pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0094200**
Facility Type	**Municipal**	APS ID	**911432**
Major / Minor	**Minor**	Authorization ID	**1372289**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Bear Creek Watershed Authority**	Facility Name	**Petrolia STP**
Applicant Address	259 Argyle Street	Facility Address	Rte 268
	Petrolia, PA 16050-9702		Petrolia, PA 16050
Applicant Contact	Thomas McElravy, Chairman	Facility Contact	Chris Dunmyre, Operator
Applicant Phone	(724) 756-4600	Facility Phone	
Applicant E Mail	bearcreekwater@zoominternet.net	Facility E Mail	
Client ID	62798	Site ID	724622
Municipality	Fairview Township	County	Butler
Ch 94 Load Status	Not Overloaded	Connection Status	No Limitations
Date Application Received	October 12, 2021	EPA Waived?	Yes
Date Application Accepted	October 19, 2021	If No, Reason	

Purpose of Application: NPDES renewal

Summary of Review

No current open violations.

Service Area	Contribution	Sewer Type	Population
Fairview Township	11%	Separate	29
Petrolia Borough	83%	Separate	212
Parker Township	6%	Separate	15

Sludge production was 1.94 dry tons from this and other Bear Creek Watershed Authority facilities. Final disposal is to Dalton's Processing Facility.

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.

Approve	Deny	Signatures	Date
X		*William H. Mentzer* William H. Mentzer, P.E. Environmental Engineering Specialist	January 19, 2023
X		*Vacant* Environmental Engineer Manager	Okay to Draft JCD 1/19/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.04111
Latitude DP	41º 1' 36.89"	Longitude DP	-79º 42' 57.39"
Latitude NHD	41º 1' 37.25"	Longitude NHD	-79º 42' 56.77"
Quad Name	Parker	Quad Code	1008
Wastewater Description:	Treated municipal sanitary sewerage		

Receiving Waters	South Branch Bear Creek (WWF)	Stream Code	49141
NHD Com ID	123851468	RMI	2.55
Drainage Area	8.9	Yield (cfs/mi^2)	0.044
Q_{7-10} Flow (cfs)	0.39	Q_{7-10} Basis	Perennial stream
Elevation (ft)	1154.83	Slope (ft/ft)	
Watershed No.	17-C	Chapter 93 Class.	WWF
Existing Use	**statewide**	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Comments			

Assessment Status	Impaired
Cause(s) of Impairment	Metals, Nutrients, Siltation
Source(s) of Impairment	Abandoned Mine Drainage, Municipal Point Source and Urban Runoff/Storm Sewers
TMDL Status	Name
Comments	**No TMDL anticipated. Impairment predates NPDES program that has abated the Impairment.**

Background/Ambient Data		Data Source
pH (SU)	6.9	1994-95 Bear Creek Basin review
Temperature (°C)	25	WWF default
$CBOD_5$ (mg/L)	2	Assumed default value
NH_3-N (mg/l)	0.1	Assumed default value
Hardness (mg/L)	210	1994-95 Bear Creek Basin review
Other:		

Nearest Downstream Public Water Supply Intake	Butler District Pennsylvania-American Water Company		
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI	69.90	Distance from Outfall (mi)	19

Changes Since Last Permit Issuance: none

Other Comments: This is a supplemental water source (water transfer to Lake Oneida)

Treatment Facility Summary				
Treatment Facility Name: Petrolia STP				
WQM Permit No.	**Issuance Date**			
1083404	8/25/83			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.0411
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0411	115	Not Overloaded	Sludge Holding/Drying Beds	Other WWTP

Changes since the last permit issuance: None

Other Comments:
The WQM permit indicates a runoff flow period of 16-hrs. but the extended aeration plant has a detention time of 35.4 hrs., so the flow (and discharge) should be considered equalized over the entire day (24 -hrs.)

	Month		Flow Mean MGD	BOD5 Mean PPD	Min	Mean	Max	Min	Mean	Max	#
Annual Average Design			0.0411								
Hydraulic Design Capacity			0.0411								
Organic Design Capacity				115							
Annual Average		2018	0.028								
		2019	0.024								
		2020	0.028								
Highest Monthly Average	January		0.032								
pH								7.10		7.77	1460
TRC									0.2	1.25	730
Fecal coliform									374.7	10 000	48
CBOD5									4.76	11.5	48
TSS									8.16		48
NH3N									0.61	5.83	48
N									1.52	37.7	48
P									3.9	5.97	48

Calcium oxide (lime) used to adjust pH.

Compliance History

DMR Data for Outfall 001 (from December 1, 2021 to November 30, 2022)

Parameter	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21
Flow (MGD) Average Monthly	0.0295	0.0281	0.0286	0.0283	0.0281	0.0275	0.0291	0.0286	0.0276	0.0282	0.0275	0.0340
Flow (MGD) Daily Maximum	0.0301	0.0294	0.0304	0.0297	0.0289	0.0286	0.0296	0.0335	0.0330	0.0293	0.0298	0.0363
pH (S.U.) Minimum	7.42	7.41	7.42	7.41	7.41	7.40	7.41	7.41	7.41	7.42	7.42	7.42
pH (S.U.) Maximum	7.44	7.44	7.44	7.43	7.43	7.43	7.45	7.45	7.48	7.45	7.46	7.45
DO (mg/L) Minimum	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
TRC (mg/L) Average Monthly	0.37	0.34	0.38	0.4	0.38	0.33	0.32	0.43	0.32	0.31	0.39	0.34
TRC (mg/L) Instant Maximum	0.42	0.51	0.50	0.52	0.48	0.50	0.44	0.45	0.54	0.56	0.7	1.24
CBOD5 (lbs/day) Average Monthly	1.3	0.70	1.05	0.70	1.27	1.0	1.5	6.6	0.87	2.1	1.1	3.3
CBOD5 (lbs/day) Weekly Average	1.4	0.74	1.4	0.74	1.32	1.2	1.6	9.13	1.3	2.9	1.6	6.1
CBOD5 (mg/L) Average Monthly	5.2	3.0	4.4	3.0	5.41	4.34	6.3	1.6	3.8	8.72	4.7	11.5
CBOD5 (mg/L) Weekly Average	7.4	3.0	5.5	3.0	5.46	5.07	6.3	2.6	4.6	12.0	6.3	20.0
BOD5 (ppd) Influent Average Monthly	54.6	65.1	17.9	44.8	52.6	63.8	49.5	22.6	33.1	27.5	43.3	47.1
BOD5 (mg/L) Influent Average Monthly	222	278	75.4	190	224.5	278	204	94.7	144	117.1	189	166
TSS (lbs/day) Average Monthly	1.7	2.1	3.1	2.3	1.1	1.5	4.3	2.5	1.8	2.7	2.1	1.5
TSS (ppd) Influent Average Monthly	21.9	34.5	13.1	17.9	33.3	49.1	43.7	15.9	18.2	18.2	26.8	38.0
TSS (lbs/day) Weekly Average	1.8	2.5	6.2	3.3	1.5	1.9	5.1	3.4	2.3	3.1	2.4	2.8
TSS (mg/L) Average Monthly	6.8	9.1	25	9.6	4.6	6.4	17.8	10.4	8.0	11.6	9.0	5.4
TSS (mg/L) Influent Average Monthly	89	147	55.0	76.0	142.0	214	180.0	67.0	79.0	77.5	117	134
TSS (mg/L) Weekly Average	7.2	10.2	34	13.2	6.4	8.0	20.4	12.0	8.4	12.8	9.6	9.2

Fecal Coliform #./100 ml) Geometric Mean	364	82.5	77.0	53.0	140.6	99.0	58.4	313	155.9	490	291	310
Fecal Coliform (#./100 ml) Instant Maximum	586	189	97.0	97.0	470	196.0	61.0	528	180.0	554	701	310
Total Nitrogen (mg/L) Average Monthly	0.8	0.75	1.0	1.0	1.0	0.8	1.0	0.8	2.7	0.6	0.3	0.5
Ammonia (lbs/day) Average Monthly	0.06	0.05	0.05	0.2	0.27	0.2	0.02	0.1	0.023	0.02	0.1	0.04
Ammonia (mg/L) Average Monthly	0.26	0.2	0.2	1.0	1.16	0.7	0.1	0.6	0.1	0.1	0.5	0.13
T Phosphorus (mg/L) Average Monthly	4.8	4.7	4.9	0.6	8.64	3.3	3.8	2.6	2.3	2.1	3.8	3.7

Median pH 7.4- SU annually and summer

Compliance History

No violations reported

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .04111
Latitude 41º 1' 36.89" **Longitude** -79º 42' 57.39"
Wastewater Description: Treated 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)
DO	4.0			BPJ
E Coli	Report			BPJ

Comments: E Coli a new parameter

Water Quality-Based Limitations

A Sewerage Program "Reasonable Potential Analysis" determined the following parameters were candidates for limitations: CBOD5, Ammonia and DO.

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

Parameter		Limit (mg/l)			SBC	Model		
CBOD5			25.0	50.0	NA		25.0	50.0
Ammonia-N	Summer		5.5	11.0			12.28	24.56
	Winter		16.0	33.0			36.0	73.0
DO		4.0				4.0		

Comments: previous summer ammonia model recommendation was 12.7-mg/L

Best Professional Judgment (BPJ) Limitations

Comments: DO only

Anti-Backsliding

With existing limit compliance no changes proposed.

Other Considerations

Initial evaluations used the Toms Run @ Cooksburg gage station data to develop a yield rate for this watershed (0.048 and 0.052-cfsm). Stream Stats based on drainage area generates a slightly lower yield rates with 0.044-cfsm basin average.

A 2016 stream survey did not find municipal point source impacts in the South Branch and the summary report will be recommending that impairment status be removed. However, this applies only to the municipal discharges and their interaction as the South Branch tributaries remain impaired.

Initially the South Branch Bear Creek basin was limited to 10-PPD BOD5 for all dischargers. No sanitary sewer service was provided, industrial waste and mine drainage were poorly treated, surface coal mines were back filled with industrial waste and the Bruin Lagoon failed.

With the adoption of the Federal Clean Water Act sanitary sewer service was proposed. Permitting was by the South West Regional Office. For some reason the planning review design loads and facility design loads do not always correspond. In parallel with the municipal sewage reviews were stream surveys to determine stream impairments and industrial waste treatment.

Penreco inherited a deep mine discharge as it tried to use the mine for industrial waste disposal. Koppers (Beezer East) tried land application and all industrial facilities seem to back fill surface coal mines with industrial waste. A Koppers report showed that the South Branch Bear Creek hardness was approximately 300-mg/L above, at and below a shallow ground water discharge.

The Koppers facility NPDES permit was for a first flush storm water collection, recycle, and discharge storm water system and evaporator treated contaminated ground water discharge. The storm water discharges were expected to be highly contaminated but only occur a few times in a year.

WITCO and Penreco Clean Water permits were conditioned for an optional sand filter and because Air Quality Control classified the industrial facilities as refineries were required to install oil-water separator covers. No action was taken on the sand filters as the effluent concentrations never approached the calculated effluent concentrations.

Clean Water reserved further ground water action leaving further basin remediation to Mining, Environmental Clean Up and Waste Management.

Bruin, Fairview, and Petrolia STP do not report any industrial waste contribution. With no industrial contribution priority pollutant concentrations should be negligible. Around the year 2000 Central Transport relocated to the Karns City area and proposed a truck wasting discharge to the Bear Creek Authority.

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
17C	49141	SOUTH BRANCH BEAR CREEK	**2.550**	1154.83	8.89	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	0.044	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	6.90	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
Petrolia STP	PA0094200+	0.0411	0.0411	0.0411	0.000	25.00	7.40

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	4.00	7.54	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

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
17C	49141	SOUTH BRANCH BEAR CREEK	**0.000**	1046.74	41.40	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	0.044	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	6.90	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
	pa	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	4.00	7.54	0.00	0.00
NH3-N	25.00	0.01	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
17C	49141	SOUTH BRANCH BEAR 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												
2.550	0.39	0.00	0.39	.0636	0.00803	.457	11.44	25	0.09	1.793	25.00	6.94
Q1-10 Flow												
2.550	0.25	0.00	0.25	.0636	0.00803	NA	NA	NA	0.07	2.207	25.00	6.96
Q30-10 Flow												
2.550	0.53	0.00	0.53	.0636	0.00803	NA	NA	NA	0.10	1.542	25.00	6.93

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	95.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17C	49141	SOUTH BRANCH BEAR 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
2.550	Petrolia STP	11.41	50	11.41	50	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
2.550	Petrolia STP	1.4	12.28	1.4	12.28	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)		
2.55	Petrolia STP	25	25	12.28	12.28	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17C	49141	SOUTH BRANCH BEAR CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.550	0.041	25.000	6.944
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.437	0.457	25.002	0.087
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.22	0.425	1.80	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.045	20.205	Owens	5
Reach Travel Time (days)			
1.793			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.179	4.74	1.50	7.54
0.359	4.31	1.25	7.54
0.538	3.91	1.04	7.54
0.717	3.55	0.86	7.54
0.897	3.23	0.72	7.54
1.076	2.93	0.60	7.54
1.255	2.67	0.50	7.54
1.434	2.42	0.41	7.54
1.614	2.20	0.34	7.54
1.793	2.00	0.29	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17C	49141	SOUTH BRANCH BEAR 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)
2.550	Petrolia STP	PA0094200+	0.041	CBOD5	25		
				NH3-N	12.28	24.56	
				Dissolved Oxygen			4

1A	B	C	D	E	F	G	H	I	J	K	L	M

	Discharger		Petrolia						Monday, December 18, 2023			
	Site		Petrolia STP					Revised	Wednesday, January 18, 2023			
	Municipality		Fairview Township									
	County		Butler									
	NPDES Permit		PA0094200									
	0.5											
2					**TRC EVALUATION**							
3	Input appropriate values in B4:B8 and E4:E7											
4	0.3868		**= Q stream (cfs)**			**0.5**	**= CV Daily**					
5	0.0411		**= Q discharge (MGD)**			**0.5**	**= CV Hourly**					
6	30		**= no. samples**			**1**	**= AFC_Partial Mix Factor**					
7	0.3		**= Chlorine Demand of Stream**			**1**	**= CFC_Partial Mix Factor**					
8	0		**= Chlorine Demand of Discharge**			**15**	**= AFC_Criteria Compliance Time (min)**					
9			**= BAT/BPJ Value**			**720**	**= CFC_Criteria Compliance Time (min)**					
	0		**= % Factor of Safety (FOS)**				**=Decay Coefficient (K)**					
10	Source		Reference	AFC Calculations					Reference	CFC Calculations		
11	TRC		**1.3.2.iii**	WLA afc = 1.960					**1.3.2.iii**	WLA cfc = 1.903		
12	PENTOXSD TRG		**5.1a**	LTAMULT afc = 0.373					**5.1c**	LTAMULT cfc = 0.581		
13	PENTOXSD TRG		**5.1b**	LTA_afc= 0.730					**5.1d**	LTA_cfc = 1.106		
14												
15	Source						Effluent Limit Calculations					
16	PENTOXSD TRG		5.1f			AML MULT = 1.231						
17	PENTOXSD TRG		5.1g			AVG MON LIMIT (mg/l) = 0.500			BAT/BPJ			
18						INST MAX LIMIT (mg/l) = 1.635						

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

Chlorine Required				=	perennial	Chlorine Demand	+ Chlorine Residual
Stream	Reach/Node			1	1		
Stream	Flow	Conditions			Perwnnial		
Stream	Code				49141		
	Function						
Samples					30		
reach	outfall		RMI		2.55		
	Reach End		RMI		0		
reach			feet		13464		
drainage			sq miles		8.89		
TRC	limitation	average	mg/L		0.050		
		maximum	mg/L		1.600		
elevation		modelled	feet		1155.38		
elevation		modelled	feet		1046.74		
slope		modelled	foot/foot		0.008		
low flow			cfs/sq mi		0.044		
discharge			mgd		0.0411		
Runoff	Period		hours		24.000		
BAT controlling							
stream	flow		cfs		0.38683		
stream	flow		MGD		0.250013		
stream	flow	total	MGD		0.291113		
stream	chlorine	demand	mg/L		0.3		
discharge	discharge	demand	mg/L				
stream	Total Stream/Waste		ratio		7.1		

Extremely rapid dry stream chlorine disapation assumed.

BAT	TRC	mean	BAT	0.5
BAT	TRC	maximum	BAT	1.6

	B	C	D	E	F	G	H	I	J	K	L	M

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	8.5	13.7	XXX	25	40	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	10.2	15.4	XXX	30	45	60	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	5.4	XXX	XXX	16.0	XXX	33.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	1.8	XXX	XXX	5.5	XXX	11.0	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection