Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0093874**
Facility Type	**Non-Municipal**	APS ID	**1126963**
Major / Minor	**Minor**	Authorization ID	**1508708**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Ruebel Inc.**	Facility Name	**Ruebel Inc. STP**
Applicant Address	102 Mill Street	Facility Address	250 3rd Street
	Saltsburg, PA 15681-8993		Saltsburg, PA 15681-8940
Applicant Contact	Jack Ruebel	Facility Contact	Same as applicant
Applicant Phone	(724) 600-4270	Facility Phone	Same as applicant
Client ID	304589	Site ID	247828
Ch 94 Load Status	Not Overloaded	Municipality	Loyalhanna Township
Connection Status	No Limitations	County	Westmoreland
Date Application Received	December 4, 2024	EPA Waived?	Yes
Date Application Accepted	December 9, 2024	If No, Reason	

Purpose of Application: NPDES Permit Renewal for Discharge of Treated Sewage Effluent.

Summary of Review

The permittee has applied for a renewal of NPDES Permit PA0093874, the permit was previously issued by the Department on June 11, 2020, and it will expire on June 30, 2025.

Per the previous review and the phone call that this permit writer had with the permittee, Ruebel Inc. purchased the old elementary school from the Blairsville school district in 2013. No plans yet in place to convert the school to a professional offices and storage building. Per application, the building currently has no water; therefore, no effluent discharges.

Sewage generated from the office building will be treated with the following unit processes: flow equalization, extended aeration, final clarification, rapid sand filtration, chlorination, de-chlorination and post aeration.

The design discharge flow rate is 0.0047 MGD, the receiving stream is Unnamed Tributary to Kiskiminetas River (Stream ID 43248), which is classified as warm water fisheries (WWF) and located in the State Watershed 18-C.

This draft permit contains more stringent effluent limitations for Ammonia-Nitrogen for summer months (May 1-Oct 31). The permittee needs to address these changes by applying any necessary upgrades to the treatment plant prior to resuming discharge. No compliance schedule is necessary since the facility has not discharged in many years and there are no immediate plans to discharge.

An Operations Compliance Check Summary Report was completed by DEP's Operations Section on January 9, 2025 (see page 5) and concluded that this facility is generally in compliance with no open violations or pending enforcements. Checking on last time this facility was inspected, the inspection report on July 1, 2020 stated that this facility was inactive, well maintained, and no discharge noticed.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Environmental Engineering Specialist	May 22, 2025
X		Mahbuba Iasmin / Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	June 17, 2025

Summary of Review

The application stated that there were no changes to the facility conditions regarding discharge, receiving stream, or treatment technology. No changes are foreseen for the next five years, and therefore, Act 537 was not needed.

No industrial users are discharging to this facility per the application.

The applicant provides a proof of Act 14, P.L. 834 compliance with the November 14, 2024 letters, no comments were received.

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)	0.0047
Latitude	40º 29' 34"	Longitude	-79º 27' 45"
Quad Name	Saltsburg	Quad Code	40079D4
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Kiskiminetas River	Stream Code	43248
NHD Com ID	125292075	RMI	0.63
Drainage Area	1.3	Yield (cfs/mi^2)	0.0212
Q_{7-10} Flow (cfs)	0.0276	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1129	Slope (ft/ft)	
Watershed No.	18-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Impaired: Aquatic Life. Attained: Recreational		
Cause(s) of Impairment	NUTRIENTS		
Source(s) of Impairment	CROP PRODUCTION (CROP LAND OR DRY LAND), URBAN RUNOFF/STORM SEWERS.		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake	Buffalo Township MA		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2070
PWS RMI	311.0	Distance from Outfall (mi)	27

Changes Since Last Permit Issuance:

- Q_{7-10} flow, elevation, drainage area, and low flow yield were all updated to match USGS Stream Stats new data (see Appendix A).
- DEP updated its WQM 7.0 criteria for Ammonia-Nitrogen (NH_3-N) in 2019. Limits and conditions of this permit need to be redeveloped to an adequate level to protect water quality.
- *E. Coli* monitoring requirements will be introduced to this renewal which is in compliance with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Treatment Facility Summary

Treatment Facility Name: Ruebel Inc. STP

WQM Permit No.	Issuance Date
6582410	5/18/1994
6582410 T-1	11/15/2013

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorination with dechlorination	0.0047

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0047	7.84	Not overloaded	---	---

Changes Since Last Permit Issuance: None.

