pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0025917**
Facility Type	**Municipal**	APS ID	**990640**
Major / Minor	**Major**	Authorization ID	**1268712**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Chalfont New Britain Township Joint Sewer Authority Bucks County**	Facility Name	**Chalfont New Britain Township Joint Sewer Authority**
Applicant Address	1645 Upper State Road	Facility Address	1645 Upper State Road
	Doylestown, PA 18901-2624		Doylestown, PA 18901-2666
Applicant Contact	John Schmidt	Facility Contact	John Schmidt
Applicant Phone	(215) 345-1225	Facility Phone	(215) 345-1225
Client ID	62143	Site ID	454079
Ch 94 Load Status	Not Overloaded	Municipality	Doylestown Township
Connection Status	No Limitations	County	Bucks
Date Application Received	March 28, 2019	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 4.625 MGD to Neshaminy Creek located in Doylestown Township, Bucks County. In 2015, the permit was amended to increase the hydraulic capacity from 6.0 to 7.0 MGD upon permittee's request.

The plant process includes screening, primary settling to remove grit and grease, a split treatment process, final clarifier, and UV disinfection. The split treatment process consists of submersible mixers and an oxidation ditch which is a modified version of activated sludge unit. Denitrification, phosphorus and ammonia removal is achieved in oxidation ditch. Solid wastes generated are processed to final product called biosolids, which are recycled for beneficial uses in community.

Water quality modeling is performed using Department's WQM. The previous monthly average effluent limit for $CBOD_5$ was 12 mg/l (5/1 – 10/31) and 24 mg/l (11/1 – 4/30). The existing effluent limit for dissolved oxygen limit is 5.0 mg/l (minimum). The current WQM model recommends a $CBOD_5$ limit of 7-mg/l, based on an NH3-N limit of 2.0-mg/l. Therefore, $CBOD_5$ limits for this renewal has been changed to 7 mg/l (5/1 – 10/31) and 14 mg/l (11/1 – 4/30).

A "Reasonable Potential Analysis" determined Aluminum, Chloride, Copper, Total Dissolved Solids, Zinc, Total Iron and Total Lead are parameters of concern. WQBEL calculated by Pentox recommended that limits be established for Total Aluminum, Total Copper, Total Iron and report only for Total Lead and Total Zinc. TDS is report only in the existing permit and will remain unchanged.

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

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

Approve	Deny	Signatures	Date
x		*Vasantha* Vasantha Palakurti / Environmental Engineering Specialist	6/3/2021
		Pravin C. Patel, P.E. / Environmental Engineer Manager	

Summary of Review

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)	4.625
Latitude	40Âº 17' 18.41"	Longitude	-75Âº 10' 42.37"
Quad Name		Quad Code	1644
Wastewater Description:	Sewage Effluent		
Receiving Waters	Neshaminy Creek (TSF, MF)	Stream Code	02484
NHD Com ID	25479308	RMI	37.9300
Drainage Area	61.7	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	6.4	Q_{7-10} Basis	Previous Permit
Elevation (ft)	220	Slope (ft/ft)	
Watershed No.	2-F	Chapter 93 Class.	TSF, MF
Existing Use	None	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, ORGANIC ENRICHMENT, PATHOGENS, SILTATION		
Source(s) of Impairment	MUNICIPAL POINT SOURCE DISCHARGES, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final, 04/09/2003 (Nutrient TMDL withdrawn)	Name	Neshaminy Creek

Changes Since Last Permit Issuance: In 2015, the permit was amended to increase the hydraulic capacity from 6.0 to 7.0 MGD upon permittee's request. The design capacity and flow remained the same. There were no other changes to assumptions, flows, etc. since last permit renewal.

