
alpha-BHC	0	0		0	N/A	N/A	N/A
beta-BHC	0	0		0	N/A	N/A	N/A
gamma-BHC	0	0		0	0.95	0.95	1.52
Chlordane	0	0		0	2.4	2.4	3.84
4,4-DDT	0	0		0	1.1	1.1	1.76
4,4-DDE	0	0		0	1.1	1.1	1.76
4,4-DDD	0	0		0	1.1	1.1	1.76
Dieldrin	0	0		0	0.24	0.24	0.38
alpha-Endosulfan	0	0		0	0.22	0.22	0.35
beta-Endosulfan	0	0		0	0.22	0.22	0.35
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A
Endrin	0	0		0	0.086	0.086	0.14
Endrin Aldehyde	0	0		0	N/A	N/A	N/A
Heptachlor	0	0		0	0.52	0.52	0.83
Heptachlor Epoxide	0	0		0	0.5	0.5	0.8
Toxaphene	0	0		0	0.73	0.73	1.17

☒ **CFC**

CCT (min): **97.333**

PMF: **1**

Analysis Hardness (mg/l): **154.39**

Analysis pH: **7.00**

Model Results

8/8/2022

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Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	556	
Total Arsenic	0	0		0	150	150	379	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	10,355	
Total Boron	0	0		0	1,600	1,600	4,041	
Total Cadmium	0	0		0	0.333	0.37	0.94	Chem Translator of 0.891 applied
Total Chromium (III)	0	0		0	105.773	123	311	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	26.3	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	48.0	
Total Copper	0	0		0	66.197	69.0	174	Chem Translator of 0.96 and Criteria Modifier of 5.1 applied
Free Cyanide	0	0		0	5.2	5.2	13.1	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	3,788	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.024	5.53	14.0	Chem Translator of 0.728 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.29	Chem Translator of 0.85 applied
Total Nickel	0	0		0	75.097	75.3	190	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	12.6	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	32.8	
Total Zinc	0	0		0	170.689	173	437	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	7.58	
Acrylonitrile	0	0		0	130	130	328	
Benzene	0	0		0	130	130	328	
Bromoform	0	0		0	370	370	934	
Carbon Tetrachloride	0	0		0	560	560	1,414	
Chlorobenzene	0	0		0	240	240	606	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	8,839	
Chloroform	0	0		0	390	390	985	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	7,829	
1,1-Dichloroethylene	0	0		0	1,500	1,500	3,788	
1,2-Dichloropropane	0	0		0	2,200	2,200	5,556	
1,3-Dichloropropylene	0	0		0	61	61.0	154	
Ethylbenzene	0	0		0	580	580	1,465	
Methyl Bromide	0	0		0	110	110	278	
Methyl Chloride	0	0		0	5,500	5,500	13,890	

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Methylene Chloride	0	0		0	2,400	2,400	6,061
1,1,2,2-Tetrachloroethane	0	0		0	210	210	530
Tetrachloroethylene	0	0		0	140	140	354
Toluene	0	0		0	330	330	833
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	3,536
1,1,1-Trichloroethane	0	0		0	610	610	1,541
1,1,2-Trichloroethane	0	0		0	680	680	1,717
Trichloroethylene	0	0		0	450	450	1,136
Vinyl Chloride	0	0		0	N/A	N/A	N/A
2-Chlorophenol	0	0		0	110	110	278
2,4-Dichlorophenol	0	0		0	340	340	859
2,4-Dimethylphenol	0	0		0	130	130	328
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	40.4
2,4-Dinitrophenol	0	0		0	130	130	328
2-Nitrophenol	0	0		0	1,600	1,600	4,041
4-Nitrophenol	0	0		0	470	470	1,187
p-Chloro-m-Cresol	0	0		0	500	500	1,263
Pentachlorophenol	0	0		0	6,693	6.69	16.9
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	91	91.0	230
Acenaphthene	0	0		0	17	17.0	42.9
Anthracene	0	0		0	N/A	N/A	N/A
Benzidine	0	0		0	59	59.0	149
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.25
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	15,153
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,298
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	136
Butyl Benzyl Phthalate	0	0		0	35	35.0	88.4
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	160	160	404
1,3-Dichlorobenzene	0	0		0	69	69.0	174
1,4-Dichlorobenzene	0	0		0	150	150	379
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	800	800	2,020
Dimethyl Phthalate	0	0		0	500	500	1,263
Di-n-Butyl Phthalate	0	0		0	21	21.0	53.0
2,4-Dinitrotoluene	0	0		0	320	320	808
2,6-Dinitrotoluene	0	0		0	200	200	505
1,2-Diphenylhydrazine	0	0		0	3	3.0	7.58

