pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0024058**
Facility Type	**Municipal**	APS ID	**1038711**
Major / Minor	**Major**	Authorization ID	**1354474**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Kennett Square Borough Chester County**	Facility Name	**Kennett Square Borough WWTP**
Applicant Address	120 Marshall Street	Facility Address	660 W South Street
	Kennett Square, PA 19348-3108		Kennett Square, PA 19348-2442
Applicant Contact	Robert Moran	Facility Contact	Michael Short
Applicant Phone	(610) 444-6020	Facility Phone	(610) 444-3770
Client ID	65288	Site ID	451897
Ch 94 Load Status	Existing Organic Overload	Municipality	Kennett Square Borough
Connection Status	Self Imposed Connection Prohibition	County	Chester
Date Application Received	May 17, 2021	EPA Waived?	No
Date Application Accepted	Not Applicable	If No, Reason	Major Facility

Purpose of Application: Permit renewal.

Summary of Review

This permit application was received to renew the NPDES permit PA0024058. In summary, many of the parameters, monitoring frequencies and sample type were carried over in this permit renewal. Due to information provided in the application and updated modeling efforts, new parameter limitations and monitoring are added to the permit (see below for a detailed description).

The facility has a pre-treatment plan. The following industrial users were noted on the renewal application:
Avello/Queens Produce
Kaolin Mushroom Farms
New Garden Township
Sylvan America/Sylvan Bio.

Act 14 Notifications:
Chester County Received October 30, 2020
Borough of Kennett Square Received November 30, 2021
Kennett Township Received May 26, 2021

Sludge use and disposal description and location(s): hauled off-site

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

Approve	Deny	Signatures	Date
X		Harmonie Hawley, PhD, PE / Environmental Engineering Specialist /s/	November 30, 2021
X		Pravin C. Patel, P.E. / Environmental Engineer Manager /s/	12/01/2021

Summary of Review
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)	1.1
Latitude	39º 50' 10"	Longitude	-75º 43' 30"
Quad Name	Kennett Square	Quad Code	2040
Wastewater Description:	Sewage Effluent		
Receiving Waters	West Branch Red Clay Creek (TSF, MF)	Stream Code	00391
NHD Com ID	26092318	RMI	3.78
Drainage Area	9.84 miles squared	Yield (cfs/mi^2)	0.012
Q_{7-10} Flow (cfs)	1.2	Q_{7-10} Basis	PA StreamStats
Elevation (ft)	287	Slope (ft/ft)	0.00364
Watershed No.	3-I	Chapter 93 Class.	TSF, MF
Existing Use	Same as Chapter 93	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment, Polychlorinated Biphenyls (PCBs), Siltation		
Source(s) of Impairment	Agriculture, Agriculture, Source Unknown		
TMDL Status	Final, Final	Name	Christina River Basin, Red Clay Creek Watershed

Background/Ambient Data		Data Source
pH (SU)	7	TRG WQM (391-2000-007 default data)
Temperature (°F)	68 (20 °C)	TRG WQM (391-2000-007 default data)
Hardness (mg/L)	100	Toxics Analysis Spreadsheet default
Other:	N/A	None

Nearest Downstream Public Water Supply Intake		None in PA	
PWS Waters	N/A	Flow at Intake (cfs)	N/A
PWS RMI	N/A	Distance from Outfall (mi)	N/A

Changes Since Last Permit Issuance: Used updated PA StreamStats information

Other Comments: It is noted in the application that there is a drinking water intake over the DE border approximately 16 miles downstream.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0 (Stormwater)
Latitude	39º 50' 16"	Longitude	-75º 43' 27"
Quad Name	Kennett Square	Quad Code	2040
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to West Branch Red Clay Creek (TSF, MF)	Stream Code	
NHD Com ID	26092290	RMI	
Watershed No.	3-I	Chapter 93 Class.	TSF, MF
Existing Use	Same as Chapter 93	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment, Polychlorinated Biphenyls (PCBs), Siltation		
Source(s) of Impairment	Agriculture, Agriculture, Source Unknown		
TMDL Status	Final, Final	Name	Christina River Basin, Red Clay Creek Watershed

Changes Since Last Permit Issuance: None

Other Comments: None

Treatment Facility Summary

Treatment Facility Name: Kennett Square Borough WWTP

WQM Permit No.	Issuance Date
1599403	09/02/1999; Amended 12/01/2003
1503415	02/27/2004
1512407	08/20/2012
1518403	08/29/2018

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Oxidation Ditch	Ultraviolet	1.1

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.4	3500	Existing Organic Overload	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: None

Other Comments: None

Compliance History

DMR Data for Outfall 001 (from October 1, 2020 to September 30, 2021)

Parameter	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20
Flow (MGD) Average Monthly	0.684	0.633	0.687	0.805	0.762	0.830	0.904	0.78	0.738	0.898	0.739	0.723
Flow (MGD) Daily Maximum	1.687	0.796	0.921	1.03	0.907	1.135	1.515	1.064	1.048	1.771	1.156	1.226
pH (S.U.) Instantaneous Minimum	7.75	7.81	7.64	7.55	7.44	7.41	7.35	7.37	7.5	7.47	7.44	7.5
pH (S.U.) Instantaneous Maximum	7.97	7.98	7.95	7.88	7.78	7.84	7.76	7.62	7.78	7.8	7.91	8.03
DO (mg/L) Instantaneous Minimum	8.18	7.11	7.04	7.01	8.18	8.84	9.01	10.08	9.32	9.28	8.58	8.41
CBOD5 (lbs/day) Average Monthly	< 20	< 18	< 18	< 20	< 20	< 23	< 25	< 23	< 19	< 23	< 19	< 20
CBOD5 (lbs/day) Weekly Average	< 35	< 17	< 19	22	< 21	< 25	< 34	29	< 23	< 31	< 23	< 20
CBOD5 (mg/L) Average Monthly	< 3	< 3	< 5	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3	< 3
CBOD5 (mg/L) Weekly Average	< 4.2	< 3	5.4	< 3	< 3.3	< 3	< 3.6	5.1	< 3	< 3	< 3	< 3
BOD5 (lbs/day) Influent Average Monthly	2082	1707	1873	2207	2177	2364	2562	1531	1494	1848	1582	1734
BOD5 (lbs/day) Influent Weekly Average	2992	1916	1843	2455	3118	2739	3438	1764	1840	2023	1788	1867
BOD5 (mg/L) Influent Average Monthly	314	316	314	326	334	329	323	248	231	244	245	280
BOD5 (mg/L) Influent Weekly Average	322	342	333	376	442	410	390	269	240	255	255	317
TSS (lbs/day) Average Monthly	< 36	< 28	< 30	< 36	< 34	< 37	< 48	< 44	37	39	< 33	< 33

TSS (lbs/day) Influent Average Monthly	1200	888	1055	1225	1495	1429	1176	820	1494	1630	1225	1467
TSS (lbs/day) Influent Weekly Average	1723	1064	1194	1543	1973	1610	1388	1072	1822	2222	1495	1680
TSS (lbs/day) Weekly Average	< 48	< 30	< 33	41	< 40	< 42	< 60	61	45	< 51	< 38	< 43
TSS (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 5	< 6	< 7	< 6	< 5	< 5	< 5
TSS (mg/L) Influent Average Monthly	185	165	178	175	232	202	150	136	232	200	194	237
TSS (mg/L) Influent Weekly Average	253	211	186	203	299	240	185	188	284	272	239	294
TSS (mg/L) Weekly Average	5.6	5.6	5.4	6	5.6	5.4	8	9.2	7.5	< 5.2	< 5.3	< 6.6
Fecal Coliform (CFU/100 ml) Geometric Mean	< 17	12	< 9	< 28	< 8	< 4	< 1	< 1	< 2	< 2	< 2	< 19
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	45	59	54	130	39	35	< 1	< 1	30	33	23	< 43
Total Nitrogen (lbs/day) Average Monthly	47.0	21.0	39.0	57.0	47.0	65.0	82.0	58.0	32.0	65.0	61.0	56.0
Total Nitrogen (mg/L) Average Monthly	4.75	4.06	7.58	8.54	7.0	7.3	9.35	9.77	4.82	5.98	9.78	9.33
Total Nitrogen (mg/L) Instantaneous Maximum	4.84	4.24	9.07	9.23	7.2	8.2	9.55	12.93	5.89	7.37	9.89	9.64
Ammonia (lbs/day) Average Monthly	< 1	< 0.8	< 1	< 1	< 1	< 0.8	< 2	< 2	2	2	1	< 0.09
Ammonia (mg/L) Average Monthly	< 0.16	< 0.14	< 0.18	< 0.22	< 0.2	< 0.11	< 0.24	< 0.39	0.34	0.31	0.19	< 0.15
Total Phosphorus (lbs/day) Average Monthly	7	6	6	7	7	8	6	7	10	10	8	7
Total Phosphorus (mg/L) Average Monthly	1.07	1.12	0.95	1.04	1.09	1.1	0.71	1.09	1.57	1.34	1.2	1.19

Total Cadmium (mg/L) Average Monthly	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.004	< 0.005	< 0.005	< 0.005
Total Copper (mg/L) Average Monthly	0.006	0.007	0.014	0.011	< 0.01	< 0.01	< 0.01	0.004	0.005	< 0.053	0.11	0.011
Total Phenolics (lbs/day) Average Monthly	< 0.10	< 0.05	< 0.07	< 0.07	< 0.07	< 0.09	< 0.10	< 0.05	< 0.07	< 0.10	0.06	< 0.07
Total Phenolics (lbs/day) Daily Maximum	< 0.10	< 0.05	< 0.076	< 0.07	< 0.08	< 0.09	< 0.10	< 0.06	< 0.008	< 0.10	0.06	< 0.06
Total Phenolics (mg/L) Average Monthly	< 0.010	< 0.010	< 0.010	< 0.010	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Phenolics (mg/L) Daily Maximum	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.010	< 0.010	< 0.010	< 0.010	0.010	< 0.010	< 0.010
Chronic WET - Pimephales Survival (TUc) Daily Maximum	GG			2.2			GG			GG		
Chronic WET - Pimephales Growth (TUc) Daily Maximum	GG			2.2			GG			GG		

DMR Data for Outfall 002 (from October 1, 2020 to September 30, 2021)

Parameter	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20
pH (S.U.) Annual Average										7.35		
CBOD5 (mg/L) Annual Average										3.9		
COD (mg/L) Annual Average										197		
TSS (mg/L) Annual Average										7.8		
Oil and Grease (mg/L) Annual Average										< 5		
TKN (mg/L) Annual Average										9.18		
Total Phosphorus (mg/L) Annual Average										0.66		

Dissolved Iron (mg/L) Annual Average										0.72		

Compliance History

No open violations

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.1
Latitude 39º 50' 10.00" **Longitude** -75º 43' 30.00"
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)	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)

Comments: The facility does not use chlorine but uses UV disinfection. Monitoring of the UV system was added to the permit. The Total Suspended Solids concentration and the pH limitations in the existing permit are consistent with the above table and will be retained in this permit. E. coli was added to the permit with a sampling frequency of once per month per SOP No. BCW-PMT-033 based on Chapter 92a.61.

Water Quality-Based Limitations

A “Reasonable Potential Analysis” (Attachment A) was run using the Toxics management Spreadsheet (TMS) and the following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
Total Aluminum	Report	Quarterly	TMS
Total Copper	0.0153		TMS
Free Cyanide	0.00682		TMS
Total Silver	Report		TMS
Total Zinc	0.131		TMS
4,6-Dinitro-o-Cresol	0.00341		TMS
2,4-Dinitrophenol	0.0171		TMS
Benzidine	0.0000006		TMS
Bis(2-Ethylhexyl)Phthalate	0.00196		TMS
3,3-Dichlorobenzidine	0.00031		TMS
Hexachlorobutadiene	0.000061		TMS

Comments: Limitations are added to the permit for Total Copper and Total Zinc. In the current permit Total Copper is “monitor” thus data exists from the past two (2) years. An analysis of the data indicates that the limitation can be made. Total Zinc was reported on the permit renewal application as an average of <0.736 and a maximum of 0.091 mg/l; the maximum value reported is less than the proposed limit.

The Free Cyanide, 4,6-Dinitro-o-Cresol, 2,4-Dinitrophenol, Benzidine, Bis(2-Ethylhexyl)Phthalate, 3,3-Dichlorobenzidine, and Hexachlorobutadiene were all analyzed at values above the Target Quantitation Limit (TQL) multiple times. An

analysis of the parameters at the TQL indicates limitations would not be needed; however, samples need to be taken at that level for a Reasonable Potential Analysis. These parameters are added to the proposed permit renewal but will be "monitor" without limitations. This will allow the facility to gain information on these parameters. It is anticipated that a condition will be in the proposed permit which indicates the TQL and that monitoring should be analyzed at, or below, the TQL.

The WQM 7 model was run and is consistent with the existing permit (Attachment B).

The facility is part of the Christina River Basin TMDL. Wasteload allocations exist for CBOD5, NH3-N, TN, TP, and Fecal Coliform. The existing permit is consistent with the TMDL and those limitations are retained in this permit.

DRBC docket (D-1999-017 CP-2) has quarterly monitoring of TDS for this facility. Quarterly monitoring of TDS was added to this permit for consistency.

Best Professional Judgment (BPJ) Limitations

Comments: CBOD5 influent monitoring was added to the permit for consistency with the permit. The existing permit has an 85% removal requirement which indicates that influent sampling is occurring. Adding the item to Part A is consistent with the current permit. BOD5 and TSS influent monitoring are retained in this permit.

Anti-Backsliding

Total Cadmium and Total Phenolics are retained in this permit.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0 (Stormwater)
Latitude	39º 50' 16.00"	**Longitude**	-75º 43' 27.00"
Wastewater Description:	Stormwater		

Best Professional Judgment (BPJ) Limitations

Comments: The same monitoring parameters, type and frequency are retained from the last permit.

Whole Effluent Toxicity (WET)

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

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

See Attachment C, WETT Spreadsheet.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

