Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0263443**
Facility Type	**Municipal**	APS ID	**1130820**
Major / Minor	**Minor**	Authorization ID	**1515779**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Linesville Pine Joint Municipal Authority**	Facility Name	**Linesville Pine Joint STP**
Applicant Address	PO Box 382 Linesville, PA 16424-0382	Facility Address	13609 Hartstown Road Linesville, PA 16424
Applicant Contact	Daniel Whalen	Facility Contact	
Applicant Phone	(814) 683-4146	Facility Phone	
Client ID	267525	Site ID	712168
Ch 94 Load Status	Not Overloaded	Municipality	Pine Township
Connection Status	No Limitations	County	Crawford
Date Application Received	February 13, 2025	EPA Waived?	Yes
Date Application Accepted		If No, Reason	
Purpose of Application	This is an application to renew an NPDES Permit for a municipal sewage treatment plant that serves Linesville Borough and Pine Township.		

Summary of Review

This is an existing facility that treats sewage from Linesville Borough and Pine Township. The most recent upgrades to the facility include repairs and new installation of sanitary sewerage piping throughout Pymatuning State Park – Tuttle Beach and Campground system. Additionally, the pump stations have also been rehabilitated with new exhaust fans, bubbler tubes, lighting, and alarm modifications.

Treatment at the existing facility consists of (WQM Permit No. 2009403): 5 pump stations in all with 3 pump stations that pump to the plant. The plant is an SBR system with 3 tanks, 3 pre-react zones, 1 aerobic digester, 1 effluent sampler, 1 chlorine contact tank, and 1 dechlorination tank.

There are no open violations in WMS for the subject Client ID (267525) as of 1/26/26.

Sludge use and disposal description and location(s): 24.85 Dry tons of sewage is disposed of at Seneca Landfill in Evans City.

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		Dustin Hargenrater Dustin Hargenrater / Project Manager	January 26, 2026
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	February 5, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.48
Latitude	41º 38' 46.22"	Longitude	-80º 25' 59.93"
Quad Name	Linesville	Quad Code	41080F4
Wastewater Description:	Effluent		
Receiving Waters	Shenango River (Pymatuning Reservoir)	Stream Code	35482
NHD Com ID	130030263	RMI	83.75
Drainage Area	44.52	Yield (cfs/mi^2)	Regulated at Dam
Q_{7-10} Flow (cfs)	55.36	Q_{7-10} Basis	Proportionate Flow Based on Drainage Area and Dam Flow Through
Elevation (ft)	1008	Slope (ft/ft)	---
Watershed No.	20-A	Chapter 93 Class.	
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	25	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Greenville Municipal Water Authority	
PWS Waters	Shenango River	Flow at Intake (cfs)	10.6
PWS RMI	8.0	Distance from Outfall (mi)	26.4

Changes Since Last Permit Issuance: The facility has rehabbed some of the pump stations and sewage piping throughout Pymatuning State Park, no operational or treatment changes have been made to the facility. Since there is no evidence of modeling in the previous permit renewals modeling will be done for this renewal. Since the discharge is to a large body of water it was assumed in previous permits that modeling would not be necessary due to the high dilution ratio at the discharge. Although the dilution ratio is large enough that modeling would not normally be necessary, since there is not an available model to carry forward and criteria for Ammonia-Nitrogen has changed since the last renewal, the modeling and modeling procedure will be attached to this renewal.

Treatment Facility Summary

Treatment Facility Name: Linesville Pine Joint STP

WQM Permit No.	Issuance Date
2021417	10 November 2021
2009403	18 August 2009

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Phosphorus Reduction	Sequencing Batch Reactor	Chlorine With Dechlorination	0.48

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.48	550	Not Overloaded	Aerobic Digestion	

Changes Since Last Permit Issuance: Repairs and new installation of sanitary sewerage piping throughout the existing Pymatuning State Park – Tuttle Beach and Campground system. Rehabilitation of two existing sewer pump stations.

Compliance History

DMR Data for Outfall 001 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	0.151	0.151	0.107	0.121	0.136	0.197	0.247	0.257	0.204	0.254	0.192	0.199
Flow (MGD) Daily Maximum	0.243	0.537	0.148	0.298	0.246	0.671	0.735	0.592	0.441	0.557	0.446	0.431
pH (S.U.) Instantaneous Minimum	7.03	6.99	7.17	6.90	7.05	7.04	6.97	7.09	5.94	6.35	6.72	7.13
pH (S.U.) Instantaneous Maximum	7.70	7.57	7.70	7.52	7.31	7.66	7.60	7.61	7.57	7.57	7.67	7.60
DO (mg/L) Daily Minimum	5.83	6.24	6.37	6.27	6.38	6.51	6.31	6.43	6.01	5.61	5.42	5.76
TRC (mg/L) Average Monthly	< 0.02	< 0.06	< 0.04	< 0.1	< 0.03	< 0.1	< 0.1	< 0.04	< 0.1	< 0.05	< 0.04	< 0.1
CBOD5 (lbs/day) Average Monthly	< 3	< 3	< 2	4	3	5	< 6	7	6	7	6	< 4
CBOD5 (lbs/day) Weekly Average	4	6	2	6	53.4	7	9	113.9	14	9	13	6
CBOD5 (mg/L) Average Monthly	< 2.2	< 3.2	< 2.1	3.3	3.4	3.6	< 2.7	3.9	3.1	3.5	4.4	< 2.8
CBOD5 (mg/L) Weekly Average	2.7	4.9	2.4	4.9	4.5	4.2	3.7	4.5	4.4	5.1	9.8	3.7
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	91	86	96	190	128	108	131	101	176	94	71	98
BOD5 (mg/L) Raw Sewage Influent Average Monthly	72.5	91	108.5	144	120.7	88.9	64.7	61.7	102.7	45.2	48.7	65.1
TSS (lbs/day) Average Monthly	< 6	< 5	< 4	< 7	< 6	< 6	< 10	< 9	< 10	< 10	< 8	< 8
TSS (lbs/day) Raw Sewage Influent Average Monthly	81	63	227	116	100	124	191	< 73	118	45	44	119
TSS (lbs/day) Weekly Average	< 8	< 6	< 6	< 12	7	8	14	< 13	< 18	< 17	< 12	< 11

TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.8	< 5.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	66	65	90	77	93	101	111	44	74	20	29	71
TSS (mg/L) Weekly Average	< 5.0	< 5.0	5.0	8.0	7.0	5.0	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	< 5	< 1	< 1	< 1	< 2	2	< 12	68	< 4	< 2
Total Nitrogen (mg/L) Average Monthly	6.45	7.46	6.84	6.94	5.11	3.08	4.99	4.17	8.65	5.86	7.12	5.21
Ammonia (mg/L) Average Monthly	< 0.172	< 0.156	< 0.165	0.276	< 0.150	< 0.171	< 1.085	< 0.16	< 0.184	0.261	0.286	0.223
Total Phosphorus (mg/L) Average Monthly	0.3	0.5	0.5	0.8	0.9	0.7	0.3	< 0.2	< 0.4	< 0.30	0.4	< 0.2

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2025 To: November 30, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	03/31/25	Inst Min	5.94	S.U.	6.0	S.U.

Summary of Inspections: There have been a total of 4 inspections at the facility since 1/22/2021. Three of which were Chapter 94 Inspections, and one was a compliance evaluation. No violations were noted in any of the inspections.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .48
Latitude 41º 38' 43.84" **Longitude** -80º 25' 59.36"
Wastewater Description: 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

WQM Modeling
This discharge was modeled using WQM 7.0 v 1.1 to determine if there is a need for WQBELs at the discharge. Based on previous permit renewals modeling was not completed to show that the need for WQBELs at the discharge were necessary due to the dilution ratio at the discharge being so high. Using the flow through at the dam and drainage area of the lake we can proportionately determine the Q7-10 at the discharge. Based on the previous renewal the flow through at the dam is 196.5 cfs with a drainage area of 158 square miles. The drainage area at the discharge is 44.52 square miles based on the previous permit. Using these values, we can determine a proportionate flow at the discharge site of 55.36 cfs. Using this flow at the discharge we can convert it to MGD and compare this value to the discharge rate from the facility to get the dilution ratio. Converted to MGD that is 35.78 MGD and when comparing it to the discharge rate at the facility we get a dilution ratio of 74.5:1.

Additionally, modeling was also completed to show that the technology-based limits for CBOD5 and the monitoring requirement for Ammonia-Nitrogen is sufficient for the facility. Using the proportionate Q7-10 flow found above and the drainage area at the discharge site a yield of 1.24 is calculated. Based on the modeling results the technology-based limits of 25 mg/L average monthly and 50 mg/L instantaneous maximum are sufficient for the discharge. Additionally, it was found that the monitoring requirement for Ammonia-Nitrogen is acceptable. Dissolved Oxygen minimum limitation of 4.0 mg/L will also be retained for this permit renewal.

Total Phosphorous
The existing Total Phosphorous limitations will be retained for this permit renewal. These limits were originally imposed based on the 1998 Pymatuning Lake Trophic Study which suggested limits of 1.0 mg/L average monthly and 2.0 mg/L instantaneous maximum limits.

TRC_CALC Modeling
The existing limits of 0.5 mg/L average monthly and 1.2 mg/L instantaneous maximum limits are more stringent than the limits suggested by the TRC_CALC model. The model suggested the same limit for the average monthly but a slightly higher limit of 1.6 mg/L instantaneous maximum. Due to anti-backsliding regulations the 1.6 mg/L limit will not be imposed, and the existing 1.2 mg/L instantaneous maximum limit will be retained

Best Professional Judgment (BPJ) Limitations

Comments: No BPJ limits are being considered for this renewal.

Additional Limits or Monitoring

E. Coli
Based on the SOP for Establishing Effluent Limitations in Individual Sewage Permits, E.Coli monitoring should be imposed for sewage discharges on a quarterly basis for facilities with design flows between 0.05 MGD and 1 MGD.

Anti-Backsliding

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	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
CBOD5	100	160	XXX	25	40	50	1/week	24-Hr Composite
BOD5 influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	120	180	XXX	30	45	50	1/week	24-Hr Composite
TSS influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10000	1/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1	XXX	2	1/week	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" (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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
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	1.2	1/day	Grab
CBOD5	100	160	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	120	180	XXX	30.0	45.0	60	1/week	24-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
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2	1/week	24-Hr Composite
E. Coli (No./100ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

Attachment 1
WQM 7.0 Modeling Results

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	35482	SHENANGO RIVER	**83.750**	1011.00	44.52	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	1.240	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
Linesville STP	PA0263443	0.4800	0.4800	0.4800	0.000	25.00	7.02

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	8.24	0.00	0.00
NH3-N	25.00	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
20A	35482	SHENANGO RIVER	**80.455**	1010.00	81.00	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	1.240	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20A	35482	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												
83.750	55.20	0.00	55.20	.7426	0.00006	.995	93.81	94.25	0.60	0.336	25.00	7.00
Q1-10 Flow												
83.750	35.33	0.00	35.33	.7426	0.00006	NA	NA	NA	0.47	0.430	25.00	7.00
Q30-10 Flow												
83.750	75.08	0.00	75.08	.7426	0.00006	NA	NA	NA	0.71	0.283	25.00	7.00

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	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	35482	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
83.750	Linesville STP	11.07	50	11.07	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
83.750	Linesville STP	1.37	25	1.37	25	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)		
83.75	Linesville STP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	35482	SHENANGO RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
83.750	0.480	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
93.814	0.995	94.247	0.599
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.31	0.166	0.33	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.187	0.181	Tsivoglou	5
Reach Travel Time (days)			
0.336			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.034	2.29	0.32	7.54
0.067	2.27	0.31	7.54
0.101	2.26	0.30	7.54
0.134	2.24	0.29	7.54
0.168	2.23	0.28	7.54
0.202	2.21	0.27	7.54
0.235	2.20	0.26	7.54
0.269	2.18	0.25	7.54
0.302	2.16	0.24	7.54
0.336	2.15	0.23	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	35482	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)
83.750	Linesville STP	PA0263443	0.480	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Attachment 2
TRC_CALC Modeling Results

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

55.36	= Q stream (cfs)	0.5	= CV Daily
0.48	= 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 = 23.801	1.3.2.iii	WLA cfc = 23.197
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 8.869	5.1d	LTA_cfc = 13.486

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		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)**