pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0029289**
Facility Type	**Municipal**	APS ID	**723786**
Major / Minor	**Major**	Authorization ID	**1279529**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Brodhead Creek Region Authority**	Facility Name	**Brodhead Creek Regional Authority STP**
Applicant Address	410 Mill Creek Road	Facility Address	20 South Fourth Street
	East Stroudsburg, PA 18301-1126		Stroudsburg, PA 18360
Applicant Contact	David Horton	Facility Contact	Michael Reisenwitz
Applicant Phone	(570) 421-3232	Facility Phone	(570) 421-2270
Client ID	87465	Site ID	238612
Ch 94 Load Status	Not Overloaded	Municipality	Stroudsburg Borough
Connection Status	No Limitations	County	Monroe
Date Application Received	June 27, 2019	EPA Waived?	No
Date Application Accepted	June 27, 2019	If No, Reason	Major Facility

Purpose of Application: Renewal of an existing NPDES Permit for treated Sewage

Summary of Review

This application is for the Stroudsburg Borough Sewage Treatment Plant's NPDES permit renewal for the discharge of 4.5 MGD of treated sewage and stormwater into McMichael Creek. McMichael Creek is a TSF-MF receiving stream in the Brodhead Creek watershed 1E and is classified for Migratory Fishes / Trout Stocking, aquatic life, water supply and recreation. Per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than their designated use. The discharge is not expected to affect public water supplies.

The Facility serves Stroudsburg Borough, Stroud Township, Pocono Township, Hamilton Borough, and Tobyhanna Township. The SBRs discharge through Outfall 001. Outfall 002 is for stormwater only and stormwater Outfalls 003 & 004 have been turned back to the Borough of Stroudsburg. The existing limits will be retained from the Present Permit including the Part C language concerning stream temperature:

- *The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F, nor shall such discharge result in stream temperatures exceeding 87°F.*

Mercury limits will be introduced in year 4 of the permit. The limitations and monitoring requirements specified for the draft permit 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) and/or BPJ.

The WMS Report query "Water Management System Inspections" was run. On 06/19/2019 a Compliance Evaluation was done with No Violations noted.

The WMS "Open Violations by Client Report" was run and there are No Open Violations.

The Existing Permit expires on January 31, 2020 and the renewal was submitted June 27, 2019.

Approve	Deny	Signatures	Date
X		Bernard Feist, P.E. / Environmental Engineer /s/	August 1, 2019
X		Amy M. Bellanca, P.E. / Environmental Engineer Manager /s/	August 1, 2019

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

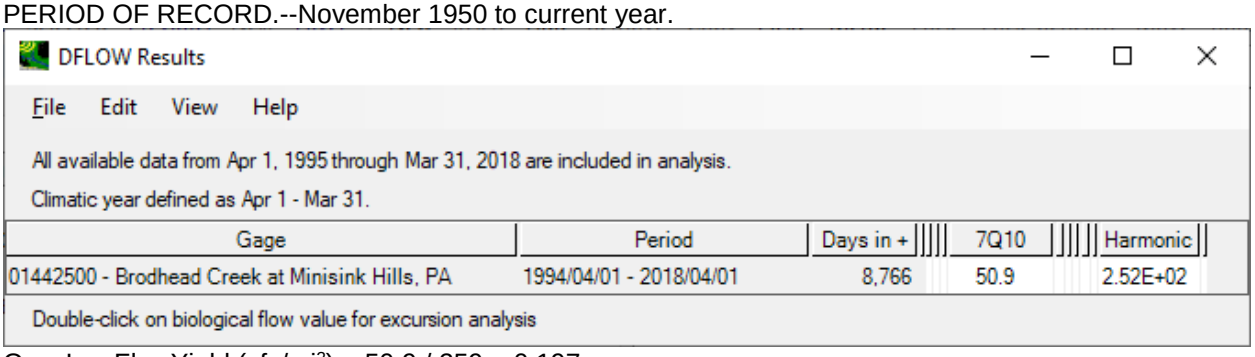
Outfall No.	001	Design Flow (MGD)	4.5
Latitude	40º 59' 14.72"	Longitude	-75º 11' 11.32"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	McMichael Creek (TSF, MF)	Stream Code	4778
NHD Com ID	26175214	RMI	0.2
Drainage Area	114 mi^2	Yield (cfs/mi^2)	0.197
Q_{7-10} Flow (cfs)	22.5 cfs	Q_{7-10} Basis	DFlow Gage 01442500
Elevation (ft)	376	Slope (ft/ft)	
Watershed No.	1-E	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	PATHOGENS		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	City of Easton		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	➢ 30 miles

McMichael Creek RMI 0.2 **WRDS: 4778** HUC 8 Code: **02040104**

USGS STATION.--01442500 BRODHEAD CREEK AT MINISINK HILLS, PA
LOCATION.--Lat 40`59'55", long 75`08'35", Monroe County, Hydrologic Unit 02040104, on left bank at Minisink Hills, 500 ft upstream from Marshall Creek, 0.8 mi upstream from mouth, and 3.0 mi southeast of East Stroudsburg.
DRAINAGE AREA.--259 square miles.
PERIOD OF RECORD.--November 1950 to current year.

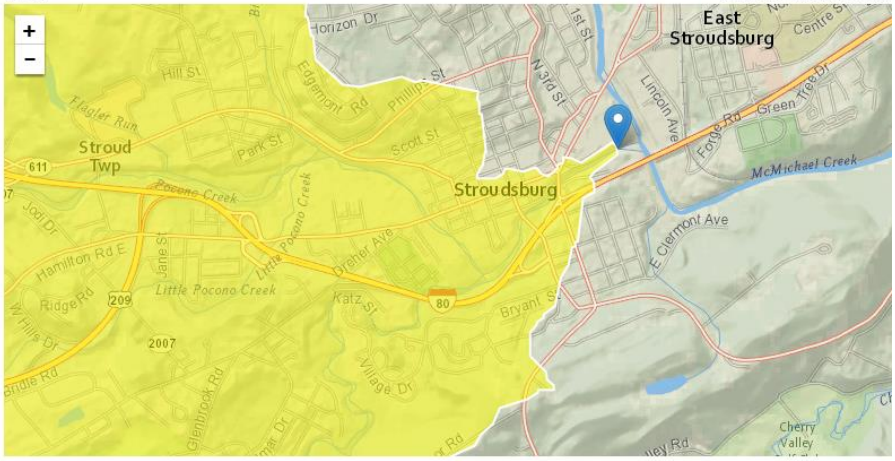


Q_{7-10} LowFlowYield (cfs/mi^2)= 50.9 / 259 = 0.197

RMI 0.2 Outfall 001 at 376 ft

StreamStats Report

Region ID:	PA
Workspace ID:	PA201907251305083
Clicked Point (Latitude, Longitude):	40.98751, -75.18595
Time:	2019-07-25 09:05:24



Low-Flow Statistics Parameters[8 Percent (8.9 square miles) Low Flow Region 2]

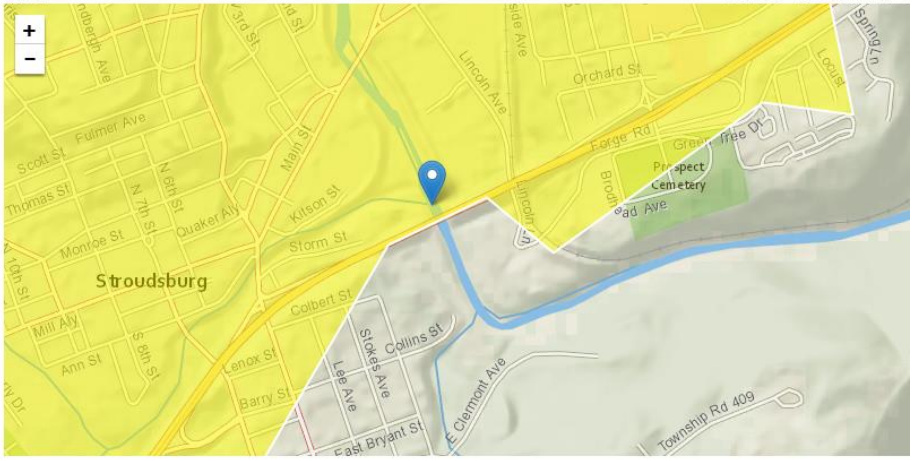
Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	114	square miles

