

Application Type Renewal
 Facility Type Non-Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0032603
 APS ID 1093995
 Authorization ID 1449413

Applicant and Facility Information

Applicant Name	<u>Trillium Tiny Home & RV Comm LLC</u>	Facility Name	<u>Trillium Tiny Home and RV Community MHP (Trillium THRV Community MHP)</u>
Applicant Address	<u>1501 E Poland Avenue</u> <u>Bessemer, PA 16112-9249</u>	Facility Address	<u>2948 Ben Franklin Highway</u> <u>Edinburg, PA 16116-4706</u>
Applicant Contact	<u>Scott Fabian</u>	Facility Contact	<u></u>
Applicant Phone	<u>(484) 225-5773</u>	Facility Phone	<u></u>
Applicant Email	<u>trilliumthrv@gmail.com</u>		<u></u>
Client ID	<u>364117</u>	Site ID	<u>443825</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Mahoning Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Lawrence</u>
Date Application Received	<u>July 3, 2023</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>February 5, 2024</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of a NPDES Permit for an Existing Discharge of 0.0062</u>		

Summary of Review

This is a renewal Sewage Individual NPDES Permit for an Existing Discharge of 0.0062 MGD from a non-municipal minor sewage facility.

Treatment permitted under WQM Permit 3772401 T-2 consists of: Two waste stabilization lagoons in series, the first having an area of 18,900 sq. ft. (70' x 270') and a volume of approximately 906,015 gallons. The second lagoon has an area of 3,150 sq. ft. (45' x 70') and a volume of approximately 190,740 gallons. Tablet chlorine is used for disinfection with a 75-gallon contact tank.

Act 14 – Proof of Notification was submitted and received.

This facility is currently using eDMR system, however the last report was submitted on June 27, 2022.

SPECIAL CONDITIONS: NONE

The EPA waiver is in effect.

There are NO open violations in WMS for the subject Client ID (364117) as of March 1, 2024.

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

Approve	Deny	Signatures	Date
X		Aeshah Shameseldin Aeshah Shameseldin / Civil Engineer	March 1, 2024
		Vacant / Environmental Engineer Manager	Okay to Draft JCD 3/11/2024

Summary of Review

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.	<u>001</u>	Design Flow (MGD)	<u>.0062</u>
Latitude	<u>41° 3' 29.00"</u>	Longitude	<u>-80° 26' 40.00"</u>
Quad Name	<u>Edinburg</u>	Quad Code	<u>41080A4</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Unnamed Tributary to Shenango River</u>	Stream Code	<u>35854</u>
NHD Com ID	<u>130025477</u>	RMI	<u>0.5</u>
Drainage Area	<u>0.38 square miles</u>	Yield (cfs/mi ²)	<u>0.077</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.029</u>	Q ₇₋₁₀ Basis	<u>USGS</u>
Elevation (ft)	<u>1038</u>	Slope (ft/ft)	<u>---</u>
Watershed No.	<u>20-A</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>---</u>	Existing Use Qualifier	<u>---</u>
Exceptions to Use	<u>---</u>	Exceptions to Criteria	<u>---</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Nutrients</u>		
Source(s) of Impairment	<u>Package Plant or Other Permitted Small Flows Discharges</u>		
TMDL Status	Name _____		
Background/Ambient Data	Data Source		
pH (SU)	<u>8.1</u>	<u>Nearby tributary sample taken 5/16/2014</u>	
Temperature (°F)	<u>77</u>	<u>Default</u>	
Hardness (mg/L)	<u>100</u>	<u>Default</u>	
Other:	_____		
Nearest Downstream Public Water Supply Intake	<u>Pennsylvania American Water Company - New Castle</u>		
PWS Waters	<u>Shenango River</u>	Flow at Intake (cfs)	<u>---</u>
PWS RMI	<u>5.1</u>	Distance from Outfall (mi)	<u>5.0</u>

Changes Since Last Permit Issuance: None.

Other Comments: None.

Treatment Facility Summary				
Treatment Facility Name: Trillium Thrv Comm MHP				
WQM Permit No.		Issuance Date		
3772401 T-2		December 17, 2018		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Stabilization Lagoon	Hypochlorite	0.0062
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0062	14	Not Overloaded		

Changes Since Last Permit Issuance: None.

Other Comments: None.

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	.0062
Latitude	41° 3' 29.00"	Longitude	-80° 26' 40.00"
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)
E. Coli	Report (No./100 ml)	IMAX	-	§ 92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department’s SOP entitled “Establishing Effluent Limitations for Individual Sewage Permits.”

Water Quality-Based Limitations

CBOD₅, Ammonia, and DO are evaluated using WQM 7.0 (See Attachment 1). TRC is evaluated using the department’s TRC evaluation spreadsheet (See Attachment 2).

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

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	4.0	Daily Min.	WQM 7.0
CBOD ₅	25	Avg. Monthly	WQM 7.0
	50	IMAX	
Ammonia Nitrogen (Nov 1 - Apr 30)	6.0	Average Monthly	WQM 7.0
Ammonia Nitrogen (May 1 – Oct 31)	2.0	Average Monthly	WQM 7.0
TRC	0.12	Average Monthly	TRC evaluation spreadsheet
	0.41	IMAX	

Comments: WQM 7.0 didn’t calculate more stringent average monthly limits for Ammonia-Nitrogen. The current limits established in previous permits are attainable and will be retained.

The TRC evaluation spreadsheet didn’t calculate more stringent average monthly TRC limit at perennial conditions using the plant design flow, the current limits established in previous permits are attainable and will be retained.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen effluent limit of a minimum of 4.0 mg/L, and monitoring for total nitrogen and total phosphorus are placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Anti-Backsliding

No backsliding of limits is being proposed.

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) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	3/week	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	3/week	Grab
TRC	XXX	XXX	XXX	0.12	XXX	0.41	3/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
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 Annl Avg	XXX	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	12.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001, after disinfection.

Outfall Location - eMap with Aerial Imagery

Legend

Regulated Facilities and Related Information

Streams and Water Resources

Surface Water Related

PA Historic Streams

Water Quality

Existing Use Streams

- Cold Water Fish
- Exceptional Value
- High Quality
- Trout Stocking
- Warm Water Fish
- Overlap

Designated Use Streams

- Cold Water Fish
- Exceptional Value
- High Quality
- Trout Stocking
- Warm Water Fish
- Overlap
- Missing from CH93

Boundaries

County Boundaries

Municipalities

PA Historic Streams (1 of 5)

Name: Trib 35854 Of Shenango River
 Net Streams: 117809
 Shed: 20A
 Rec No: 117809
 Seg ID: 35854_0_0.7424
 Seg ID Old: 35854_0_0.7424
 From Node: 49667
 To Node: 50012
 Down River Mile: 0
 Up River Mile: 0.742435
 WRDS: 35854
 Strahler: 1

Locate Latitude and Longitude

Decimal Degrees DD/MM/SS

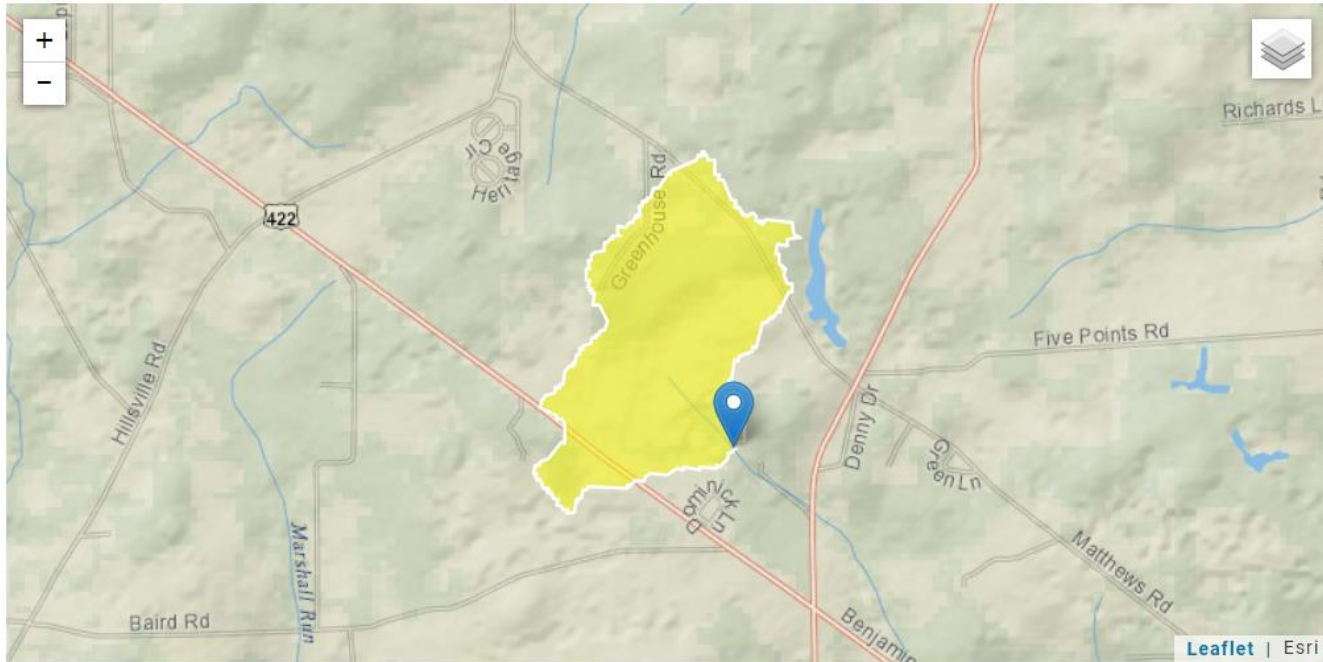
Latitude: Degrees 41 Minutes 3 Seconds 32.26
 Longitude: Degrees -80 Minutes 26 Seconds 35.96

Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community; ESRI Streets: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Drainage Area Location – StreamStats with Aerial Imagery

StreamStats Report

Region ID: PA
Workspace ID: PA20240205141729172000
Clicked Point (Latitude, Longitude): 41.05911, -80.44348
Time: 2024-02-05 09:17:54 -0500



[+ Collapse All](#)

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.38	square miles

Attachment 1

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
20A		35854		Trib 35854 of Shenango River			
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)
1.100	Trillium Thrv.	PA0032603	0.006	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
20A	35854	Trib 35854 of Shenango River		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
1.100	0.006	23.766	7.615	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
2.809	0.302	9.294	0.046	
<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>	
7.68	0.771	6.21	0.935	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
6.666	27.494	Owens	NA	
<u>Reach Travel Time (days)</u>	Subreach Results			
1.467	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.147	6.71	5.41	7.33
	0.293	5.87	4.72	7.49
	0.440	5.13	4.11	7.54
	0.587	4.48	3.59	7.54
	0.734	3.92	3.13	7.54
	0.880	3.43	2.73	7.54
	1.027	2.99	2.38	7.54
	1.174	2.62	2.07	7.54
	1.321	2.29	1.81	7.54
	1.467	2.00	1.57	7.54

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

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
20A	35854	Trib 35854 of Shenango River	1.100	1038.00	0.38	0.00000	0.00	<input type="checkbox"/>

Stream Data

Design Cond.	LFY (cfs)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.077	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	8.10	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
Trillium Thrv.	PA0032603	0.0062	0.0000	0.0000	0.000	20.00	7.13

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	0.05	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
20A	35854	Trib 35854 of Shenango River	0.001	960.00	1.76	0.00000	0.00	<input 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		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.077	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	8.10	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 Wasteload Allocations

SWP Basin Stream Code Stream Name
20A 35854 Trib 35854 of Shenango River

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
	1.100 Trillium Thrv.	NA	50	6.84	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
	1.100 Trillium Thrv.	NA	25	.9	25	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)		
	1.10 Trillium Thrv.	25	25	25	25	4	4	0	0

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
20A		35854				Trib 35854 of Shenango River						
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												
1.100	0.03	0.00	0.03	.0096	0.01344	.302	2.81	9.29	0.05	1.467	23.77	7.61
Q1-10 Flow												
1.100	0.02	0.00	0.02	.0096	0.01344	NA	NA	NA	0.04	1.752	23.31	7.52
Q30-10 Flow												
1.100	0.04	0.00	0.04	.0096	0.01344	NA	NA	NA	0.05	1.283	24.03	7.68

Attachment 2

TRC EVALUATION					
Input appropriate values in A3:A9 and D3:D9					
0.029	= Q stream (cfs)		0.5	= CV Daily	
0.0062	= Q discharge (MGD)		0.5	= CV Hourly	
30	= no. samples		1	= AFC_Partial Mix Factor	
0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
0	= % Factor of Safety (FOS)		0	= Decay Coefficient (K)	
Source	Reference	AFC Calculations		Reference	CFC Calculations
TRC	1.3.2.iii	WLA_afc = 0.984		1.3.2.iii	WLA_cfc = 0.951
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c	LTAMULT_cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 0.366		5.1d	LTA_cfc = 0.553
Source	Effluent Limit Calculations				
PENTOXSD TRG	5.1f	AML_MULT = 1.231			
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.451		AFC	
		INST MAX LIMIT (mg/l) = 1.475			
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				