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	Daily Maximum	Average Quarterly	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	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Influent	Report	Report	XXX	Report Avg Mo	Report Wkly Avg	XXX	2/week	24-Hr Composite
CBOD5 Nov 1 - Apr 30	230	365	XXX	25 Avg Mo	40 Wkly Avg	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	152	228	XXX	17 Avg Mo	25 Wkly Avg	33	2/week	24-Hr Composite
BOD5 Influent	Report	Report	XXX	Report Avg Mo	Report Wkly Avg	XXX	2/week	24-Hr Composite
TSS Influent	Report	Report	XXX	Report Avg Mo	Report Wkly Avg	XXX	2/week	24-Hr Composite
TSS	275	412	XXX	30 Avg Mo	45 Wkly Avg	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (CFU/100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report Avg Mo	XXX	XXX	1/month	Grab
UV Intensity (mW/cm^2)	XXX	XXX	XXX	Report Avg Mo	XXX	XXX	1/day	Measured
Total Nitrogen	91.8	XXX	XXX	10.0 Avg Mo	XXX	20.0 Daily Max	2/month	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	Daily Maximum	Average Quarterly	Instant. Maximum		
Ammonia Nov 1 - Apr 30	55	XXX	XXX	6.0 Avg Mo	XXX	12	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	18	XXX	XXX	2.0 Avg Mo	XXX	4	2/week	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	18	XXX	XXX	2.0 Avg Mo	XXX	4	2/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	12	XXX	XXX	1.3 Avg Mo	XXX	2.6	2/week	24-Hr Composite
Total Aluminum	XXX	XXX	XXX	Report Avg Qrtly	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Cadmium	XXX	XXX	XXX	Report Avg Mo	XXX	XXX	1/month	24-Hr Composite
Total Copper	0.14	0.22 Daily Max	XXX	0.0153 Avg Mo	0.0239 Daily Max	0.0383	2/month	24-Hr Composite
Free Cyanide	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Total Silver	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Total Zinc	1.2	1.87 Daily Max	XXX	0.131 Avg Mo	0.204 Daily Max	0.327	2/month	24-Hr Composite
2,4-Dinitrophenol	XXX	XXX	XXX	Report	Report	XXX	1/quarter	4 Grabs/24 Hours
4,6-dinitro-o-cresol	XXX	XXX	XXX	Report	Report	XXX	1/quarter	4 Grabs/24 Hours
3,3-Dichloro-benzidine	XXX	XXX	XXX	Report	Report	XXX	1/quarter	4 Grabs/24 Hours
Benzidine	XXX	XXX	XXX	Report	Report	XXX	1/quarter	4 Grabs/24 Hours
Bis(2-Ethyl-hexyl)Phthalate	XXX	XXX	XXX	Report	Report	XXX	1/quarter	4 Grabs/24 Hours
Hexachloro-butadiene	XXX	XXX	XXX	Report	Report	XXX	1/quarter	4 Grabs/24 Hours
Total Phenolics	0.21	0.42 Daily Max	XXX	0.023 Avg Mo	0.046 Daily Max	0.058	2/month	24-Hr Composite
Chronic WET - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	Report	XXX	XXX	See Permit	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	Daily Maximum	Average Quarterly	Instant. Maximum		
Chronic WET - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	Report	XXX	XXX	See Permit	24-Hr Composite
Chronic WET - Pimephales Survival (TUc)	XXX	XXX	XXX	Report	XXX	XXX	See Permit	24-Hr Composite
Chronic WET - Pimephales Growth (TUc)	XXX	XXX	XXX	Report	XXX	XXX	See Permit	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: Fecal Coliform DRBC 10% Rule.

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	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
CBOD5	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
COD	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 002

Other Comments: None

Attachment A TMS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Kennett Square WWTP** NPDES Permit No.: **PA0024058** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Municipal**

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
1.1	100	7						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		660									
	Chloride (PWS)	mg/L		155									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		92.6									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		330									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L	<	0.2									
	Total Barium	µg/L		16									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L	<	0.12									
	Total Cobalt	µg/L		0.3									
	Total Copper	µg/L		240									
	Free Cyanide	µg/L	<	4									
	Total Cyanide	µg/L	<	4									
	Dissolved Iron	µg/L		40									
	Total Iron	µg/L		30									
	Total Lead	µg/L	<	0.6									
	Total Manganese	µg/L		17									
	Total Mercury	µg/L	<	0.09									
	Total Nickel	µg/L		2.5									
	Total Phenols (Phenolics) (PWS)	µg/L		12									
	Total Selenium	µg/L		0.5									
	Total Silver	µg/L	<	0.7									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	µg/L		73									
	Total Molybdenum	µg/L	<	10									
	Acrolein	µg/L	<	1.8									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.9									
	Benzene	µg/L	<	0.1									
	Bromoform	µg/L	<	0.4									

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Group 3	Carbon Tetrachloride	µg/L	<	0.2									
	Chlorobenzene	µg/L	<	0.1									
	Chlorodibromomethane	µg/L	<	0.1									
	Chloroethane	µg/L	<	0.3									
	2-Chloroethyl Vinyl Ether	µg/L	<	1.2									
	Chloroform	µg/L		1.3									
	Dichlorobromomethane	µg/L		0.3									
	1,1-Dichloroethane	µg/L	<	0.3									
	1,2-Dichloroethane	µg/L	<	0.2									
	1,1-Dichloroethylene	µg/L	<	0.3									
	1,2-Dichloropropane	µg/L	<	0.2									
	1,3-Dichloropropylene	µg/L	<	0.3									
	1,4-Dioxane	µg/L	<	59									
	Ethylbenzene	µg/L	<	0.1									
	Methyl Bromide	µg/L	<	0.4									
	Methyl Chloride	µg/L	<	0.2									
	Methylene Chloride	µg/L	<	0.2									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.1									
	Tetrachloroethylene	µg/L	<	0.2									
	Toluene	µg/L	<	0.1									
	1,2-trans-Dichloroethylene	µg/L	<	0.2									
	1,1,1-Trichloroethane	µg/L	<	0.2									
	1,1,2-Trichloroethane	µg/L	<	0.2									
	Trichloroethylene	µg/L	<	0.1									
	Vinyl Chloride	µg/L	<	0.3									
Group 4	2-Chlorophenol	µg/L	<	0.59									
	2,4-Dichlorophenol	µg/L	<	0.47									
	2,4-Dimethylphenol	µg/L	<	0.58									
	4,6-Dinitro-o-Cresol	µg/L	<	14									
	2,4-Dinitrophenol	µg/L	<	14									
	2-Nitrophenol	µg/L	<	0.56									
	4-Nitrophenol	µg/L	<	1.3									
	p-Chloro-m-Cresol	µg/L	<	0.56									
	Pentachlorophenol	µg/L	<	7.8									
	Phenol	µg/L	<	4.5									
	2,4,6-Trichlorophenol	µg/L	<	0.63									
Group 5	Acenaphthene	µg/L	<	0.6									
	Acenaphthylene	µg/L	<	0.6									
	Anthracene	µg/L	<	0.45									
	Benzidine	µg/L	<	85									
	Benzo(a)Anthracene	µg/L	<	0.69									
	Benzo(a)Pyrene	µg/L	<	0.49									
	3,4-Benzofluoranthene	µg/L	<	0.9									
	Benzo(ghi)Perylene	µg/L	<	0.64									
	Benzo(k)Fluoranthene	µg/L	<	0.81									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.62									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.37									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.54									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	58									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.58									
	Butyl Benzyl Phthalate	µg/L	<	4.3									
	2-Chloronaphthalene	µg/L	<	0.55									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.56									
	Chrysene	µg/L	<	0.75									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.67									
	1,2-Dichlorobenzene	µg/L	<	0.47									
	1,3-Dichlorobenzene	µg/L	<	0.45									
	1,4-Dichlorobenzene	µg/L	<	0.56									
	3,3-Dichlorobenzidine	µg/L	<	5.4									
	Diethyl Phthalate	µg/L	<	5.3									
	Dimethyl Phthalate	µg/L	<	0.52									
	Di-n-Butyl Phthalate	µg/L	<	6.9									
	2,4-Dinitrotoluene	µg/L	<	0.47									

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	2,6-Dinitrotoluene	µg/L	<	0.56									
	Di-n-Octyl Phthalate	µg/L	<	8.3									
	1,2-Diphenylhydrazine	µg/L	<	0.45									
	Fluoranthene	µg/L	<	0.56									
	Fluorene	µg/L	<	0.64									
	Hexachlorobenzene	µg/L	<	0.52									
	Hexachlorobutadiene	µg/L	<	0.64									
	Hexachlorocyclopentadiene	µg/L	<	4.8									
	Hexachloroethane	µg/L	<	0.57									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.79									
	Isophorone	µg/L	<	0.5									
	Naphthalene	µg/L	<	0.55									
	Nitrobenzene	µg/L	<	4.8									
	n-Nitrosodimethylamine	µg/L	<	0.62									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.66									
	n-Nitrosodiphenylamine	µg/L	<	1.1									
	Phenanthrene	µg/L	<	0.51									
	Pyrene	µg/L	<	0.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.48									
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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pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Kennett Square WWTP, NPDES Permit No. PA0024058, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: West Branch Red Clay Creek

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	000391	3.78	287	9.84			Yes
End of Reach 1	000391	1.18	237	14			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	3.78	0.1	1.2									100	7		
End of Reach 1	1.18	0.1	1.91									100	7		

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	3.78														
End of Reach 1	1.18														

Model Results

Kennett Square WWTP, NPDES Permit No. PA0024058, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All | ( ) Inputs | ( ) Results | ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 3.952 PMF: 1 Analysis Hardness (mg/l): 100 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	1,279	
Total Antimony	0	0		0	1,100	1,100	1,876	
Total Arsenic	0	0		0	340	340	580	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	35,809	
Total Boron	0	0		0	8,100	8,100	13,812	
Total Cadmium	0	0		0	2.014	2.13	3.64	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	3,075	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	27.8	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	162	
Total Copper	0	0		0	13.439	14.0	23.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	37.5	
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	64.581	81.6	139	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.81	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	800	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	6.45	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	111	
Total Zinc	0	0		0	117.180	120	204	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	5.12	

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Acrylonitrile	0	0		0	650	650	1,108	
Benzene	0	0		0	640	640	1,091	
Bromoform	0	0		0	1,800	1,800	3,069	
Carbon Tetrachloride	0	0		0	2,800	2,800	4,774	
Chlorobenzene	0	0		0	1,200	1,200	2,046	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	30,693	
Chloroform	0	0		0	1,900	1,900	3,240	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	25,578	
1,1-Dichloroethylene	0	0		0	7,500	7,500	12,789	
1,2-Dichloropropane	0	0		0	11,000	11,000	18,757	
1,3-Dichloropropylene	0	0		0	310	310	529	
Ethylbenzene	0	0		0	2,900	2,900	4,945	
Methyl Bromide	0	0		0	550	550	938	
Methyl Chloride	0	0		0	28,000	28,000	47,745	
Methylene Chloride	0	0		0	12,000	12,000	20,462	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,705	
Tetrachloroethylene	0	0		0	700	700	1,194	
Toluene	0	0		0	1,700	1,700	2,899	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	11,595	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	5,116	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	5,798	
Trichloroethylene	0	0		0	2,300	2,300	3,922	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	955	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,899	
2,4-Dimethylphenol	0	0		0	660	660	1,125	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	136	
2,4-Dinitrophenol	0	0		0	660	660	1,125	
2-Nitrophenol	0	0		0	8,000	8,000	13,641	
4-Nitrophenol	0	0		0	2,300	2,300	3,922	
p-Chloro-m-Cresol	0	0		0	160	160	273	
Pentachlorophenol	0	0		0	8.723	8.72	14.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	784	
Acenaphthene	0	0		0	83	83.0	142	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	512	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.85	
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	51,155	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	7,673	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	460	
Butyl Benzyl Phthalate	0	0		0	140	140	239	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,398	
1,3-Dichlorobenzene	0	0		0	350	350	597	
1,4-Dichlorobenzene	0	0		0	730	730	1,245	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	6,821	
Dimethyl Phthalate	0	0		0	2,500	2,500	4,263	
Di-n-Butyl Phthalate	0	0		0	110	110	188	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,728	
2,6-Dinitrotoluene	0	0		0	990	990	1,688	
1,2-Diphenylhydrazine	0	0		0	15	15.0	25.6	
Fluoranthene	0	0		0	200	200	341	
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	17.1	
Hexachlorocyclopentadiene	0	0		0	5	5.0	8.53	
Hexachloroethane	0	0		0	60	60.0	102	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	17,052	
Naphthalene	0	0		0	140	140	239	
Nitrobenzene	0	0		0	4,000	4,000	6,821	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	28,988	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	512	
Phenanthrene	0	0		0	5	5.0	8.53	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	222	

☑ *CFC* CCT (min): 3.952 PMF: 1 Analysis Hardness (mg/l): 100 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	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	375	
Total Arsenic	0	0		0	150	150	256	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	6,991	
Total Boron	0	0		0	1,600	1,600	2,728	
Total Cadmium	0	0		0	0.246	0.27	0.46	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	147	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	17.7	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	32.4	
Total Copper	0	0		0	8.956	9.33	15.9	Chem Translator of 0.96 applied

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Free Cyanide	0	0		0	5.2	5.2	8.87	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,558	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	5.43	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.54	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	88.9	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	8.51	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	22.2	
Total Zinc	0	0		0	118.139	120	204	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	5.12	
Acrylonitrile	0	0		0	130	130	222	
Benzene	0	0		0	130	130	222	
Bromoform	0	0		0	370	370	631	
Carbon Tetrachloride	0	0		0	560	560	955	
Chlorobenzene	0	0		0	240	240	409	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	5,968	
Chloroform	0	0		0	390	390	665	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	5,286	
1,1-Dichloroethylene	0	0		0	1,500	1,500	2,558	
1,2-Dichloropropane	0	0		0	2,200	2,200	3,751	
1,3-Dichloropropylene	0	0		0	61	61.0	104	
Ethylbenzene	0	0		0	580	580	989	
Methyl Bromide	0	0		0	110	110	188	
Methyl Chloride	0	0		0	5,500	5,500	9,378	
Methylene Chloride	0	0		0	2,400	2,400	4,092	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	358	
Tetrachloroethylene	0	0		0	140	140	239	
Toluene	0	0		0	330	330	563	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	2,387	
1,1,1-Trichloroethane	0	0		0	610	610	1,040	
1,1,2-Trichloroethane	0	0		0	680	680	1,160	
Trichloroethylene	0	0		0	450	450	767	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	188	
2,4-Dichlorophenol	0	0		0	340	340	580	
2,4-Dimethylphenol	0	0		0	130	130	222	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	27.3	
2,4-Dinitrophenol	0	0		0	130	130	222	
2-Nitrophenol	0	0		0	1,600	1,600	2,728	
4-Nitrophenol	0	0		0	470	470	801	
p-Chloro-m-Cresol	0	0		0	500	500	853	
Pentachlorophenol	0	0		0	6.693	6.69	11.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	155	
Acenaphthene	0	0		0	17	17.0	29.0	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	101	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.17	
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	10,231	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,552	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	92.1	
Butyl Benzyl Phthalate	0	0		0	35	35.0	59.7	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	273	
1,3-Dichlorobenzene	0	0		0	69	69.0	118	
1,4-Dichlorobenzene	0	0		0	150	150	256	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,364	
Dimethyl Phthalate	0	0		0	500	500	853	
Di-n-Butyl Phthalate	0	0		0	21	21.0	35.8	
2,4-Dinitrotoluene	0	0		0	320	320	546	
2,6-Dinitrotoluene	0	0		0	200	200	341	
1,2-Diphenylhydrazine	0	0		0	3	3.0	5.12	
Fluoranthene	0	0		0	40	40.0	68.2	
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	3.41	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.71	
Hexachloroethane	0	0		0	12	12.0	20.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	3,581	
Naphthalene	0	0		0	43	43.0	73.3	
Nitrobenzene	0	0		0	810	810	1,381	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	5,798	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	101	
Phenanthrene	0	0		0	1	1.0	1.71	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	44.3	

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☑ THH CCT (min): 3.952 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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	9.55	
Total Arsenic	0	0		0	10	10.0	17.1	
Total Barium	0	0		0	2,400	2,400	4,092	
Total Boron	0	0		0	3,100	3,100	5,286	
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	6.82	
Dissolved Iron	0	0		0	300	300	512	
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	1,705	
Total Mercury	0	0		0	0.050	0.05	0.085	
Total Nickel	0	0		0	610	610	1,040	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.41	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	5.12	
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	171	
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	N/A	N/A	N/A	
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	56.3	
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	116	
Methyl Bromide	0	0		0	100	100.0	171	
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	97.2	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	171	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	17,052	
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	51.2	
2,4-Dichlorophenol	0	0		0	10	10.0	17.1	
2,4-Dimethylphenol	0	0		0	100	100.0	171	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	3.41	
2,4-Dinitrophenol	0	0		0	10	10.0	17.1	
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	6,821	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	119	
Anthracene	0	0		0	300	300	512	
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	341	
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	0.17	
2-Chloronaphthalene	0	0		0	800	800	1,364	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,705	
1,3-Dichlorobenzene	0	0		0	7	7.0	11.9	
1,4-Dichlorobenzene	0	0		0	300	300	512	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,023	
Dimethyl Phthalate	0	0		0	2,000	2,000	3,410	
Di-n-Butyl Phthalate	0	0		0	20	20.0	34.1	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	

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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	34.1	
Fluorene	0	0		0	50	50.0	85.3	
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	6.82	
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	58.0	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	17.1	
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	34.1	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.12	

☑ CRL CCT (min): 6.959 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	
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	0.37	
Benzene	0	0		0	0.58	0.58	3.55	
Bromoform	0	0		0	7	7.0	42.8	
Carbon Tetrachloride	0	0		0	0.4	0.4	2.45	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	4.9	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	34.9	
Dichlorobromomethane	0	0		0	0.95	0.95	5.81	
1,2-Dichloroethane	0	0		0	9.9	9.9	60.6	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	5.51	
1,3-Dichloropropylene	0	0		0	0.27	0.27	1.65	
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	122	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	1.22	
Tetrachloroethylene	0	0		0	10	10.0	61.2	
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	3.37	
Trichloroethylene	0	0		0	0.6	0.6	3.67	
Vinyl Chloride	0	0		0	0.02	0.02	0.12	
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	0.18	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	9.18	
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	0.0006	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.006	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0006	

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3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.006	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.061	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.18	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	1.96	
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	0.73	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0006	
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	0.31	
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	0.31	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.31	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.18	
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	0.0005	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.061	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.61	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.006	
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	0.004	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.031	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	20.2	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	820	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.14	0.22	15.3	23.9	38.3	µg/L	15.3	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.063	0.098	6.82	10.6	17.1	µg/L	6.82	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	4.14	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	1.2	1.87	131	204	327	µg/L	131	AFC	Discharge Conc ≥ 50% WQBEL (RP)
4,6-Dinitro-o-Cresol	0.031	0.049	3.41	5.32	8.53	µg/L	3.41	THH	Discharge Conc ≥ 50% WQBEL (RP)
2,4-Dinitrophenol	0.16	0.24	17.1	26.6	42.6	µg/L	17.1	THH	Discharge Conc ≥ 50% WQBEL (RP)
Benzidine	0.000006	0.000009	0.0006	0.001	0.002	µg/L	0.0006	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Bis(2-Ethylhexyl)Phthalate	0.018	0.028	1.96	3.06	4.9	µg/L	1.96	CRL	Discharge Conc ≥ 50% WQBEL (RP)
3,3-Dichlorobenzidine	0.003	0.004	0.31	0.48	0.77	µg/L	0.31	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Hexachlorobutadiene	0.0006	0.0009	0.061	0.095	0.15	µg/L	0.061	CRL	Discharge Conc ≥ 50% WQBEL (RP)

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☑ ***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
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	4,092	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,728	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.46	µg/L	Discharge Conc < TQL
Total Chromium (III)	147	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	17.7	µg/L	Discharge Conc < TQL
Total Cobalt	32.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	512	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	2,558	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	5.43	µg/L	Discharge Conc < TQL
Total Manganese	1,705	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.085	µg/L	Discharge Conc < TQL
Total Nickel	88.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	8.51	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.41	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.28	µg/L	Discharge Conc < TQL
Acrylonitrile	0.37	µg/L	Discharge Conc < TQL
Benzene	3.55	µg/L	Discharge Conc < TQL
Bromoform	42.8	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	2.45	µg/L	Discharge Conc < TQL
Chlorobenzene	171	µg/L	Discharge Conc < TQL
Chlorodibromomethane	4.9	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	5,968	µg/L	Discharge Conc < TQL
Chloroform	34.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	5.81	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	60.6	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	56.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	5.51	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	1.65	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	116	µg/L	Discharge Conc < TQL
Methyl Bromide	171	µg/L	Discharge Conc < TQL
Methyl Chloride	9,378	µg/L	Discharge Conc < TQL
Methylene Chloride	122	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	1.22	µg/L	Discharge Conc < TQL
Tetrachloroethylene	61.2	µg/L	Discharge Conc < TQL
Toluene	97.2	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	171	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,040	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	3.37	µg/L	Discharge Conc < TQL
Trichloroethylene	3.67	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.12	µg/L	Discharge Conc < TQL
2-Chlorophenol	51.2	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	17.1	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	171	µg/L	Discharge Conc < TQL
2-Nitrophenol	2,728	µg/L	Discharge Conc < TQL
4-Nitrophenol	801	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	175	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.18	µg/L	Discharge Conc < TQL
Phenol	6,821	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	9.18	µg/L	Discharge Conc < TQL
Acenaphthene	29.0	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	512	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.006	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0006	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.006	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.061	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.18	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	341	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	92.1	µg/L	Discharge Conc < TQL

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Butyl Benzyl Phthalate	0.17	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,364	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.73	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0006	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	273	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	11.9	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	256	µg/L	Discharge Conc ≤ 25% WQBEL
Diethyl Phthalate	1,023	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	853	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	34.1	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	0.31	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.31	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.18	µg/L	Discharge Conc < TQL
Fluoranthene	34.1	µg/L	Discharge Conc < TQL
Fluorene	85.3	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0005	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.71	µg/L	Discharge Conc < TQL
Hexachloroethane	0.61	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.006	µg/L	Discharge Conc < TQL
Isophorone	58.0	µg/L	Discharge Conc < TQL
Naphthalene	73.3	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	17.1	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.004	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.031	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	20.2	µg/L	Discharge Conc < TQL
Phenanthrene	1.71	µg/L	Discharge Conc < TQL
Pyrene	34.1	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.12	µg/L	Discharge Conc < TQL

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Attachment B WQM Model

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03I	391	WEST BRANCH RED CLAY 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)
3.780	Kennett Sq Boro	PA0024058	1.100	CBOD5	17		
				NH3-N	2	4	
				Dissolved Oxygen			6

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03I	391	WEST BRANCH RED CLAY CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
3.780	Kennett Sq Boro	7.55	4	7.55	4	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
3.780	Kennett Sq Boro	1.59	2	1.59	2	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
3.78	Kennett Sq Boro	17	17	2	2	6	6	0	0

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03I	391	WEST BRANCH RED CLAY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.780	1.100	22.932	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
21.650	0.596	36.298	0.225
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.80	1.294	1.17	0.877
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.928	8.337	Tsivoglou	6
Reach Travel Time (days)			
0.707			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.071	9.72	1.10	6.26
0.141	8.76	1.04	6.02
0.212	7.89	0.97	6.01
0.283	7.10	0.92	6.11
0.354	6.40	0.86	6.27
0.424	5.76	0.81	6.45
0.495	5.19	0.76	6.63
0.566	4.67	0.71	6.81
0.636	4.21	0.67	6.97
0.707	3.79	0.63	7.12

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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
03I	391	WEST BRANCH RED CLAY CREEK	3.780	287.00	9.84	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	1.20	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Kennett Sq Boro	PA0024058	1.1000	1.1000	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	17.00	2.00	0.00	1.50
Dissolved Oxygen	6.00	8.24	0.00	0.00
NH3-N	2.00	0.00	0.00	0.70

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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
03I	391	WEST BRANCH RED CLAY CREEK	1.180	237.00	14.00	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	1.91	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin: 03I **Stream Code:** 391 **Stream Name:** WEST BRANCH RED CLAY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
3.780	1.20	0.00	1.20	1.7017	0.00364	.596	21.65	36.3	0.22	0.707	22.93	7.00
Q1-10 Flow												
3.780	0.77	0.00	0.77	1.7017	0.00364	NA	NA	NA	0.21	0.774	23.45	7.00
Q30-10 Flow												
3.780	1.63	0.00	1.63	1.7017	0.00364	NA	NA	NA	0.24	0.654	22.55	7.00

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WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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Attachment C WETT Spreadsheet

WET Summary and Evaluation

Facility Name	Kennett Square
Permit No.	PA0024058
Design Flow (MGD)	1.1
Q_{7-10} Flow (cfs)	1.2
PMF_s	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	1/22/19	4/9/19	8/7/19	6/23/20
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	1/22/19	4/9/19	8/7/19	6/23/20
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	1/22/19	4/9/19	8/7/19	6/23/20
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	1/22/19	4/9/19	8/7/19	6/23/20
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

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