Stream Q7-10 Flow (cfs) = 0.197 * 114 = 22.5 cfs

RMI 0.0 at 370 ft

StreamStats Report

Region ID:	PA
Workspace ID:	PA20190725131708050
Clicked Point (Latitude, Longitude):	40.98733, -75.18380
Time:	2019-07-25 09:17:24 -0



Low-Flow Statistics Parameters[5 Percent (12.1 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	258	square miles

Treatment Facility Summary				
Treatment Facility Name: Brodhead Creek Regional Authority WWTP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia And Phosphorus	Sequencing Batch Reactor	Ultraviolet	4.5
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
4.5	11400	Not Overloaded	Combination	Landfill

Changes Since Last Permit Issuance: Construction Completion. WQM # 4509405.(SBRs).

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 4.5
Latitude 40º 59' 16.00" **Longitude** -75º 11' 10.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

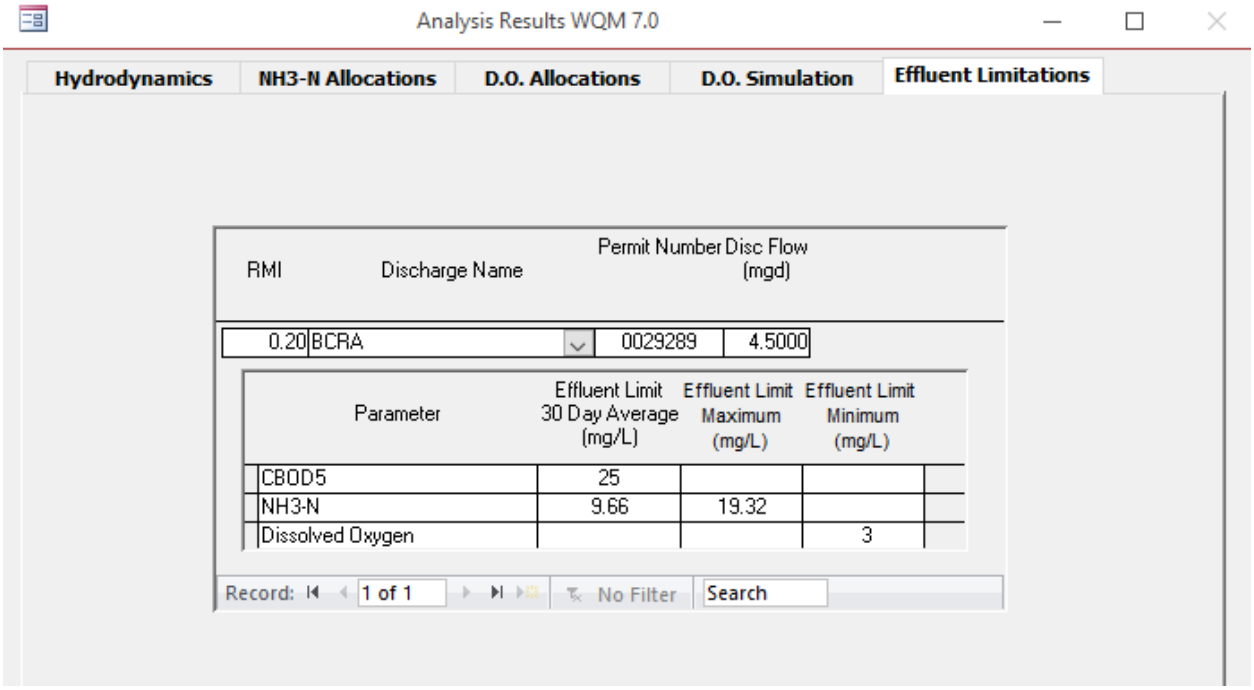
The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

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)
	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
Total Suspended Solids	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: UV disinfection

Water Quality-Based Limitations

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

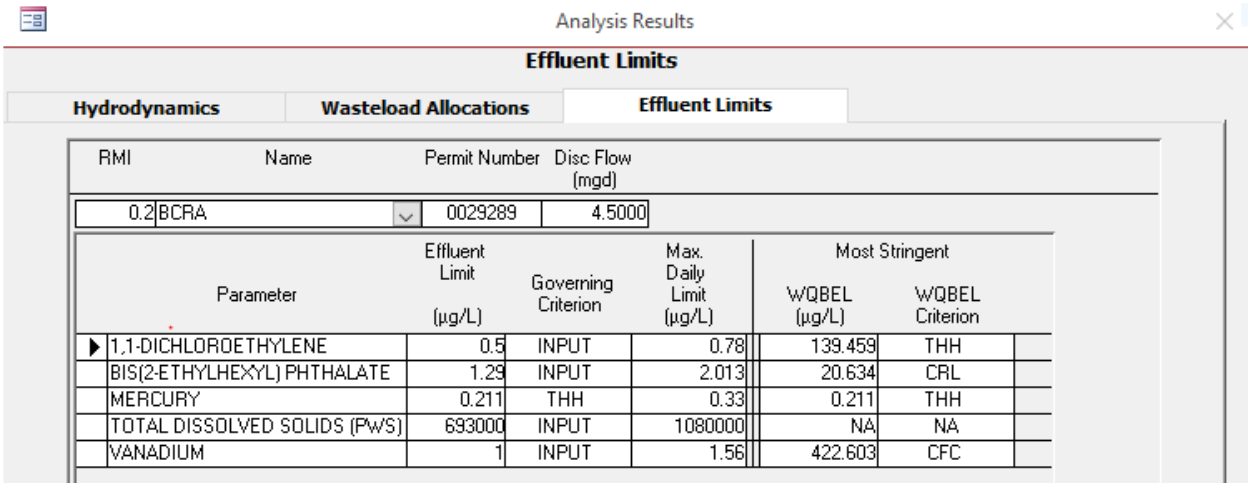


TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

CLEAR FORM

Facility: BCRA
Analysis Hardness (mg/L): 116
Stream Flow, Q_{7-10} (cfs): 22.5
NPDES Permit No.: PA0029289
Discharge Flow (MGD): 4.5
Outfall: 001
Analysis pH (SU): 7

	Parameter		Maximum Concentration in Application or DMRs (µg/L)	Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Group 1	Total Dissolved Solids		693000	500000	Yes	na	#VALUE!
	Chloride		118000	250000	No		#VALUE!
	Bromide	<	1000	N/A	No		#VALUE!
	Sulfate		64000	250000	No		#VALUE!
Group 2	Total Aluminum	<	100	750	No		
	Total Antimony		0.4	5.6	No		
	Total Arsenic	<	1	10	No (Value < QL)		
	Total Barium		12	2400	No		
	Total Beryllium	<	0.4	N/A	No		
	Total Boron		142	1600	No		
	Total Cadmium	<	0.08	0.302	No (Value < QL)		
	Total Chromium	<	1	N/A	No		
	Hexavalent Chromium	<	0.047	10.4	No (Value < QL)		
	Total Cobalt	<	1	19	No (Value < QL)		
	Total Copper		4	10.6	No		
	Free Available Cyanide		5	5.2	No		
	Total Cyanide	<	5	N/A	No		
	Dissolved Iron		87	300	No		
	Total Iron		104	1500	No		
	Total Lead	<	1	3.8	No (Value < QL)		
	Total Manganese		23	1000	No		
	Total Mercury		0.497	0.05	Yes	0.211	Establish Limits



RMI	Name	Permit Number	Disc Flow (mgd)
0.2	BCRA	0029289	4.5000

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
1,1-DICHLOROETHYLENE	0.5	INPUT	0.78	139.459	THH
BIS(2-ETHYLHEXYL) PHTHALATE	1.29	INPUT	2.013	20.634	CRL
MERCURY	0.211	THH	0.33	0.211	THH
TOTAL DISSOLVED SOLIDS (PWS)	693000	INPUT	1080000	NA	NA
VANADIUM	1	INPUT	1.56	422.603	CFC

Comments: 2019 Modelling pdf -> BCRA 2019 Models.pdf 2008 Modelling -> BCRA 2008 Models.pdf

Best Professional Judgment (BPJ) Limitations

Comments: Delay Mercury limits for 3 years for the development of a TRE

Anti-Backsliding

DOCKET NO. D-1986-011 CP-4
DELAWARE RIVER BASIN COMMISSION
EFFLUENT TABLE A-1: DRBC Parameters Included in NPDES permit

OUTFALL 001 (McMichael Creek)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES permit
Total Suspended Solids	85% minimum removal 10 mg/l; 375 lbs/day	As required by NPDES permit
CBOD (5-Day at 20° C)	10 mg/l; 375 lbs/day 85% minimum removal*	As required by NPDES permit
Ammonia-Nitrogen (5/1 to 10/31)	1.5 mg/l, 56.3 lbs/day	As required by NPDES permit
Ammonia-Nitrogen (11/1 to 4/30)	4.5 mg/l; 169 lbs/day	As required by NPDES permit
Fecal Coliform	200 colonies per 100 ml	As required by NPDES permit
Dissolved Oxygen	7.0 mg/l (minimum at all times)	As required by NPDES permit
Nitrate-Nitrogen (5/1 - 10/31)	4.0 mg/l;150 lbs/day	As required by NPDES permit
Total Phosphorous	1.0 mg/l; 37.5 lbs/day	As required by NPDES permit
Total Dissolved Solids**	1,000 mg/l	As required by NPDES permit

* Per the NPDES permit, 85% minimum removal of CBOD5 or BOD5 **

EFFLUENT TABLE A-2: DRBC Parameters Not Included in NPDES permit

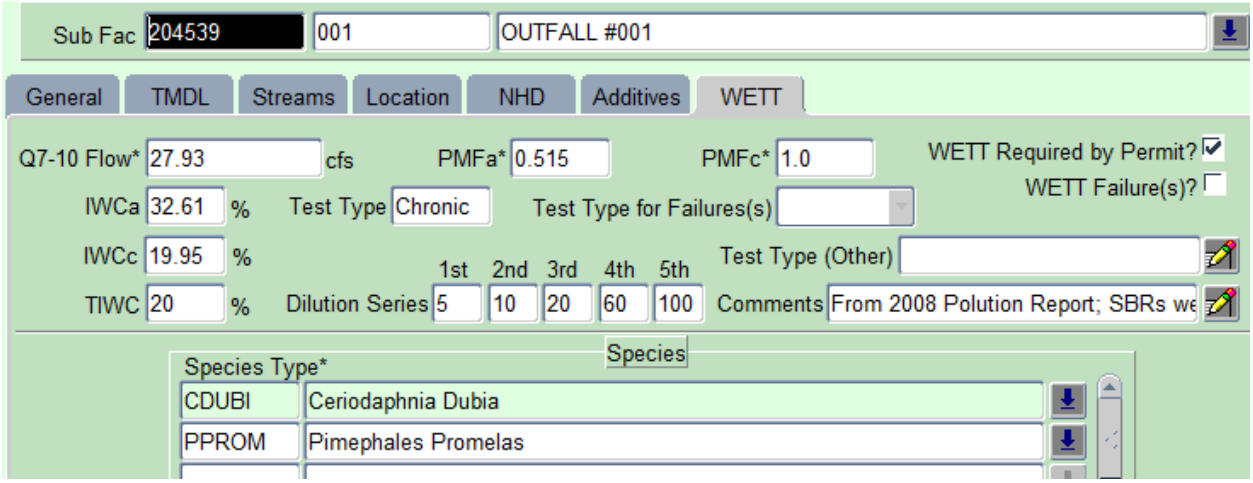
OUTFALL 001 (McMichael Creek)		
PARAMETER	**LIMIT**	**MONITORING**
Total Kjeldahl Nitrogen (TKN)	Monitor & Report	Monthly
Nitrite+Nitrate-Nitrogen	Monitor & Report	Monthly

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: Yearly

The dilution series used for the tests was:



Summary of Four Most Recent Test Results

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
8/21/2018	100	100	100	100	100	100	Pass
8/28/2017	100	100	100	100	100	100	Pass
7/19/2016	100	100	100	100	100	100	Pass
7/14/2015	100	100	100	100	100	100	Pass
7/7/2014	100	100	100	100	100	100	Pass
4/15/2014	100	100	100	100	100	100	Pass

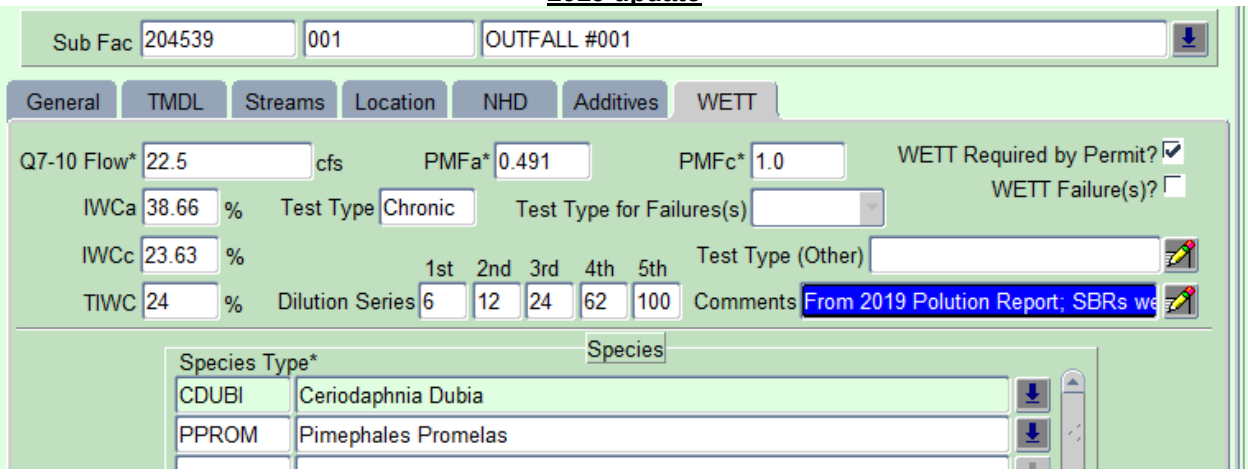
***** *A "passing" result is that which is greater than or equal to the TIWC value.*

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

☐ **YES** ☒ **NO**

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

2019 update



Acute Partial Mix Factor (PMFa): **0.491** Chronic Partial Mix Factor (PMFc): **1.0**

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

Compliance History

DMR Data for Outfall 001 (from June 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18
Flow (MGD) Average Monthly	2.753	2.568	2.612	2.388	2.653	2.698	2.851	2.284	2.404	2.304	1.966	1.926
Flow (MGD) Daily Maximum	4.292	3.922	3.622	2.736	5.102	5.379	3.448	3.099	3.352	3.609	3.246	2.493
pH (S.U.) Minimum	6.9	6.8	6.8	6.7	6.7	6.8	6.8	6.9	7.0	7.4	6.9	7.0
pH (S.U.) Maximum	7.3	7.3	7.2	7.3	7.2	7.3	7.4	7.6	7.4	7.8	7.4	7.3
DO (mg/L) Instantaneous Minimum	7.8	8.0	9.1	9.3	9.3	9.2	8.6	7.9	7.5	7.4	7.5	7.5
CBOD5 (lbs/day) Average Monthly	< 47	< 48	< 44	< 50	< 42	54	< 99	< 59	63	58	< 50	< 51
CBOD5 (lbs/day) Weekly Average	< 62	< 77	47	< 83	< 49	57	< 194	< 74	86	66	66	61
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.2	< 2.0	< 2.6	< 2.0	2.6	< 4.1	< 3.1	2.9	3.0	< 2.9	< 3.1
CBOD5 (mg/L) Weekly Average	< 2.0	< 2.8	< 2.0	< 4.2	< 2.0	3.2	< 8.6	< 3.7	3.6	3.0	< 3.0	3.6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	8665	8473	5793	4974	3816	3877	4548	6317	4646	4052	1901	3095
BOD5 (mg/L) Raw Sewage Influent Average Monthly	340	364	260	232	172	177	179	301	206	197	102	171
TSS (lbs/day) Average Monthly	< 95	< 84	< 90	< 83	< 84	83	< 111	< 75	76	57	< 56	< 45

TSS (lbs/day) Raw Sewage Influent Average Monthly	9640	9289	6332	5586	4954	4346	4616	5705	7069	5552	7111	9734
TSS (lbs/day) Weekly Average	< 123	< 108	< 101	< 92	< 98	96	< 140	< 91	117	99	90	< 51
TSS (mg/L) Average Monthly	< 4.0	< 4.0	< 4.1	< 4.2	< 4.0	3.9	< 4.5	< 4.1	3.5	3.0	< 3.3	< 2.8
TSS (mg/L) Raw Sewage Influent Average Monthly	379	407	284	261	223	200	182	279	467	270	388	538
TSS (mg/L) Weekly Average	< 4.0	< 4.0	< 4.3	< 4.9	< 4.0	4.0	< 4.5	< 5.0	5.0	5.3	5.8	< 3.2
Total Dissolved Solids (lbs/day) Average Monthly	10619	9701	12480	9788	8134	8927	11083	9650	10103	9786	11335	9290
Total Dissolved Solids (mg/L) Average Monthly	452	467	563	493	390	426	454	500	474	511	693	576
Fecal Coliform (CFU/100 ml) Geometric Mean	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	5	3	3	2.0	4	2	< 2	1.5	< 1	2.0	1	1
Nitrate-Nitrite (lbs/day) Average Monthly	< 72	< 75	< 59	< 51	< 52	< 52	< 54	< 40	45	47	36	42
Nitrate-Nitrite (mg/L) Average Monthly	< 3.0	< 3.5	< 2.6	< 2.56	< 2.482	< 2.45	< 2.158	< 2.105	2.15	< 2.46	2.065	2.63
Total Nitrogen (lbs/day) Average Monthly	< 98	107	< 92	< 53	< 76	< 69	86	< 61	60	67	57	72
Total Nitrogen (mg/L) Average Monthly	< 4.1	5.0	< 4.1	< 2.7	< 3.638	< 3.27	3.453	< 3.24	2.877	3.47	3.367	4.48
Ammonia (lbs/day) Average Monthly	< 2.7	< 2.1	< 2.3	< 2.8	< 5.2	< 5.3	< 7.5	< 4.2	< 3.4	9.6	< 8.5	< 10.6
Ammonia (mg/L) Average Monthly	< 0.11	< 0.1	< 0.1	< 0.14	< 0.23	< 0.26	< 0.283	< 0.2	< 0.16	< 0.5	< 0.5	< 0.65
Nitrate (lbs/day) Average Monthly	69							< 37	44	46	35	41
Nitrate (mg/L) Average Monthly	2.9							< 1.93	2.1	< 2.41	2.04	2.6
TKN (lbs/day) Average Monthly	32	32	< 33	< 34	24	< 17	< 25	< 21	16	< 21	22	30
TKN (mg/L) Average Monthly	1.4	1.6	< 1.5	< 1.7	1.16	< 0.83	< 1.011	< 1.135	< 0.793	< 1.1	1.3	1.9
Total Phosphorus (lbs/day) Average Monthly	< 2.5	< 2.2	< 2.2	< 2.2	< 2.1	< 2.8	< 1.6	< 2.7	< 3.9	< 1.4	< 1.5	< 2.6
Total Phosphorus (mg/L) Average Monthly	< 0.1	< 0.11	< 0.1	< 0.11	< 0.1	< 0.14	< 0.07	< 0.14	< 0.18	< 0.07	< 0.09	< 0.16

DMR Data for Outfall 002 (from June 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18
TSS (mg/L) Daily Maximum						44.2						
TKN (mg/L) Daily Maximum						< 1.00						
Total Iron (mg/L) Daily Maximum						0.758						