Compliance History

Operations Compliance Check Summary Report

Facility: RUEBEL INC, 250 3RD ST SALTSBURG PA 15681
NPDES Permit No.: PA0093874
Compliance Review Period: 1/1/20-1/7/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
07/01/2020	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:
No violations noted during review period
Open Violations by Client ID:
No open violations for Client ID 304589
Enforcement Summary:
No enforcements executed during review period
Effluent Violation Summary:
No effluent violations during review period
Compliance Status: Facility is generally in compliance with no open violations or pending enforcements.
Completed by: Amanda Illar **Completed date:** 1/9/25

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0047
Latitude 40º 29' 34.00" **Longitude** -79º 27' 45.00"
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)
E. Coli (No./100 ml)	Report	IMAX	-	92a.61
D.O. (mg/L)	4.0	Min	-	BPJ
NH_3-N (mg/L)	25	Average Monthly	-	BPJ
	50	IMAX		
Total N (mg/L)	Report	Average Monthly	-	92a.61
Total P (mg/L)	Report	Average Monthly	-	92a.61

Comments: The existing discharge was evaluated using WQM 6.3 for $CBOD_5$, Ammonia-Nitrogen and Dissolved Oxygen. A new version of the Department water quality model WQM of 7.0 was released with new Ammonia-Nitrogen criteria; thus water quality modelling is needed.

The Total Suspended Solids (TSS), pH, and Fecal Coliform parameters are not evaluated using WQM 7.0. The bases for the proposed technology-based limitations are listed in the above table.

Stream flow/effluent design flow= 0.0178/0.0047= 3.7 > 3:1; per Section C of DEP SOP (SOP No. BCW-PMT-033) no need to apply more stringent treatment requirements.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached, see Appendices B,C, and D):

Parameter	Limit (mg/l)	SBC	Model
TRC	0.5	Average Monthly	DEP Calculation Sheet
$CBOD_5$ (May1-Oct 31)	25	Average Monthly	WQM7.0
$CBOD_5$ (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
NH3-N (May1-Oct 31)	8.7	Average Monthly	WQM7.0
NH3-N (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
Dissolved Oxygen	4.0	Minimum	WQM7.0

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) WQBEL of 4.0 mg/L should be maintained based on DEP water quality model WQM 7.0 version 1.10 (Appendix B) and on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance as listed in the table under Technology-Based Limitations section.

WQM 7.0 was used to generate a warm period seasonal limits for Ammonia-Nitrogen (NH_3-N) AML of 8.7 mg/L, and Ins. Max of 17.0 mg/L, also the model generated cold period seasonal limits of AML 25 mg/L, and Ins. Max of 50 mg/L. The new WQBELs are more stringent than the previous permit limits for Ammonia-Nitrogen. Since no discharge was noticed over the reviewed eDMRs and the renewal application; no compliance schedule is necessary. Twice a month monitoring has been imposed.

WQM 7.0 generated $CBOD_5$ WQBEL year around limits of AML 25.0 mg/L, and Ins. Max of 50.0 mg/L. The new seasonal limits match with the previous permit limits. Twice a month monitoring has been imposed.

TN and TP Monitoring:

Total Nitrogen and Total Phosphorus are to be monitored because the receiving stream is impaired with nutrients per eMapPA. The monitoring requirements are consistent with the previous NPDES permit, monthly monitoring will be required.

Disinfection

Total Residual Chlorine (TRC) AML limit of 0.5 mg/L and IMAX of 1.6 mg/L were calculated based on the DEP preset values entered in the Department Calculation Sheet (Appendix D) for chlorine stream and discharge demands. No changes from the current limits. Twice a month monitoring will be required.

E. Coli

Pursuant to 25 Pa. code § 92a.61(b), annual monitoring for *E. Coli* will be imposed at Outfall 001 per DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Kiskiminetas River Basin TMDL

This facility considered a “Negligible Discharge Facility” as identified in Appendix C of the Kiskiminetas-Conemaugh River Watershed TMDL, and the aggregate WLAs were based on the sum of the available information regarding flow from each facility multiplied by the applicable numeric water quality criterion.