Outfall 002: Stormwater runoff from Chalfont New Britain STP property

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia And Phosphorus	Oxidation Ditch	Ultraviolet	4.625
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
7	11572	Not Overloaded	Conditioning (Chemical, Heat, Etc.)	Land Application

Compliance History

DMR Data for Outfall 001 (from November 1, 2018 to October 31, 2019)

Parameter	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18
Flow (MGD) Average Monthly	3.16	2.51	2.83	4.45	4.57	6.25	4.69	6.92	5.71	6.66	6.30	7.72
Flow (MGD) Daily Maximum	7.24	3.10	3.90	8.61	7.05	11.87	8.36	13.96	8.99	11.79	13.18	12.31
pH (S.U.) Minimum	7.1	7.4	6.3	6.7	7.1	6.9	7.2	6.9	6.8	6.9	6.9	7.0
pH (S.U.) Maximum	7.8	7.7	7.6	7.6	7.5	7.5	7.6	7.4	7.3	7.3	7.4	7.4
DO (mg/L) Minimum	7.3	7.2	7.8	7.2	8.1	8.0	6.8	8.3	7.7	9.7	9.4	9.5
CBOD5 (lbs/day) Average Monthly	51	58	55	136	81	301	165	325	1099	1028	342	159
CBOD5 (lbs/day) Weekly Average	58	91	71	249	96	621	216	445	2538	2994	687	266
CBOD5 (mg/L) Average Monthly	2.1	2.7	2.2	3.1	2.1	4.9	4.3	5.5	18.5	13	7.1	2.6
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	183	191	160	131	124	127	166	138	159	130	106	147
CBOD5 (mg/L) Weekly Average	2.2	3.8	2.5	4.4	2.2	7.3	5.3	6.7	38.1	32	15.1	3.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	5301	5261	6288	7426	8278	8439	9397	10076	11449	8975	6168	12573
BOD5 (mg/L) Raw Sewage Influent Average Monthly	221	259	265	192	215	159	260	183	225	168	134	221
TSS (lbs/day) Average Monthly	121	102	165	486	319	2746	630	1896	3686	3093	742	783
TSS (lbs/day) Raw Sewage Influent Average Monthly	5871	5833	5899	7721	8892	10771	8440	12296	13272	9786	7487	14454

TSS (lbs/day) Weekly Average	230	128	197	969	393	5142	1767	3459	8226	8226	2224	1032
TSS (mg/L) Average Monthly	4.8	4.7	6.8	11.5	8.2	38	13	29	62.9	39	16.4	12
TSS (mg/L) Raw Sewage Influent Average Monthly	240	286	248	209	229	188	227	208	275	190	160	237
TSS (mg/L) Weekly Average	6.6	5.7	7.3	18.1	10.1	74	27	51	90.5	90	49.0	16
Total Dissolved Solids (mg/L) Average Monthly		517			493			460			423	
Fecal Coliform (CFU/100 ml) Geometric Mean	62	35	184	43	19	91	28	8	5	8	19	43
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	326	102	579	649	63	600	687	26	20	15	2420	727
Nitrate-Nitrite (lbs/day) Average Monthly	186	127	56	64	164	117	151	206	84	33	513	296
Nitrate-Nitrite (mg/L) Average Monthly	6.4	6.0	2.4	1.9	4.4	3.7	4.6	4.2	2.2	3.4	9.6	9.9
Ammonia (lbs/day) Average Monthly	17	12	30	152	13	448	506	200	71	47	38	133
Ammonia (mg/L) Average Monthly	0.52	0.65	1.2	3.98	0.32	8.98	13.3	2.7	1.75	0.89	0.88	2.1
TKN (lbs/day) Average Monthly	20	24	68	28	56	603	315	127	197	166	54	30
TKN (mg/L) Average Monthly	1.00	1.10	2.50	1.00	1.50	19.0	9.60	2.60	4.10	2.90	1.00	1.00
Total Phosphorus (lbs/day) Average Monthly	34	24	28	30	19	91	32	59	36	33	38	48
Total Phosphorus (mg/L) Average Monthly	1.07	1.1	1.2	0.84	0.50	1.69	0.68	0.94	0.74	0.51	0.88	0.78
Total Aluminum (mg/L) Average Monthly	< 0.0250	< 0.300	< 0.300	< 0.300	< 0.300	< 0.300	0.300	< 0.300	0.300	< 0.300	< 0.300	0.300
Dissolved Iron (mg/L) Average Monthly	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	0.338	< 0.200	< 0.200	0.200	< 0.200	< 0.200	< 0.200
Total Iron (mg/L) Average Monthly	< 0.200	0.371	< 0.200	< 0.200	0.256	0.339	< 0.200	< 0.200	0.200	0.475	< 0.200	0.306