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Fluoranthene	0	0		0	40	40.0	101	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	5.05	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2.53	
Hexachloroethane	0	0		0	12	12.0	30.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	5,304	
Naphthalene	0	0		0	43	43.0	109	
Nitrobenzene	0	0		0	810	810	2,046	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	8,587	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	149	
Phenanthrene	0	0		0	1	1.0	2.53	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	65.7	
Aldrin	0	0		0	0.1	0.1	0.25	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.011	
4,4-DDT	0	0		0	0.001	0.001	0.003	
4,4-DDE	0	0		0	0.001	0.001	0.003	
4,4-DDD	0	0		0	0.001	0.001	0.003	
Dieldrin	0	0		0	0.056	0.056	0.14	
alpha-Endosulfan	0	0		0	0.056	0.056	0.14	
beta-Endosulfan	0	0		0	0.056	0.056	0.14	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.091	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.01	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.01	
Toxaphene	0	0		0	0.0002	0.0002	0.0005	

☒ **THH**

CCT (min): **97.333**

THH PMF: **1**

Analysis Hardness (mg/l): **N/A**

Analysis pH: **N/A**

PWS PMF: **1**

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	1,320,944	WQC applied at RMI 4.4 with a design stream flow of 19.05 cfs
Chloride (PWS)	0	0		0	250,000	250,000	660,472	WQC applied at RMI 4.4 with a design stream flow of 19.05 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	660,472	WQC applied at RMI 4.4 with a design stream flow of 19.05 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	14.1	
Total Arsenic	0	0		0	10	10.0	25.3	
Total Barium	0	0		0	2,400	2,400	6,061	

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Total Boron	0	0		0	3,100	3,100	7,829	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	10.1	
Dissolved Iron	0	0		0	300	300	758	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,526	
Total Mercury	0	0		0	0.050	0.05	0.13	
Total Nickel	0	0		0	610	610	1,541	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	13.2	WQC applied at RMI 4.4 with a design stream flow of 19.05 cfs
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.61	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	7.58	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	253	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	14.4	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	83.3	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	172	
Methyl Bromide	0	0		0	100	100.0	253	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	144	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	253	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	25,255	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	75.8	

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2,4-Dichlorophenol	0	0		0	10	10.0	25.3
2,4-Dimethylphenol	0	0		0	100	100.0	253
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	5.05
2,4-Dinitrophenol	0	0		0	10	10.0	25.3
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	N/A	N/A	N/A
Phenol	0	0		0	4,000	4,000	10,102
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A
Acenaphthene	0	0		0	70	70.0	177
Anthracene	0	0		0	300	300	758
Benzidine	0	0		0	N/A	N/A	N/A
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	505
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.25
2-Chloronaphthalene	0	0		0	800	800	2,020
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	1,000	1,000	2,526
1,3-Dichlorobenzene	0	0		0	7	7.0	17.7
1,4-Dichlorobenzene	0	0		0	300	300	758
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	600	600	1,515
Dimethyl Phthalate	0	0		0	2,000	2,000	5,051
Di-n-Butyl Phthalate	0	0		0	20	20.0	50.5
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A
Fluoranthene	0	0		0	20	20.0	50.5
Fluorene	0	0		0	50	50.0	126
Hexachlorobenzene	0	0		0	N/A	N/A	N/A
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A
Hexachlorocyclopentadiene	0	0		0	4	4.0	10.1
Hexachloroethane	0	0		0	N/A	N/A	N/A
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A
Isophorone	0	0		0	34	34.0	85.9
Naphthalene	0	0		0	N/A	N/A	N/A
Nitrobenzene	0	0		0	10	10.0	25.3

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n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A
Phenanthrene	0	0		0	N/A	N/A	N/A
Pyrene	0	0		0	20	20.0	50.5
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.18
Aldrin	0	0		0	N/A	N/A	N/A
alpha-BHC	0	0		0	N/A	N/A	N/A
beta-BHC	0	0		0	N/A	N/A	N/A
gamma-BHC	0	0		0	4.2	4.2	10.6
Chlordane	0	0		0	N/A	N/A	N/A
4,4-DDT	0	0		0	N/A	N/A	N/A
4,4-DDE	0	0		0	N/A	N/A	N/A
4,4-DDD	0	0		0	N/A	N/A	N/A
Dieldrin	0	0		0	N/A	N/A	N/A
alpha-Endosulfan	0	0		0	20	20.0	50.5
beta-Endosulfan	0	0		0	20	20.0	50.5
Endosulfan Sulfate	0	0		0	20	20.0	50.5
Endrin	0	0		0	0.03	0.03	0.076
Endrin Aldehyde	0	0		0	1	1.0	2.53
Heptachlor	0	0		0	N/A	N/A	N/A
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A
Toxaphene	0	0		0	N/A	N/A	N/A

☒ **CRL**

CCT (min): **91.563**

PMF: **1**

Analysis Hardness (mg/l): **N/A**

Analysis pH: **N/A**

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	

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Total Manganese	0	0		0	N/A	N/A	N/A
Total Mercury	0	0		0	N/A	N/A	N/A
Total Nickel	0	0		0	N/A	N/A	N/A
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A
Total Selenium	0	0		0	N/A	N/A	N/A
Total Silver	0	0		0	N/A	N/A	N/A
Total Thallium	0	0		0	N/A	N/A	N/A
Total Zinc	0	0		0	N/A	N/A	N/A
Acrolein	0	0		0	N/A	N/A	N/A
Acrylonitrile	0	0		0	0.06	0.06	0.53
Benzene	0	0		0	0.58	0.58	5.16
Bromoform	0	0		0	7	7.0	62.2
Carbon Tetrachloride	0	0		0	0.4	0.4	3.56
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	7.11
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A
Chloroform	0	0		0	N/A	N/A	N/A
Dichlorobromomethane	0	0		0	0.95	0.95	8.45
1,2-Dichloroethane	0	0		0	9.9	9.9	88.0
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	8.0
1,3-Dichloropropylene	0	0		0	0.27	0.27	2.4
Ethylbenzene	0	0		0	N/A	N/A	N/A
Methyl Bromide	0	0		0	N/A	N/A	N/A
Methyl Chloride	0	0		0	N/A	N/A	N/A
Methylene Chloride	0	0		0	20	20.0	178
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	1.78
Tetrachloroethylene	0	0		0	10	10.0	88.9
Toluene	0	0		0	N/A	N/A	N/A
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A
1,1,2-Trichloroethane	0	0		0	0.55	0.55	4.89
Trichloroethylene	0	0		0	0.6	0.6	5.33
Vinyl Chloride	0	0		0	0.02	0.02	0.18
2-Chlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	0.030	0.03	0.27
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	13.3

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Acenaphthene	0	0		0	N/A	N/A	N/A
Anthracene	0	0		0	N/A	N/A	N/A
Benzidine	0	0		0	0.0001	0.0001	0.0009
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.009
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0009
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.009
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.089
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.27
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	2.85
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	0.12	0.12	1.07
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.0009
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.44
Diethyl Phthalate	0	0		0	N/A	N/A	N/A
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.44
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.44
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.27
Fluoranthene	0	0		0	N/A	N/A	N/A
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0007
Hexachlorobutadiene	0	0		0	0.01	0.01	0.089
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	0.89
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.009
Isophorone	0	0		0	N/A	N/A	N/A
Naphthalene	0	0		0	N/A	N/A	N/A
Nitrobenzene	0	0		0	N/A	N/A	N/A
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.006
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.044
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	29.3
Phenanthrene	0	0		0	N/A	N/A	N/A
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A
Aldrin	0	0		0	0.0000008	8.00E-07	0.000007
alpha-BHC	0	0		0	0.0004	0.0004	0.004
beta-BHC	0	0		0	0.008	0.008	0.071
gamma-BHC	0	0		0	N/A	N/A	N/A

Chlordane	0	0		0	0.0003	0.0003	0.003
4,4-DDT	0	0		0	0.00003	0.00003	0.0003
4,4-DDE	0	0		0	0.00002	0.00002	0.0002
4,4-DDD	0	0		0	0.0001	0.0001	0.0009
Dieldrin	0	0		0	0.000001	0.000001	0.000009
alpha-Endosulfan	0	0		0	N/A	N/A	N/A
beta-Endosulfan	0	0		0	N/A	N/A	N/A
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A
Endrin	0	0		0	N/A	N/A	N/A
Endrin Aldehyde	0	0		0	N/A	N/A	N/A
Heptachlor	0	0		0	0.000006	0.000006	0.00005
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.0003
Toxaphene	0	0		0	0.0007	0.0007	0.006

☒ Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Dissolved Solids (PWS)	Report	Report	Report	Report	Report	mg/L	1,321	THH-PWS	Discharge Conc > 10% WQBEL (no RP)
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	660	THH-PWS	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	126	AFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	0.63	0.99	10.1	15.8	25.3	µg/L	10.1	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	3,788	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Phenols (Phenolics) (PWS)	0.83	1.29	13.2	20.6	33.0	µg/L	13.2	THH-PWS	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	200	AFC	Discharge Conc > 10% WQBEL (no RP)

☒ Other Pollutants without Limits or Monitoring

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

Pollutants	Governing WQBEL	Units	Comments
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	660	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	769	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	14.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	6,061	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	N/A	N/A	Discharge Conc < TQL
Total Cadmium	0.94	µg/L	Discharge Conc < TQL
Total Chromium (III)	311	µg/L	Discharge Conc < TQL

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Hexavalent Chromium	16.7	µg/L	Discharge Conc < TQL
Total Cobalt	48.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	758	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	14.0	µg/L	Discharge Conc < TQL
Total Manganese	2,526	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.13	µg/L	Discharge Conc < TQL
Total Nickel	190	µg/L	Discharge Conc < TQL
Total Selenium	12.6	µg/L	Discharge Conc < TQL
Total Silver	10.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.61	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.07	µg/L	Discharge Conc < TQL
Acrylonitrile	0.53	µg/L	Discharge Conc < TQL
Benzene	5.16	µg/L	Discharge Conc < TQL
Bromoform	62.2	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	3.56	µg/L	Discharge Conc < TQL
Chlorobenzene	253	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	7.11	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	8,839	µg/L	Discharge Conc < TQL
Chloroform	14.4	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	8.45	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	88.0	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	83.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	8.0	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	2.4	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	172	µg/L	Discharge Conc < TQL
Methyl Bromide	253	µg/L	Discharge Conc < TQL
Methyl Chloride	13,890	µg/L	Discharge Conc < TQL
Methylene Chloride	178	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	1.78	µg/L	Discharge Conc < TQL
Tetrachloroethylene	88.9	µg/L	Discharge Conc < TQL
Toluene	144	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	253	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,541	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	4.89	µg/L	Discharge Conc < TQL
Trichloroethylene	5.33	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.18	µg/L	Discharge Conc < TQL
2-Chlorophenol	75.8	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	25.3	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	253	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	5.05	µg/L	Discharge Conc < TQL

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2,4-Dinitrophenol	25.3	µg/L	Discharge Conc < TQL
2-Nitrophenol	4,041	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,187	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	164	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.27	µg/L	Discharge Conc < TQL
Phenol	10,102	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	13.3	µg/L	Discharge Conc < TQL
Acenaphthene	42.9	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	758	µg/L	Discharge Conc < TQL
Benzidine	0.0009	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.009	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0009	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.009	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.089	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.27	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	505	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	2.85	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	136	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.25	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	2,020	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.07	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.0009	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	404	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	17.7	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	379	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.44	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,515	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	1,263	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	50.5	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.44	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.44	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.27	µg/L	Discharge Conc < TQL
Fluoranthene	50.5	µg/L	Discharge Conc < TQL
Fluorene	126	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0007	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.089	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	2.53	µg/L	Discharge Conc < TQL
Hexachloroethane	0.89	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.009	µg/L	Discharge Conc < TQL
Isophorone	85.9	µg/L	Discharge Conc < TQL

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Naphthalene	109	µg/L	Discharge Conc < TQL
Nitrobenzene	25.3	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.006	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.044	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	29.3	µg/L	Discharge Conc < TQL
Phenanthrene	2.53	µg/L	Discharge Conc < TQL
Pyrene	50.5	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.18	µg/L	Discharge Conc < TQL
Aldrin	0.000007	µg/L	Discharge Conc < TQL
alpha-BHC	0.004	µg/L	Discharge Conc < TQL
beta-BHC	0.071	µg/L	Discharge Conc < TQL
gamma-BHC	0.97	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.003	µg/L	Discharge Conc < TQL
4,4-DDT	0.0003	µg/L	Discharge Conc < TQL
4,4-DDE	0.0002	µg/L	Discharge Conc < TQL
4,4-DDD	0.0009	µg/L	Discharge Conc < TQL
Dieldrin	0.000009	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.14	µg/L	Discharge Conc < TQL
beta-Endosulfan	0.14	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	50.5	µg/L	Discharge Conc < TQL
Endrin	0.076	µg/L	Discharge Conc < TQL
Endrin Aldehyde	2.53	µg/L	Discharge Conc < TQL
Heptachlor	0.00005	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.0003	µg/L	Discharge Conc < TQL
Toxaphene	0.0005	µg/L	Discharge Conc < TQL

DARA Water Pollution Control Plant

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: semi annual for one year and annual thereafter

The dilution series used for the tests was: 100%, 70%, 40%, 20%, and 10%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 40%.

Summary of Four Most Recent Test Results**WET Summary and Evaluation**

Facility Name	DARA Water Control Pollution Plant
Permit No.	PA0026531
Design Flow (MGD)	7.5
Q ₇₋₁₀ Flow (cfs)	17.7
PMF _a	0.39
PMF _c	1

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		4/30/19	11/26/19	11/17/20	1/18/22
Pimephles	Survival	Pass	Pass	Pass	Pass

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		4/30/19	11/26/19	11/17/20	11/18/22
Pimephales	Growth	Pass	Pass	Pass	Pass

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		4/29/19	11/25/19	11/17/20	11/18/22
Ceriodaphnia	Survival	Pass	Pass	Pass	Pass

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		4/29/19	11/25/19	11/17/20	11/18/22
Ceriodapnia	Reproduction	Pass	Pass	Pass	Pass

DARA Water Pollution Control Plant

Reasonable Potential? NO**Permit Recommendations**

Test Type	Chronic
TIWC	40 % Effluent
Dilution Series	10, 20, 40, 70, 100 % Effluent
Permit Limit	None
Permit Limit Species	

*PMFa and PMFc values used in the analysis are taken from previous PENTOXSD reports.

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. The standard WET condition based on the DEP WET SOP is incorporated in Part C of the draft permit.

** Due to the flood in 2021, WETT records for 2021 were lost according to the applicant.

Proposed Effluent Limitations and Monitoring Requirements

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

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	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	1251	1877	XXX	20	30 Wkly Avg	40	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	626	938	XXX	10	15 Wkly Avg	20	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	1877	2815	XXX	30	45 Wkly Avg	60	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Dissolved Solids	62550 Avg Qrtly	125100 Daily Max	XXX	1000.0 Avg Qrtly	2000.0	2500	1/quarter	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Total Nitrogen	1877	XXX	XXX	30	XXX	60	1/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	375	XXX	XXX	6.0	XXX	12	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	125	XXX	XXX	2.0	XXX	4	1/day	24-Hr Composite
Total Phosphorus	125	XXX	XXX	2.0	XXX	4	1/day	24-Hr Composite
Copper, Total	Report	Report Daily Max	XXX	Report	Report	XXX	1/month	24-Hr Composite
Cyanide, Free	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Iron, Total	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Zinc, Total	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Chloride	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Phenolics, Total	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Hardness, Total (as CaCO3)	Report	Report Daily Max	XXX	Report	XXX	Report	1/month	24-Hr Composite
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

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

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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Iron, Dissolved	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab