pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0053180**
Facility Type	**Municipal**	APS ID	**1031627**
Major / Minor	**Major**	Authorization ID	**1341908**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Montgomery Township Municipal Sewer Authority Montgomery County**	Facility Name	**Montgomery Township STP & Sewer System**
Applicant Address	1001 Stump Road	Facility Address	1485 Lower State Road
	Montgomeryville, PA 18936-9605		North Wales, PA 19454-1205
Applicant Contact	Shannon Drosnock	Facility Contact	Jayendra Marfatia
Applicant Phone	(215) 393-6930	Facility Phone	(215) 540-0418
Client ID	29353	Site ID	451878
Ch 94 Load Status	Not Overloaded	Municipality	Montgomery Township
Connection Status	No Limitations	County	Montgomery
Date Application Received	January 29, 2021	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Permit renewal.

Summary of Review

The applicant requests approval for the renewal of a National Pollutant Discharge Elimination System (NPDES) permit to discharge an average annual flow of 2.4 MGD to Little Neshaminy Creek located in Montgomery Township, Montgomery County. The receiving stream, Little Neshaminy Creek, is in watershed 2F and is designated for warm water fishes and migratory fishes. The nearest downstream water supply intake is for Aqua PA SE Division on the main stem of Neshaminy Creek. The hydraulic design capacity is 3.6 MGD maximum monthly flow. The annual average flows for 2018 through 2020 were 1.41 mgd, 1.24 mgd, and 1.305 mgd, respectively.

The treatment plant consists preliminary treatment which includes grinding of influent flows, centrifugal grit removal, and flow equalization and screening. Sodium hypochlorite is used for disinfection and sodium bisulfite is used for dechlorination. Ferrous sulfate is added for phosphorus removal. Peak flows are diverted to the 2.5-million-gallon equalization tank for storage of wet weather flows. Solids generated at the plant are aerobically digested and sent to the Hatfield Township Municipal Authority WWTP for disposal by incineration.

Outfall 001 discharges treated effluent and Outfalls 002 and 003 discharge site stormwater.

BOD5/day is updated to 4,170 lbs. in this permit renewal. WQM 4601405 was amended to increase the facility's Organic Design Capacity from 3,463 lbs. BOD5/day to 4,170 lbs. BOD5/day to meet Ch. 94 requirement by 2023.

Water quality modeling is performed using Department's WQM. No changes to assumptions, flow, etc., so effluent limits for $CBOD_5$, NH3-N and D.O remain unchanged. Current limit for phosphorus, Total Kjeldahl Nitrogen remain unchanged for this renewal.

Approve	Deny	Signatures	Date
x		*Vasantha* Vasantha Palakurti / Environmental Engineering Specialist	December 14, 2021
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	12/17/2021

Summary of Review

A "Reasonable Potential Analysis" determined Total Antimony, Copper, Free Cyanide, Zinc, Total Iron, Dissolved Iron, Total Nickel are parameters of concern. WQBEL calculated by Toxic Management Spreadsheet recommended that limits be established for Total Copper, Free Cyanide and Report limits for Antimony, Zinc, Total Iron, Dissolved Iron and Nickel.

E.Coli report only requirement has been added in the permit as per the revised SOP for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits SOP No. BCW-PMT-033

Neshaminy Creek Watershed Total Maximum Daily Load (TMDL):
A TMDL for Neshaminy Creek Watershed was finalized on April 9, 2003 which was revised on December 2003. The Neshaminy Creek is located in state watershed 2-F, in Bucks and Montgomery Counties. It has approximately 418.3 miles of streams. Since 1996, 203.3 miles of these streams have been included on Pennsylvania's 303(d) list of streams having aquatic life use impairments. The watershed as a whole is very much a point source-dominated system. On an annual basis, the municipal wastewater treatment plants in the watershed contribute about 25% of the total phosphorus load. During critical low-flow periods, effluent discharges comprise over 90% of the total stream flow in many reaches. Upland erosion from developing areas and agriculture, and streambank erosion are other major sources of phosphorus, as well as sediment. However, in September 6, 2007, the nutrients portion of the TMDL was withdrawn by PADEP and approved by USEPA on January 31, 2008. No sediment WLA was assigned for this facility other than urban BMPs.

Current limit for phosphorus, Total Kjeldahl Nitrogen remain unchanged for this renewal.

Total Nitrogen has been added to this permit renewal as per the Establishing Effluent Limitations for Individual Sewage Permits SOP No. BCW-PMT-033

"Solids Management" language has been added in Part C conditions in this renewal.

Stormwater Benchmark values for Stormwater outfalls 002 and 003 have been added to this permit renewal in Part C. V. F

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.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	2.4
Latitude	40Âº 14' 14.37"	Longitude	-75Âº 11' 46.60"
Quad Name	Ambler	Quad Code	1744
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Little Neshaminy Creek (WWF, MF)	Stream Code	02638
NHD Com ID	25473870	RMI	12.3
Drainage Area	6.0	Yield (cfs/mi^2)	0.07
Q_{7-10} Flow (cfs)	0.42	Q_{7-10} Basis	Previous WQPR*
Elevation (ft)	278	Slope (ft/ft)	0.0042
Watershed No.	2-F	Chapter 93 Class.	WWF, MF
Existing Use	na	Existing Use Qualifier	na
Exceptions to Use	na	Exceptions to Criteria	Add Tur1
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, NUTRIENTS, ORGANIC ENRICHMENT, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS), SILTATION		
Source(s) of Impairment	MUNICIPAL POINT SOURCE DISCHARGES, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN, SOURCE UNKNOWN, URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Neshaminy Creek
Nearest Downstream Public Water Supply Intake	Aqua PA - Neshaminy Creek		
PWS RMI	14.8	Distance from Outfall (mi)	27.1

Outfall 002: Site stormwater Latitude 40° 14’ 17.20” Longitude 75° 11’ 37.50”
Relocated from Latitude 40° 14’ 17.21” Longitude 75° 11’ 38”, Outfall 002 drains the main portion of the treatment plant units.

Outfall 003: Site stormwater Latitude 40° 14’ 17.70” Longitude 75° 11’ 34.30”
New outfall drains area around the recently constructed surge tank.

Treatment Facility Summary

Treatment Facility Name: Eureka WWTP

WQM Permit No.	Issuance Date
4601405 A-4	07/07/2020
4601405 A-5	06/07/2021

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia And Phosphorus	Activated Sludge	Chlorine with Dechlorination	2.4

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
3.6	4170	Not Overloaded	Aerobic Digestion	Off-site incineration

Changes Since Last Permit Issuance: The permit was amended at the existing Eureka WWTP (facility) to increase the facility's Organic Design Capacity from 3,463 lbs. BOD5/day to 4,170 lbs.

The permit was amended to convert liquid chlorine back to gas chlorine.

Compliance History

DMR Data for Outfall 001 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
Flow (MGD) Average Monthly	0.984	1.311	1.172	1.039	1.331	0.998	0.935	0.841	1.058	1.023	0.92	0.978
Flow (MGD) Daily Maximum	1.312	2.318	2.12	1.821	2.203	1.293	1.759	1.039	2.243	1.906	1.213	1.226
pH (S.U.) Instantaneous Minimum	7.31	7.07	7.07	7.15	7.18	7.23	7.31	7.39	7.23	7.28	7.43	7.47
pH (S.U.) Instantaneous Maximum	7.63	7.63	7.51	7.72	7.52	7.61	7.72	7.73	7.60	7.74	7.72	7.73
DO (mg/L) Instantaneous Minimum	8.0	8.2	9.0	8.6	8.0	8.0	7.2	6.4	6.4	7.0	7.3	7.8
DO (mg/L) Average Monthly	9.1	9.4	9.4	9.5	9.2	8.7	7.8	7.8	7.1	7.3	7.7	8.5
TRC (mg/L) Average Monthly	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.010	< 0.006	< 0.006	< 0.006	< 0.006	< 0.007
TRC (mg/L) Instantaneous Maximum	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.119	< 0.006	< 0.006	< 0.006	< 0.006	0.050
CBOD5 (lbs/day) Average Monthly	< 24	< 36	30	< 20	< 26	< 19	< 19	< 19	33	< 24	< 20	29
CBOD5 (lbs/day) Weekly Average	31	60	39	< 23	< 31	< 22	< 22	21	42	39	23	37
CBOD5 (mg/L) Average Monthly	< 3	< 3	3	< 2.0	< 2.0	< 2	< 3	< 3	4	< 3	< 3	4.0
CBOD5 (mg/L) Weekly Average	4	3.6	4.3	2.7	< 2.8	< 2.5	< 3.1	3.6	4.4	5	3.2	4.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	3307	2914	3096	3213	3416	2479	2978	2589	2273	2382	2806	2985
BOD5 (mg/L) Raw Sewage Influent Average Monthly	326	235	288	305	264	236	311	254	231	233	287	299

TSS (lbs/day) Average Monthly	30	< 28	14	27	29	27	33	19	23	< 22	31	49
TSS (lbs/day) Weekly Average	36	42	22	35	45	46	59	22	36	41	45	62
TSS (mg/L) Average Monthly	4	< 3	2	3	3	3	4	3.0	3	< 3	4	7
TSS (mg/L) Raw Sewage Influent Average Monthly	293	207	175	259	159	233	263	192	220	291	3882	369
TSS (mg/L) Weekly Average	4	5	2	4	4	6	8	3.0	5	6	6	9
Total Dissolved Solids (mg/L) Daily Maximum		558			GG			GG			GG	
Fecal Coliform (No./100 ml) Geometric Mean	26	41	25	28	60	43	53	193	143	42	105	171
Fecal Coliform (No./100 ml) Instantaneous Maximum	68	210	118	1120	350	1260	320	2800	430	129	1170	570
Nitrate-Nitrite (lbs/day) Average Monthly	20	37	39	31	56	51	45	50	54	41	30	37
Nitrate-Nitrite (mg/L) Average Monthly	2.46	3.08	4.67	3.72	4.93	6.16	6.0	7.61	5.83	5.16	4.18	4.83
Ammonia (lbs/day) Average Monthly	< 1	< 2.0	< 0.9	< 0.9	< 1.0	< 0.9	< 0.9	< 0.7	< 1	< 0.8	< 0.9	< 0.9
Ammonia (mg/L) Average Monthly	< 0.13	< 0.18	< 0.1	< 0.11	< 0.1	< 0.11	< 0.12	< 0.1	< 0.13	< 0.1	< 0.12	< 0.12
TKN (lbs/day) Average Monthly	< 10	< 12	< 10	< 11	< 12	< 9	< 8	< 9.0	< 15	< 9	< 9	12
TKN (mg/L) Average Monthly	< 1.2	< 1.1	< 1.2	< 1.2	< 1.0	< 1.1	< 1.1	< 1.4	< 1.3	< 1.1	< 1.3	1.6
Total Phosphorus (lbs/day) Average Monthly	3.0	3.0	2.0	< 2.0	< 3.0	3.0	3.0	2.0	3.0	3.0	3.0	5.0
Total Phosphorus (mg/L) Average Monthly	0.33	0.26	0.25	< 0.26	< 0.29	0.38	0.39	0.36	0.34	0.43	0.41	0.62
Dichlorobromo-methane (mg/L) Average Monthly	0.0007	0.0009	0.0010	< 0.00073	< 0.00065	< 0.0005	< 0.00055	< 0.0005	< 0.0005	< 0.00053	< 0.00056	< 0.0005

Dichlorobromo-methane (mg/L) Daily Maximum	0.0009	0.0012	0.0015	0.00095	0.00095	0.0006	0.00064	0.00071	0.00059	0.00064	0.00072	< 0.0005
Chloroform (mg/L) Average Monthly	0.008	0.006	0.007	0.0077	0.0072	0.009	0.0117	0.008	0.008	0.0121	0.0095	0.0085
Chloroform (mg/L) Daily Maximum	0.0109	0.0102	0.0091	0.0113	0.0095	0.0127	0.0181	0.0142	0.0125	0.0159	0.014	0.0116
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum		1.1			GG			GG			GG	
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum		1.1			GG			GG			GG	
Chronic WET - Pimephales Survival (TUc) Daily Maximum		1.1			GG			GG			GG	
Chronic WET - Pimephales Growth (TUc) Daily Maximum		1.1			GG			GG			GG	

DMR Data for Outfall 002 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
pH (S.U.) Daily Maximum					6.96							
CBOD5 (mg/L) Daily Maximum					< 2.0							
COD (mg/L) Daily Maximum					< 15.0							
TSS (mg/L) Daily Maximum					10							
Oil and Grease (mg/L) Daily Maximum					< 3.8							
Fecal Coliform (No./100 ml) Daily Maximum					1910							
TKN (mg/L) Daily Maximum					< 1.0							

Total Phosphorus (mg/L) Daily Maximum					< 0.10							
Dissolved Iron (mg/L) Daily Maximum					0.10							

DMR Data for Outfall 003 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
pH (S.U.) Daily Maximum					7.21							
CBOD5 (mg/L) Daily Maximum					< 2.0							
COD (mg/L) Daily Maximum					20							
TSS (mg/L) Daily Maximum					3.0							
Oil and Grease (mg/L) Daily Maximum					< 2.0							
Fecal Coliform (No./100 ml) Daily Maximum					2830							
TKN (mg/L) Daily Maximum					< 1.0							
Total Phosphorus (mg/L) Daily Maximum					0.13							
Dissolved Iron (mg/L) Daily Maximum					0.32							

Compliance History

Effluent Violations for Outfall 001, from: June 1, 2020 To: April 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	10/31/20	IMAX	0.119	mg/L	0.083	mg/L
Fecal Coliform	09/30/20	IMAX	2800	No./100 ml	1000	No./100 ml

Fecal Coliform	01/31/21	IMAX	1120	No./100 ml	1000	No./100 ml
Fecal Coliform	06/30/20	IMAX	1170	No./100 ml	1000	No./100 ml
Fecal Coliform	11/30/20	IMAX	1260	No./100 ml	1000	No./100 ml
Chloroform	10/31/20	Avg Mo	0.0117	mg/L	0.011	mg/L
Chloroform	10/31/20	Daily Max	0.0181	mg/L	0.0172	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.4
Latitude 40º 14' 14.44" **Longitude** -75º 11' 46.29"
Wastewater Description: Sewage Effluent

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)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
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)

As part of previous permit renewals, the WQM 7.0 model was used to determine acceptable limits for CBOD5, NH3-N, and DO that would protect the Chapter 93 criteria for DO and NH3-N toxicity. Limits are CBOD5 = 10 mg/l (summer)/20 mg/l (winter), NH3-N = 2.0 mg/l (summer)/4.0 mg/l (winter), and DO = 5 mg/l inst. minimum, and they are carried over from previous permit. For (NO2+NO3)-N, limit from July 1–Oct 31 is 9 mg/l and is carried over from the previous permit. It is based on protection of downstream water supply, where [(NH3-N) + (NO2+NO3)-N] = 11 mg/l. Since NH3-N = 2 mg/l, the limit for (NO2+NO3)-N is 9 mg/l. Monitoring for (NO2+NO3)-N from November 1–June 30 is included in addition to year-round monitoring for Total Kjeldahl Nitrogen (TKN). This is to adequately characterize the effluent in the event that a future Total Maximum Daily Load (TMDL) may include limits on nitrogen to address the nutrient impairment in the Neshaminy Creek watershed. The existing requirements to sample NH3-N, (NO2+NO3)-N, and TKN complies with the recommendation by the SOP "Establishing Effluent Limitations for Individual Sewage Permits" to require sampling for nitrogen in renewed permits.

For phosphorus, the current permit limit of 0.65 mg/l is carried over in this renewal. Additionally, a winter limit based on a 2x multiplier of the summer limit is included. The basis for the 0.65 mg/l limit was to maintain existing load when the plant expanded from 0.75 mgd to 2.4 mgd since the stream was listed as nutrient impaired at that time. To address Department concerns regarding excess algal productivity that extends beyond the April–October time frame, a winter limit of 1.3 mg/l is required. The 2x multiplier is consistent with the March 15, 2005, Department guidance document "Seasonal Limits for Phosphorus in NPDES Permits."

Total Nitrogen has been added to this permit renewal as per the Establishing Effluent Limitations for Individual Sewage Permits SOP No. BCW-PMT-033

For fecal coliform, the instantaneous maximum limit in the current permit is "not to exceed 1,000/100 ml in greater than 10% of the samples". For this renewal, the requirement continues to apply from October 1st through April 30th. From May 1st through September 30th, consistent with Ch. 92a.47(a)(4), the limit cannot be exceeded in any sample. The geometric mean of 200/100ml is unchanged, per DRBC and Ch.92a.47(a)(4).

Limits for TRC are carried over which is WQBEL as 0.025 mg/l

Chloroform and Dichlorobromo-methane:

Based on the previous permit fact sheet, limits were established in the previous permit and will be continued for this renewal.

Per the SOP, *BOD5 and TSS* influent monitoring is required for this renewal. BOD5 is included for Ch. 94 purposes. BOD5/day is updated to 4,170 lbs in this permit renewal. WQM 4601405 was amended to increase the facility's Organic Design Capacity from 3,463 lbs. BOD5/day to 4,170 lbs. BOD5/day to meet Ch. 94 requirement by 2023.
Influent CBOD5 and TSS reporting are required based on 85% removal requirements (definition of secondary treatment).

A quarterly monitoring requirement for Total Dissolved Solids is continued in this renewal.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" (Toxic Management Spreadsheet) determined the following parameters were candidates for limitations:

The following limitations were determined through water quality modeling (output files attached):

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Antimony	Report	Report	Report	Report	Report	µg/L	6.5	THH	Discharge Conc > 10% WQBEL (no RP)
Total Boron	37.2	58.0	1,859	2,900	4,646	µg/L	1,859	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	0.22	0.34	11.1	16.8	16.8	µg/L	11.1	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.12	0.19	6.04	9.42	15.1	µg/L	6.04	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	348	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,742	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	62.3	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	2.86	Report	143	143	µg/L	123	AFC	Discharge Conc > 10% WQBEL (no RP)

Iron (Fe):: Ferrous sulfate chemical is added for phosphate precipitation. Therefore, a monitoring condition for total iron, dissolved iron are recommended by Toxic Management model for this renewal. The data will be reviewed during the next permit renewal to determine if a limit is needed. See part C.VI for reporting WQBELs below quantitation limits.

Free Cyanide: Based on the Toxic Management model, for a permitted flow of 2.4-MGD, the level of detection for CN is greater than 50% WQBEL. For a permitted flow of 2.4-MGD, the model calculated WQBEL of 6.04-ug/l. Since there is not enough data reported in the last permit cycle and since there is no significant industrial user dischargers to the POTW, "Report only" has been included for this renewal. The data will be reviewed during the next permit renewal to determine if a limit is needed. See part C.VI for reporting WQBELs below quantitation limits.

Total Nickel, Antimony: For a permitted flow of 2.4-MGD, the level of detection for Total Nickel and Antimony is greater than 10% WQBEL. Therefore "Report only" has been added to the permit for this renewal. The data will be reviewed during the next permit renewal to determine if a limit is needed. See part C.VI for reporting WQBELs below quantitation limits.

Total Zinc: For a permitted flow of 2.4-MGD, the level of detection for Zinc is greater than 10% WQBEL. Therefore "Report only" has been added to the permit for this renewal. The data will be reviewed during the next permit renewal to determine if a limit is needed. See part C.VI for reporting WQBELs below quantitation limits.

Total Copper: The toxic modeling was run to determine the WQBEL for copper using an in-stream hardness of 124-mg/l and a default discharge hardness of 100-mg/l. For a permitted flow of 2.4-MGD, the model calculated WQBEL of 11.1-ug/l. Since there is not enough data reported in the last permit cycle "Report only" has been included for 36 months.
The final WQBELs of 0.0111 mg/l based on the current discharge and facility conditions become effective on the beginning 37th month unless DEP issues an amendment to this permit prior to that date. The permittee shall conduct a TRE in accordance with DEP's Water Quality Toxics Management Strategy, Appendix C, Permittee Guidance for Conducting a Toxics Reduction Evaluation (TRE) (361-0100-003). See permit Part C.III

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%, 90%, 81%, 72.9%, and 65.6%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 89.8.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
January 2020	100	100	100	100	100	100	Pass
November 2019	100	100	100	100	100	100	Pass
August 2019	100	100	100	100	100	100	Pass
May 2019	100	100	100	100	100	100	Pass

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

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☒ **YES** ☐ **NO**

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

Acute Partial Mix Factor (PMFa): **1.0** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.4 MGD x 1.547) / ((0.42 cfs x 1.0) + (2.4 MGD x 1.547))] x 100 = **89.84%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

Type of Test for Permit Renewal: **Chronic**

2. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.4 MGD x 1.547) / ((0.42 cfs x 1.0) + (2.4 MGD x 1.547))] x 100 = **89.84%**

3. Determine Dilution Series

From Attachment C of WET SOP, based on TIWCc = 89.84%, rounded to 90%:

Dilution Series = 100%, 95%, 90%, 45%, and 23%.

WET Limits

Has reasonable potential been determined? ☒ YES ☐ NO

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

If WET limits will be established, identify the species and the limit values for the permit (TU).

Chronic WET – Ceriodaphnia Survival (TUc) = 1.1 Daily Maximum
Chronic WET – Ceriodaphnia Reproduction (TUc) = 1.1 Daily Maximum
Chronic WET – Pimephales Survival (TUc) = 1.1 Daily Maximum
Chronic WET – Pimephales Growth (TUc) = 1.1 Daily Maximum

Whole Effluent Toxicity Testing (WETT):

The current limits and dilution series are continued for this permit renewal. See Part C. IV.

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 End of Interim Period 1.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Copper	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/month	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 001, Effective Period: Start of Final Period 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	Maximum	Instant. Maximum		
Total Copper	0.22	0.34	XXX	0.0111	0.0168 Daily Max	0.0168	1/month	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 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
DO	XXX	XXX	5.0 Inst Min	Report	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.025	XXX	0.083	1/day	Grab
CBOD5 Nov 1 - Apr 30	400	600	XXX	20	30 Wkly Avg	40	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	200	300	XXX	10	15 Wkly Avg	20	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	600	900	XXX	30	45 Wkly Avg	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Nitrate-Nitrite Nov 1 - Jun 30	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite Jul 1 - Oct 31	180	XXX	XXX	9.0	XXX	18	2/week	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		
Ammonia Nov 1 - Apr 30	80	XXX	XXX	4.0	XXX	8	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	40	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/Month	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	26.0	XXX	XXX	1.3	XXX	2.6	2/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	13.0	XXX	XXX	0.65	XXX	1.3	2/week	24-Hr Composite
Free Cyanide	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Antimony	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Iron	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Dissolved Iron	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Nickel	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Chloroform	XXX	XXX	XXX	0.011	0.0172	XXX	1/month	24-Hr Composite
Dichlorobromomethane	XXX	XXX	XXX	0.0011	0.0017	XXX	1/month	24-Hr Composite
Chronic WET - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.1	XXX	See Permit	24-Hr Composite
Chronic WET - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.1	XXX	See Permit	24-Hr Composite
Chronic WET - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	1.1	XXX	See Permit	24-Hr Composite
Chronic WET - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	1.1	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
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
Fecal Coliform (No./100 ml)	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

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 003, 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
Fecal Coliform (No./100 ml)	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

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Toxics Management Spreadsheet
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Discharge Information

Instructions | Discharge | Stream

Facility: **Eureka WWTP** NPDES Permit No.: **PA0053180** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated Sewage Effluent**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
2.4	100	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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		464									
	Chloride (PWS)	mg/L		95.1									
	Bromide	mg/L											
	Sulfate (PWS)	mg/L		56.9									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L		0.68									
	Total Arsenic	µg/L		0.64									
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L		1000									
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L		0.01									
	Total Cobalt	µg/L											
	Total Copper	µg/L		11									
	Free Cyanide	µg/L		3.1									
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L		100									
	Total Iron	µg/L		830									
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L		0.00094									
	Total Nickel	µg/L		8.1									
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		46									
	Total Molybdenum	µg/L		5.1									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<	0.012									
	Dichlorobromomethane	µg/L	<	0.001									
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<	16.8									
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<	0.88									
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

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Model Results

Eureka WWTP, NPDES Permit No. PA0053180, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.399 PMF: 1 Analysis Hardness (mg/l): 103.34 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 Antimony	0	0		0	1,100	1,100	1,278	
Total Arsenic	0	0		0	340	340	395	Chem Translator of 1 applied
Total Boron	0	0		0	8,100	8,100	9,409	
Hexavalent Chromium	0	0		0	16	16.3	18.9	Chem Translator of 0.982 applied
Total Copper	0	0		0	13.861	14.4	16.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	25.6	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.91	Chem Translator of 0.85 applied
Total Nickel	0	0		0	481.428	482	560	Chem Translator of 0.998 applied
Total Zinc	0	0		0	120.487	123	143	Chem Translator of 0.978 applied
Chloroform	0	0		0	1,900	1,900	2,207	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	550	550	639	

☑ ***CFC*** CCT (min): 0.399 PMF: 1 Analysis Hardness (mg/l): 103.34 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 Antimony	0	0		0	220	220	256	

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Stream / Surface Water Information

Eureka WWTP, NPDES Permit No. PA0053180, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	002638	12.3	278	6			Yes
End of Reach 1	002638	10.5	238	10.4			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	12.3	0.1										124	7		
End of Reach 1	10.5	0.1													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	12.3														
End of Reach 1	10.5														

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Total Arsenic	0	0		0	150	150	174	Chem Translator of 1 applied
Total Boron	0	0		0	1,600	1,600	1,859	
Hexavalent Chromium	0	0		0	10	10.4	12.1	Chem Translator of 0.962 applied
Total Copper	0	0		0	9.211	9.59	11.1	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	6.04	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,742	WQC = 30 day average; PMF = 1
Total Mercury	0	0		0	0.770	0.91	1.05	Chem Translator of 0.85 applied
Total Nickel	0	0		0	53.472	53.6	62.3	Chem Translator of 0.997 applied
Total Zinc	0	0		0	121.473	123	143	Chem Translator of 0.986 applied
Chloroform	0	0		0	390	390	453	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	110	110	128	

☑ ***THH*** CCT (min): 0.399 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	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Antimony	0	0		0	5.6	5.6	6.5	
Total Arsenic	0	0		0	10	10.0	11.6	
Total Boron	0	0		0	3,100	3,100	3,601	
Hexavalent Chromium	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	140	140	163	
Dissolved Iron	0	0		0	300	300	348	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.050	0.05	0.058	
Total Nickel	0	0		0	610	610	709	
Total Zinc	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	47	47.0	54.6	

☑ ***CRL*** CCT (min): 4.160 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 Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	

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Total Boron	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	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 Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	13.0	
Dichlorobromomethane	0	0		0	0.55	0.55	1.25	
Methyl Bromide	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Antimony	Report	Report	Report	Report	Report	µg/L	6.5	THH	Discharge Conc > 10% WQBEL (no RP)
Total Boron	37.2	58.0	1,859	2,900	4,646	µg/L	1,859	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	0.22	0.34	11.1	16.8	16.8	µg/L	11.1	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.12	0.19	6.04	9.42	15.1	µg/L	6.04	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	348	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,742	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	62.3	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	2.86	Report	143	143	µg/L	123	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
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Arsenic	11.6	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	12.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.058	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Chloroform	N/A	N/A	Discharge Conc < TQL
Dichlorobromomethane	1.25	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
02F	2638	LITTLE NESHAMINY CREEK	**12.300**	278.00	6.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Eureka WWTP	PA0053180	2.4000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	10.00	2.00	0.00	0.80
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	2.00	0.00	0.00	0.70

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WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
02F	2838	LITTLE NESHAMINY CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
12.300	Eureka WWTP	PA0053180	2.400	CBOD5	10		
				NH3-N	2	4	
				Dissolved Oxygen			5