UV Dosage (mjoules/cm²) Minimum	35338	31269	36308	37269	36781	35159	36519	35152	35235	35599	35871	33961
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum		GG			GG			GG			1.0	
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum		GG			GG			GG			1.0	
Chronic WET - Pimephales Survival (TUc) Daily Maximum		GG			GG			GG			1.0	
Chronic WET - Pimephales Growth (TUc) Daily Maximum		GG			GG			GG			1.0	

DMR Data for Outfall 002 (from November 1, 2018 to October 31, 2019)

Parameter	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18
pH (S.U.) Daily Maximum											7.4	
CBOD5 (mg/L) Daily Maximum											3.3	
COD (mg/L) Daily Maximum											< 50	
TSS (mg/L) Daily Maximum											132	
Oil and Grease (mg/L) Daily Maximum											< 0.10	
Fecal Coliform (CFU/100 ml) Daily Maximum											272	
TKN (mg/L) Daily Maximum											< 1.0	
Total Phosphorus (mg/L) Daily Maximum											0.14	
Dissolved Iron (mg/L) Daily Maximum											2.55	

Compliance History

Effluent Violations for Outfall 001, from: December 1, 2018 To: October 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	02/28/19	Avg Mo	1099	lbs/day	926	lbs/day
CBOD5	01/31/19	Avg Mo	1028	lbs/day	926	lbs/day
CBOD5	02/28/19	Wkly Avg	2538	lbs/day	1389	lbs/day
CBOD5	01/31/19	Wkly Avg	2994	lbs/day	1389	lbs/day
CBOD5	02/28/19	Wkly Avg	38.1	mg/L	36	mg/L
TSS	03/31/19	Avg Mo	1896	lbs/day	1157	lbs/day
TSS	02/28/19	Avg Mo	3686	lbs/day	1157	lbs/day
TSS	01/31/19	Avg Mo	3093	lbs/day	1157	lbs/day
TSS	05/31/19	Avg Mo	2746	lbs/day	1157	lbs/day
TSS	01/31/19	Wkly Avg	8226	lbs/day	1736	lbs/day
TSS	04/30/19	Wkly Avg	1767	lbs/day	1736	lbs/day
TSS	05/31/19	Wkly Avg	5142	lbs/day	1736	lbs/day
TSS	12/31/18	Wkly Avg	2224	lbs/day	1736	lbs/day
TSS	02/28/19	Wkly Avg	8226	lbs/day	1736	lbs/day
TSS	03/31/19	Wkly Avg	3459	lbs/day	1736	lbs/day
TSS	05/31/19	Avg Mo	38	mg/L	30	mg/L
TSS	02/28/19	Avg Mo	62.9	mg/L	30	mg/L
TSS	01/31/19	Avg Mo	39	mg/L	30	mg/L

TSS	05/31/19	Wkly Avg	74	mg/L	45	mg/L
TSS	12/31/18	Wkly Avg	49.0	mg/L	45	mg/L
TSS	01/31/19	Wkly Avg	90	mg/L	45	mg/L
TSS	02/28/19	Wkly Avg	90.5	mg/L	45	mg/L
TSS	03/31/19	Wkly Avg	51	mg/L	45	mg/L
Fecal Coliform	12/31/18	IMAX	2420	CFU/100 ml	1000	CFU/100 ml
Ammonia	07/31/19	Avg Mo	152	lbs/day	77	lbs/day
Ammonia	04/30/19	Avg Mo	506	lbs/day	231	lbs/day
Ammonia	05/31/19	Avg Mo	448	lbs/day	77	lbs/day
Ammonia	04/30/19	Avg Mo	13.3	mg/L	6.0	mg/L
Ammonia	05/31/19	Avg Mo	8.98	mg/L	2.0	mg/L
Ammonia	07/31/19	Avg Mo	3.98	mg/L	2.0	mg/L
Total Phosphorus	05/31/19	Avg Mo	91	lbs/day	39	lbs/day
Total Phosphorus	08/31/19	Avg Mo	1.2	mg/L	1.0	mg/L
Total Phosphorus	05/31/19	Avg Mo	1.69	mg/L	1.0	mg/L
Total Phosphorus	08/31/19	Avg Mo	1.2	mg/L	1.0	mg/L
Total Phosphorus	10/31/19	Avg Mo	1.07	mg/L	1.0	mg/L
Total Phosphorus	09/30/19	Avg Mo	1.1	mg/L	1.0	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 4.625
Latitude 40º 17' 18.41" **Longitude** -75º 10' 42.34"
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)

Water Quality-Based Limitations

The site-specific design conditions used to develop the water quality based effluent limits (WQBELS) in WQM and TMS modeling are:

Node 1: CNBSTP (from previous WQPR)
Node 2: PA0051250 - BCWSA - King Street STP (from previous WQPR)
Temp = 23° C
pH = 7.0
D.O. (dissolved oxygen) Goal = 6-mg/l (trout stocking fishery criteria) (Default)
K(CBOD5) = 0.6 (WQM model decay coefficient for advanced secondary treatment effluent)
K(NH3) = 0.7
$Q_{7\text{-}10}$ = 6.4-cfs (From previous permit) and 4.3 -cfs (BCWSA - King Street STP – 2012 WQPR)
Qd = 4.625-MGD
RMI (river mile index) = 37.85 and 31.7 miles
Elevation = 220 and 198 feet
Drainage Area = 61.7 and 75.9 mi^2 (USGS online drainage area tool)

$CBOD_5$, NH_3-N, and Dissolved Oxygen

Neshaminy Creek is listed as impaired for nutrients, organic enrichment, and low dissolved oxygen. Municipal point sources have been identified as a possible source for the impairment. Therefore, water quality based effluent limits for $CBOD_5$, NH_3-N (ammonia), and Dissolved Oxygen are required. Water quality based effluent limits are based on achieving in-stream dissolved oxygen and ammonia criteria using the Department's WQM model.

The previous monthly average effluent limit for $CBOD_5$ was 12 mg/l (5/1 – 10/31) and 24 mg/l (11/1 – 4/30). The existing effluent limit for dissolved oxygen limit is 5.0 mg/l (minimum). The current WQM model recommends a $CBOD_5$ limit of 7-mg/l, based on an NH3-N limit of 2.0-mg/l. Therefore, $CBOD_5$ limits for this renewal has been changed to 7 mg/l (5/1 – 10/31) and 14 mg/l (11/1 – 4/30).

Phosphorous

Current limit for phosphorus remains unchanged for this renewal. Neshaminy Creek is listed as impaired for nutrients, organic enrichment, and low dissolved oxygen. Municipal point sources have been identified as a possible source for the impairment. Currently there is no nutrient TMDL for Neshaminy.