In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available Wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7.

This TMDL was developed due to the acid mine drainage within the watershed. Since there were no discharge during the last permit term, no data exists for TMDL parameters. Quarterly monitoring requirements are re-imposed for Aluminum, Iron and Manganese.

Monitoring Frequency Considerations

Pursuant to 25 Pa. code § 92a.12 and 92a.61, effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory standards, and monitoring requirements as summarized in the table in the following page.

Monitoring frequencies and sample types are established pursuant to DEPs “Technical Guidance for the Development and Specification of Effluent Limitations, and Other Permit Conditions in NPDES Permits”, and per DEP SOP - Establishing Effluent Limitations for Individual Sewage Permits SOP No. BCW-PMT-033 Revised, February 5, 2024.

The imposed monitoring frequencies are consistent with current policy and the Table 6-3 of DEP’s Technical Guidance mentioned above.

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)	0.0047	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	8.7	XXX	17.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab

Outfall 001, Continued (from 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		
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

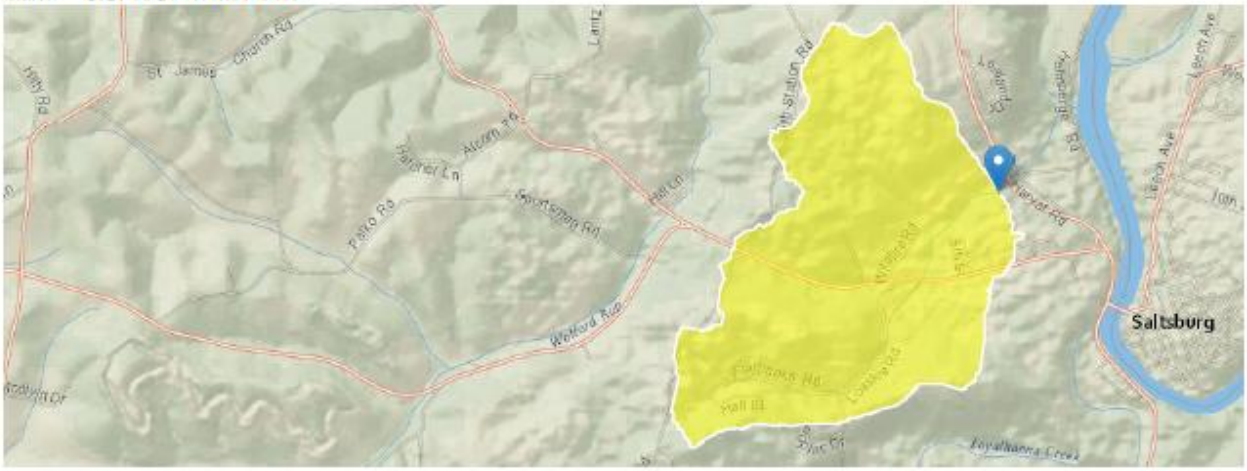
Compliance Sampling Location: Outfall 001.

Other Comments: None.

Appendix A – StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20250324203943286000
Clicked Point (Latitude, Longitude): 40.49296, -79.46229
Time: 2025-03-24 16:40:06 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.3	square miles
ELEV	Mean Basin Elevation	1129	feet
PRECIP	Mean Annual Precipitation	39	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.3	square miles	2.33	1720
ELEV	Mean Basin Elevation	1129	feet	898	2700
PRECIP	Mean Annual Precipitation	39	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0818	ft^3/s
30 Day 2 Year Low Flow	0.121	ft^3/s
7 Day 10 Year Low Flow	0.0276	ft^3/s
30 Day 10 Year Low Flow	0.0437	ft^3/s

Statistic	Value	Unit
90 Day 10 Year Low Flow	0.0677	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.28.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Appendix B:
WQM7.0 Model Results (Summer)

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
18C	43248	Trib 43248 to Kiskiminetas River	**0.630**	1129.00	1.30	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	0.021	0.03	0.00	0.000	0.000	10.0	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
250 3rd St STP	PA0093874	0.0047	0.0047	0.0047	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	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
18C	43248	Trib 43248 to Kiskiminetas River	**0.100**	1109.00	1.58	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	0.021	0.03	0.00	0.000	0.000	10.0	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
250 3rd St STP	PA0093874	0.0000	0.0000	0.0000	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	4.00	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
18C	43248	Trib 43248 to Kiskiminetas 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												
0.630	0.03	0.00	0.03	.0073	0.00715	.296	3.78	12.8	0.03	1.038	23.96	7.00
Q1-10 Flow												
0.630	0.02	0.00	0.02	.0073	0.00715	NA	NA	NA	0.03	1.253	23.54	7.00
Q30-10 Flow												
0.630	0.04	0.00	0.04	.0073	0.00715	NA	NA	NA	0.04	0.902	24.19	7.00

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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		

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43248	Trib 43248 to Kiskiminetas River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.630	0.005	23.957	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.783	0.296	12.803	0.031
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.80	0.840	1.82	0.949
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.358	22.267	Owens	5
Reach Travel Time (days)			
1.038			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.104	6.12	1.65	7.68
0.208	5.51	1.50	7.68
0.312	4.97	1.36	7.68
0.415	4.47	1.23	7.68
0.519	4.03	1.11	7.68
0.623	3.63	1.01	7.68
0.727	3.27	0.91	7.68
0.831	2.94	0.83	7.68
0.935	2.65	0.75	7.68
1.038	2.39	0.68	7.68

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18C	43248	Trib 43248 to Kiskiminetas 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
0.630	250 3rd St STP	7.5	25.71	7.5	25.71	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
0.630	250 3rd St STP	1.42	8.75	1.42	8.75	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)		
0.63	250 3rd St STP	25	25	8.75	8.75	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43248	Trib 43248 to Kiskiminetas 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)
0.630	250 3rd St STP	PA0093874	0.005	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Appendix C:
WQM7.0 Model Results (Winter)

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
18C	43248	Trib 43248 to Kiskiminetas River	**0.630**	1129.00	1.30	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	0.042	0.03	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
250 3rd St STP	PA0093874	0.0047	0.0047	0.0047	0.000	15.00	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	12.51	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
18C	43248	Trib 43248 to Kiskiminetas River	**0.100**	1109.00	1.58	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	0.042	0.03	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
250 3rd St STP	PA0093874	0.0000	0.0000	0.0000	0.000	15.00	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	12.51	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
18C	43248	Trib 43248 to Kiskiminetas 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												
0.630	0.03	0.00	0.03	.0073	0.00715	.296	3.78	12.8	0.03	1.038	7.09	7.00
Q1-10 Flow												
0.630	0.02	0.00	0.02	.0073	0.00715	NA	NA	NA	0.03	1.253	7.92	7.00
Q30-10 Flow												
0.630	0.04	0.00	0.04	.0073	0.00715	NA	NA	NA	0.04	0.902	6.62	7.00

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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		

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18C	43248	Trib 43248 to Kiskiminetas River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.630	0.005	7.085	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.783	0.296	12.803	0.031
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.80	1.019	5.21	0.259
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
10.736	14.923	Owens	5
Reach Travel Time (days)			
1.038			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.104	6.41	5.07	10.87
0.208	6.05	4.94	10.87
0.312	5.70	4.81	10.87
0.415	5.38	4.68	10.87
0.519	5.07	4.56	10.87
0.623	4.79	4.44	10.87
0.727	4.51	4.32	10.87
0.831	4.26	4.20	10.87
0.935	4.02	4.09	10.87
1.038	3.79	3.98	10.87

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18C	43248	Trib 43248 to Kiskiminetas 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
0.630	250 3rd St STP	20.59	50	20.59	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
0.630	250 3rd St STP	4.08	25	4.08	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)		
0.63	250 3rd St STP	25	25	25	25	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18C	43248	Trib 43248 to Kiskiminetas 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)
0.630	250 3rd St STP	PA0093874	0.005	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Appendix D:
DEP TRC Calculation Sheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0276	= Q stream (cfs)	0.5	= CV Daily
0.0047	= 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 Discharg	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1.230	1.3.2.iii	WLA cfc = 1.192
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.458	5.1d	LTA_cfc = 0.693

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)**