

Application Type Renewal
 Facility Type Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0022187
 APS ID 1126883
 Authorization ID 1508577

Applicant and Facility Information

Applicant Name	<u>Beavertown Municipal Authority</u>	Facility Name	<u>Beavertown Municipal Authority Wastewater Treatment Plant</u>
Applicant Address	<u>419 Old Orchard Drive Beavertown, PA 17813</u>	Facility Address	<u>336 N Kern Street Beavertown, PA 17813-9714</u>
Applicant Contact	<u>Eric Freed</u>	Facility Contact	<u>Eric Freed</u>
Applicant Phone	<u>(570) 658-2505</u>	Facility Phone	<u>(570) 658-2505</u>
Client ID	<u>64430</u>	Site ID	<u>458721</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Beavertown Borough</u>
Connection Status	<u>No Limitations</u>	County	<u>Snyder</u>
Date Application Received	<u>December 4, 2024</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>December 5, 2024</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of an existing NPDES permit for the discharge of treated sewage.</u>		

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		 Derek S. Garner / Project Manager	January 14, 2026
X		 Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	January 14, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.16</u>
Latitude	<u>40° 45' 18.67"</u>	Longitude	<u>-77° 10' 35.84"</u>
Quad Name	<u>Beavertown</u>	Quad Code	<u>1228</u>
Wastewater Description:	<u>Sewage Effluent</u>		
Receiving Waters	<u>Luphers Run</u>	Stream Code	<u>17877</u>
NHD Com ID	<u>54969479</u>	RMI	<u>0.32</u>
Drainage Area (mi ²)	<u>1.74</u>	Yield (cfs/mi ²)	<u>0.1134</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.5923 ⁽¹⁾</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 1565000</u>
Elevation (ft)	<u>611</u>	Slope (ft/ft)	<u>0.003</u>
Watershed No.	<u>6-A</u>	Chapter 93 Class.	<u>CWF, MF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Organic Enrichment, Pathogens</u>		
Source(s) of Impairment	<u>Municipal Point Source Discharges, Unknown</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>
Nearest Downstream Public Water Supply Intake	<u>United Water Pennsylvania</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u>2,610</u>
PWS RMI	<u>76.73</u>	Distance from Outfall (mi)	<u>63</u>

⁽¹⁾ The previous analysis, which is attached, indicates that the contributing upstream area of Kern Run is approximately 5.34 mi². Previous analysis indicates that there is a minimum discharge from the upstream reservoir on Kern Run of 0.79 cfs. Estimating a 50/50 diversion of flow between the Luphers Run contribution and the Kern Run parallel channel, 0.395 cfs would be contributed to Luphers Run. Adding this flow to the flow contributions from Luphers Run (0.1973 cfs) would bring the Q₇₋₁₀ to 0.5923 cfs.

Treatment Facility Summary

Construction and operation of the Beavertown Municipal Authority (“BMA”) Wastewater Treatment Plant was/is covered under WQM Permit No. 5503403, issued September 17, 2003. The permit was later amended on June 12, 2006 to allow for modifications to the existing conveyance system, pump station, and chlorination system.

Treatment at the BMA WWTP generally consists of the following:

- One (1) influent mechanical bar screen OR one (1) manual bar screen
- Two (2) SBRs
- One (1) chlorine contact tank
 - Sodium hypochlorite
- One (1) dechlorination system
 - Sodium bisulfite
- One (1) sludge conditioning tank
- One (1) sludge digester/holding tank
 - Digested sludge is hauled to the Kelly Township or Milton Regional Sewer Authority Wastewater Treatment Plants.

Effluent is ultimately discharged via Outfall 001 to Luphers Run.

The facility is rated for an average annual flow of 0.16 MGD, a hydraulic capacity of 0.44 MGD, and an organic capacity of 299 lb/day.

A letter from DEP dated August 20, 2025 regarding the facility’s 2024 Annual Wasteload Management (Chapter 94) Report states there is neither an existing hydraulic or organic overload, nor is there a projected overload within the next five years. Additionally, flows reported in discharge monitoring reports are indicative of inflow/infiltration.

Compliance History

The facility was most recently inspected by DEP on March 6, 2025. The inspection report noted a clear effluent, and no impact was observed in the receiving stream at the point of discharge.

The following effluent violations occurred during the existing permit's term:

Noncompliance Date	Noncompliance Description	Noncompliance Category	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
3/2/2021	Late DMR Submission	Other Violations	---	---	---	---	---	---
3/29/2021	Late DMR Submission	Other Violations	---	---	---	---	---	---
7/29/2021	Late DMR Submission	Other Violations	---	---	---	---	---	---
7/29/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	8.3	>	5.25	mg/L	Weekly Avg
8/31/2021	Late DMR Submission	Other Violations	---	---	---	---	---	---
10/1/2021	Late DMR Submission	Other Violations	---	---	---	---	---	---
10/1/2021	Violation of permit condition	Effluent	Fecal Coliform	2419.6	>	1000	No./100 ml	IMAX
11/28/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	6.7	>	5.25	mg/L	Weekly Avg
6/6/2023	Violation of permit condition	Effluent	Ammonia-Nitrogen	17	>	7	lbs/day	Weekly Avg
6/6/2023	Violation of permit condition	Effluent	Ammonia-Nitrogen	29	>	5.25	mg/L	Weekly Avg
6/6/2023	Violation of permit condition	Effluent	Ammonia-Nitrogen	7.29	>	3.5	mg/L	Weekly Avg
11/20/2024	Violation of permit condition	Effluent	Dissolved Oxygen	4.9	<	5	mg/L	IMAX

There are no open violations associated with the permittee.

Development of Effluent Limitations

Outfall No. 001 Design Flow (MGD) 0.16
 Latitude 40° 45' 18.00" Longitude -77° 10' 35.00"
 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)

Water Quality-Based Limitations

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

Parameter	Average Monthly	Daily Maximum	Minimum
CBOD ₅	25	---	---
Ammonia-N	3.5	7.0	---
Dissolved Oxygen	---	---	3

As indicated by the results above, the existing requirements for CBOD₅, ammonia-N, and dissolved oxygen are protective of Luphers Run. DEP proposes that the existing limits remain in the permit as follows:

Parameter	Average Monthly	Weekly Average	Instant. Maximum
CBOD ₅	25	40	50
Ammonia Nov 1 - Apr 30	10.5	15.75	21
Ammonia May 1 - Oct 31	3.5	5.25	7.0

DEP generally assigns a seasonal multiplier of three to water quality-based effluent limits for ammonia-n based on reduced biological treatment efficiencies and higher in-stream dilution available during cold water months.

The existing water quality-based total residual chlorine effluent limitations were reevaluated using the TRC Evaluation spreadsheet (output files attached). The evaluation indicates that existing water quality-based effluent limitations of 0.33 mg/l average monthly and 0.77 mg/l instantaneous maximum remain protective of Luphus Run.

Best Professional Judgment (BPJ) Limitations

DEP recommends that the minimum dissolved oxygen limit of 5 mg/l and influent monitoring for BOD₅ and TSS remain in the permit to continue to characterize the wastewater.

DEP recommends quarterly E. Coli reporting per the 2017 Triennial Review of Water Quality Standards, published in the PA Bulletin on July 11, 2020.

Chesapeake Bay Requirements

Pennsylvania's Phase 3 Watershed Implementation Plan (WIP) Wastewater Supplement (Revised, April 2, 2025) identifies the BMA WWTP as a Phase 5 facility. Phase 5 facilities are required to report total nitrogen (TN) and total phosphorus (TP) on an annual basis unless the facility has already completed at least two years of nutrient monitoring. The permittee completed annual sampling from 2021 through 2025. The results are summarized as follows:

Date	Total Nitrogen		Total Phosphorus	
	Load (lb/day)	Conc (mg/L)	Load (lb/day)	Conc (mg/L)
2021	0.6	0.5	1	1.08
2022	0.3	0.5	0.7	1.04
2023	1	0.5	2	0.76
2024	9	7.67	0.2	0.15
2025	5	9.34	2	3.08

Since the facility has satisfied the WIP's nutrient sampling requirements, DEP has proposed to remove TN and TP reporting requirements from the permit.

Anti-Backsliding

As mentioned above, reporting requirements for TN and TP have been removed from the permit. 40 CFR § 122.44(l)(2)(i)(B)(1) allows for a relaxation in permit requirements when there is information available that was not available at the time of previous permit issuance (e.g., new effluent data).

Existing Effluent Limitations and Monitoring Requirements

The existing limitations and monitoring requirements are as follows:

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.33	XXX	0.77	1/day	Grab
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5)	33	53	XXX	25.0	40.0	50	1/week	8-Hr Composite
Total Suspended Solids	40	60	XXX	30.0	45.0	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	14	21	XXX	10.5	15.75	21	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	4.7	7.0	XXX	3.5	5.25	7	1/week	8-Hr Composite
Total Nitrogen	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001

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" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.33	XXX	0.77	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	33	53	XXX	25.0	40.0	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	40	60	XXX	30.0	45.0	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	14	21	XXX	10.5	15.75	21	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	4.7	7.0	XXX	3.5	5.25	7	1/week	8-Hr Composite

Compliance Sampling Location: Outfall 001

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
06A	17877	LUPHERS RUN	0.320	604.00	1.74	0.00000	0.00	<input checked="" type="checkbox"/>

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	0.340	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	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
BMA WWTP	PA0022187	0.1600	0.1600	0.1600	0.000	20.00	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	3.50	0.00	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
06A	17877	LUPHERS RUN	0.000	582.00	7.97	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
	(cfsm)	(cfs)	(cfs)									
Q7-10	0.340	0.00	0.00	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	0.00	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

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
06A		17877				LUPHERS RUN						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
0.320	0.59	0.00	0.59	.2475	0.01302	.489	9.41	19.25	0.18	0.107	20.00	7.00
Q1-10 Flow												
0.320	0.56	0.00	0.56	.2475	0.01302	NA	NA	NA	0.18	0.109	20.00	7.00
Q30-10 Flow												
0.320	0.91	0.00	0.91	.2475	0.01302	NA	NA	NA	0.22	0.089	20.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.946	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.537	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
06A	17877	LUPHERS RUN

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
	0.320 BMA WWTP	16.76	7	16.76	7	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
	0.320 BMA WWTP	1.89	3.5	1.89	3.5	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
	0.32 BMA WWTP	25	25	3.5	3.5	3	3	0	0

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
06A	17877	LUPHERS RUN		
<hr/>				
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>
0.320	0.160	20.000		7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>
9.408	0.489	19.247		0.183
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>
8.78	1.242	1.03		0.700
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>
6.698	26.109	Owens		5
<u>Reach Travel Time (days)</u>	Subreach Results			
0.107	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>
	(days)	(mg/L)	(mg/L)	(mg/L)
	0.011	8.66	1.02	7.12
	0.021	8.55	1.02	7.43
	0.032	8.44	1.01	7.68
	0.043	8.32	1.00	7.86
	0.054	8.21	0.99	8.00
	0.064	8.11	0.99	8.11
	0.075	8.00	0.98	8.20
	0.086	7.89	0.97	8.24
	0.096	7.79	0.96	8.24
	0.107	7.69	0.96	8.24

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
06A		17877		LUPHERS RUN			
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)
0.320	BMA WWTP	PA0022187	0.160	CBOD5	25		
				NH3-N	3.5	7	
				Dissolved Oxygen			3

1A	B	C	D	E	F	G
2	TRC EVALUATION					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.5923	= Q stream (cfs)		0.5	= CV Daily	
5	0.16	= 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	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations	Reference	CFC Calculations	
11	TRC	1.3.2.iii	WLA_afc = 0.782	1.3.2.iii	WLA_cfc = 0.755	
12	PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373	5.1c	LTAMULT_cfc = 0.581	
13	PENTOXSD TRG	5.1b	LTA_afc = 0.292	5.1d	LTA_cfc = 0.439	
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) = 0.359		AFC	
18			INST_MAX_LIMIT (mg/l) = 1.174			
<p>WLA_afc $(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC_tc}) \dots$ $\dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$</p> <p>LTAMULT_afc $EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$</p> <p>LTA_afc $wla_afc \cdot LTAMULT_afc$</p> <p>WLA_cfc $(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC_tc}) \dots$ $\dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$</p> <p>LTAMULT_cfc $EXP((0.5 \cdot LN(cvd^2 / no_samples + 1)) - 2.326 \cdot LN(cvd^2 / no_samples + 1)^{0.5})$</p> <p>LTA_cfc $wla_cfc \cdot LTAMULT_cfc$</p> <p>AML_MULT $EXP(2.326 \cdot LN((cvd^2 / no_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no_samples + 1))$</p> <p>AVG_MON_LIMIT $MIN(BAT_BPJ, MIN(LTA_afc, LTA_cfc) \cdot AML_MULT)$</p> <p>INST_MAX_LIMIT $1.5 \cdot ((av_mon_limit / AML_MULT) / LTAMULT_afc)$</p>						