As per the "previous permit and fact sheet", the facility previously had a seasonal TP limit of 2.0 mg/l for the period from April 1st through October 30th. For the NPDES permit renewal of 2009, the facility provided 3 years of discharge data which showed that TP ranged from 0.8 to 2.4 mg/l, with an average of 1.6 mg/l. The flows during the same period averaged 3.9-MGD, which was near the design flow of 4.0-MGD. Based on a concentration of 2.0-mg/l, a daily loading of 66.7 lbs/day would be generated at a design flow of 4.0-MGD. The actual loading was 52.1 lbs/day, with a range from 32.5 to 92.9 lbs/day. Based on an evaluation of the operational capabilities of the facility, CNBTJSA proposed a limit of 50 lbs/day which yielded the following proposed limits:

1.50-mg/l at 4.00-MGD
1.35-mg/l at 4.44-MGD
1.30-mg/l at 4.60-MGD

Since CNBTJSA proposed the design and construction of an expansion to a design flow of 4.6-MGD, the Department recommended a technology-based step reduction of the phosphorus limit (after expansion) to a monthly average limit of 1.0-mg/l. This represents an 80% reduction of influent phosphorus based on modern day conditions. The NPDES permit was later amended for a design flow of 4.625-MGD. Since there was only a 0.5% difference between the two flows, the final monthly average permit limit remained at 1.0-mg/l. Therefore, the monthly average limit for total phosphorus remains 1.0-mg/l.

NO_2+NO_3 as N

Existing permit has NO_2+NO_3 effluent limits as: 9.0 mg/l (5/1 – 10/31) and "Report" (11/1 – 6/30) and the current limits are carried over to this permit cycle.

According to the previous permit, all publicly owned sewage treatment plants (POTWs) that discharge to the Neshaminy Creek basin include numerical NO_2+NO_3 limits designed to protect the Aqua Pennsylvania public water supply (PWS) intake located near Trevose. The NO_2+NO_3 limits are based by limiting the sum of the ammonia and NO_2+NO_3 limits to 11 mg/l, from July 1st thru October 31st. CNB STP's permit has a seasonal ammonia limit of 2.0 mg/l, and a NO_2+NO_3 limit of 9.0 mg/l. NO_2+NO_3 limits may be extended to additional months in future permits; therefore, a reporting requirement is recommended for the remaining months of the year. The recommended NO_2+NO_3 effluent limits are: 9.0 mg/l (5/1 – 10/31) and "Report" (11/1 – 6/30).

Total Kjeldahl Nitrogen (TKN)

The recommended TKN effluent limit is "Report" and remains unchanged for this renewal.

Reasonable Potential Analysis - Toxic Pollutants

A review of the reported effluent sample data submitted with the permit application shows that most toxic pollutants were either not detected or were detected below most stringent surface water criteria. For pollutants that were detected above the most stringent criteria, the average concentrations were compared against a WQBEL generated by the Department's PENTOXSD model. The model was run with a Q7-10 flow of 6.4-cfs, background hardness of 141 mg/l and discharge hardness of 272 mg/l. An evaluation of the parameters of further interest shows that no permit limits are required, except as noted: (See page 18 for TMS report)

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Dissolved Solids (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Bromide	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Sulfate (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Total Aluminum	35.2	54.9	912	1,423	2,280	µg/L	912	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Barium	Report	Report	Report	Report	Report	µg/L	4,552	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.91	1.42	23.5	36.7	58.8	µg/L	23.5	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	110	171	2,845	4,439	7,113	µg/L	2,845	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	9.35	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	195	AFC	Discharge Conc > 10% WQBEL (no RP)

Comments:

Total Dissolved Solids: The TDS criterion is applied at nearest downstream PWS intake. Once a quarter monitoring is continued for this renewal to be consistent for TDS monitoring requirement typically added by DRBC. As per the Toxic Management Spreadsheet, Chloride, Bromide and Sulfate are shown as report only, since TDS is <1,000 mg/l, monitoring for other TDS related parameters is not required at this time.

Iron (Fe) / Aluminum (Al): Ferric chloride and alum are commonly used chemicals for phosphate removal. Therefore, a monitoring condition for total iron, dissolved iron, and total aluminum were recommended during previous renewal.
The PENTOXSD/Toxic Management model was run to determine the WQBEL for Iron and Aluminum using an in-stream hardness of 141-mg/l and discharge hardness of 272-mg/l. For a permitted flow of 4.625-MGD, the model calculated WQBEL of 2845-ug/l. Since the reported effluent Iron is greater than the WQBEL, permit limit of 2.84 mg/l for monthly average and 4.43 mg/l for daily maximum limit is applied for this renewal. Aluminum limits are established for this renewal. Permit limit of 0.9 mg/l for monthly average and 1.4 mg/l for daily maximum limit is applied for this renewal.

TRC (Total Residual Chlorine): The facility converted to UV (Ultraviolet) disinfection process around 1999. Therefore, there are no permit limits required for TRC or chlorine disinfection byproducts. A Part C permit condition is included in permit, in case chlorine is used for other than disinfection purposes.

Total Lead: For a permitted flow of 4.625-MGD, the level of detection for Lead is greater than 10% WQBEL. Therefore, for this renewal "Report only" has been added to the permit. The data will be reviewed during the next permit renewal to determine if a limit is needed.

Total Zinc: For a permitted flow of 4.625-MGD, the level of detection for Lead 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.

Total Copper: The toxic modeling was run to determine the WQBEL for copper using an in-stream hardness of 141-mg/l and discharge hardness of 272-mg/l. For a permitted flow of 4.625-MGD, the model calculated WQBEL of 23.5-ug/l. Since there is not enough data reported in the last permit cycle "Report only" has been included for 58 months.
The final WQBELs of 0.0235 mg/l based on the current discharge and facility conditions become effective on the beginning 59th 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

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%, 77%, 53%, 27%, and 13%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 53%.

Summary of Four Most Recent Test Results

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
June 2016	100 %	100 %	100 %	100 %
July 2017	100 %	100 %	92.5 %	100 %
December 2018	100 %	100 %	98 %	100 %
December 2019	100 %	100 %	100 %	100 %

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

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

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

1. **Determine IWC – Acute (IWCa)**:

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

   [(4.625 MGD x 1.547) / ((6.4 cfs x 1) + (4.625 MGD x 1.547))] x 100 = **52.7%**

   Is IWCa < 1%? ☐ **YES** ☒ **NO**

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

2b. Determine Target IWCc

(Q_d x 1.547) / (Q_{7-10} x PMFc) + (Q_d x 1.547)

[(4.625 MGD x 1.547) / ((6.4 cfs x 1) + (4.625 MGD x 1.547))] x 100 = **53%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 77%, 53%, 27%, and 13%.

WET Limits

Has reasonable potential been determined? ☒ YES ☐ NO

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

Toxicity Limit Calculation

TUc = 1/TIWCc = 1/ (IWCc/1.0) = 1 / 0.53 = 1.88 TUc

The chronic toxicity limit for a 4.625-mgd facility is 1.88 TUc, or NOEC = 53%

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 **Completion of 58th Month**.

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		
Copper, Total	XXX	XXX	XXX	Report	XXX	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: Beginning of 59th month 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		
Copper, Total	0.91	1.42	XXX	0.023	0.036	0.058	1/month	24-Hr Composite

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING 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	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
CBOD5 Nov 1 - Apr 30	540	810	XXX	14	21	28	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	270	405	XXX	7	10.5	14	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	1157	1736	XXX	30	45	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 – Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Fecal Coliform (No./100 ml) Oct 1 – Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000*	2/week	Grab
Nitrate-Nitrite Nov 1 - Jun 30	347	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite Jul 1 - Oct 31	347	XXX	XXX	9.0	XXX	18	2/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia Nov 1 - Apr 30	231	XXX	XXX	6.0	XXX	12	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	77	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Phosphorus Nov 1 - Mar 31	77	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Phosphorus Apr 1 - Oct 31	39	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite
Total Aluminum	0.0352	0.054	XXX	0.9	1.4	2.2	1/month	24-Hr Composite
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Iron	0.11	0.171	XXX	2.84	4.43	7.11	1/month	24-Hr Composite
Total Lead	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
UV Dosage (mjoules/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Chronic WET - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.9 Daily Max	XXX	See Permit	See Permit
Chronic WET - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.9 Daily Max	XXX	See Permit	See Permit
Chronic WET - Pimephales Survival (TUc)	XXX	XXX	XXX	XXX	1.9 Daily Max	XXX	See Permit	See Permit
Chronic WET - Pimephales Growth (TUc)	XXX	XXX	XXX	XXX	1.9 Daily Max	XXX	See Permit	See Permit

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	Daily Maximum	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
Fecal Coliform (CFU/100 ml)	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

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Toxics Management Spreadsheet
Version 1.0, July 2020

Discharge Information

Instructions | Discharge | Stream

Facility: **Chalfont New Britain STP** NPDES Permit No.: **PA0025917** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **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
4.625	272	7					6.4	

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		808									
	Chloride (PWS)	mg/L		429									
	Bromide	mg/L											
	Sulfate (PWS)	mg/L		30.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		793									
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L		899									
	Total Beryllium	µg/L											
	Total Boron	µg/L		83.1									
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		16									
	Free Available Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L		9170									
	Total Lead	µg/L		4.6									
	Total Manganese	µg/L		168									
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		55									
	Total Molybdenum	µg/L		2.9									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L	<										
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	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	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	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	<										

	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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Toxics Management Spreadsheet
Version 1.0, July 2020

Stream / Surface Water Information

Chalfont New Britain STP, NPDES Permit No. PA0025917, 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 (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	002484	37.85	220	61.7			Yes
End of Reach 1	002484	31.7	198	75.9			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	37.85	0.104										100	7	141	
End of Reach 1	31.7	0.057													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	37.85														
End of Reach 1	31.7														

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Toxics Management Spreadsheet
Version 1.0, July 2020

Model Results

Chalfont New Britain STP, NPDES Permit No. PA0025917, Outfall 001

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

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
37.85	6.42		6.42	7.155	0.00068	0.804	54.503	67.762	0.31	1.214	6.4
31.7	7.23		7.2262								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
37.85	37.72		37.72	7.155	0.00068	1.361	54.503	40.037	0.605	0.621	69.585
31.7	41.848		41.85								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 6.400 PMF: 1 Analysis Hardness (mg/l): 141 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	
Bromide	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	1,423	
Total Barium	0	0		0	21,000	21,000	39,834	
Total Boron	0	0		0	8,100	8,100	15,364	
Total Copper	0	0		0	18.577	19.4	36.7	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	93.684	126	240	Chem Translator of 0.741 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	156.779	160	304	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 6.400 PMF: 1 Analysis Hardness (mg/l): 141 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	
Bromide	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 Barium	0	0		0	4,100	4,100	7,777	
Total Boron	0	0		0	1,600	1,600	3,035	
Total Copper	0	0		0	12.012	12.5	23.7	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	2,845	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.651	4.93	9.35	Chem Translator of 0.741 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	158.062	160	304	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 6.400 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	
Bromide	0	0		0	N/A	N/A	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 Barium	0	0		0	2,400	2,400	4,552	
Total Boron	0	0		0	3,100	3,100	5,880	
Total Copper	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	1,000	1,000	1,897	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 69.585 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	
Bromide	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 Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Copper	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 Zinc	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 Dissolved Solids (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Chloride (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Bromide	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Sulfate (PWS)	Report	Report	Report	Report	Report	mg/L	N/A	N/A	Special Monitoring Applies
Total Aluminum	35.2	54.9	912	1,423	2,280	µg/L	912	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Barium	Report	Report	Report	Report	Report	µg/L	4,552	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.91	1.42	23.5	36.7	58.8	µg/L	23.5	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	110	171	2,845	4,439	7,113	µg/L	2,845	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	9.35	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	195	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 Boron	3,035	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,897	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS