Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0034258**
Facility Type	**Non-Municipal**	APS ID	**1123129**
Major / Minor	**Minor**	Authorization ID	**1502108**

Applicant and Facility Information

Applicant Name	**Hopewell Area School District**	Facility Name	**Independence Elementary School**
Applicant Address	2354 Brodhead Road	Facility Address	103 School Road
	Aliquippa, PA 15001-4585		Aliquippa, PA 15001-5935
Applicant Contact	Debbie Engelman	Facility Contact	Same
Applicant Phone	(724) 375-6691	Facility Phone	Same
Client ID	3599	Site ID	262538
Ch 94 Load Status	Not Overloaded	Municipality	Independence Township
Connection Status		County	Beaver
Date Application Received	October 7, 2024	EPA Waived?	Yes
Date Application Accepted	October 9, 2024	If No, Reason	

Purpose of Application: Application for a renewal of an NPDES permit for discharge of treated Sewage

Summary of Review

Approve	Deny	Signatures	Date
X		Fahmida Amin Fahmida Amin / Environmental Engineering Specialist	October 29, 2025
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E./ Environmental Engineering Manager	November 26, 2025

The applicant has applied for a renewal of NPDES Permit No. PA0034258. NPDES Permit No. PA0034258 was previously issued by the PA Department of Environmental Protection (DEP) on April 01, 2020. That permit expired on March 31, 2025.

The existing treatment process consists of flow equalization, extended aeration, final clarification and chlorination.

The treated effluent is discharged through Outfall 001 to Raccoon Creek, classified as a Warm Water fishery. Raccoon Creek is located in State Watershed No 20-D

The permittee has complied with Act 14 notifications as evidenced by updated letters sent to Independence Township and Beaver County.

Changes since the last permit include:

- Addition of E. coli monitoring in accordance with 25 Pa. Code 93.7(a).
- Addition of monitoring requirements for Iron, Manganese and Aluminum.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard. Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. This facility is not seeking to revise the previously permitted effluent limits.

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)	.006
Latitude	40Âº 32' 42.34"	Longitude	-80Âº 19' 17.77"
Quad Name	Aliquippa	Quad Code	40080E3
Wastewater Description:	Sewage Effluent		

Receiving Waters	Raccoon Creek (WWF)	Stream Code	33564
NHD Com ID	99683832	RMI	19.24
Drainage Area	132	Yield (cfs/mi^2)	0.0248
Q_{7-10} Flow (cfs)	3.28	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1131	Slope (ft/ft)	
Watershed No.	20-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PATHOGENS		
Source(s) of Impairment	ACID MINE DRAINAGE, SOURCE UNKNOWN		
TMDL Status	Final	Name	Raccoon Creek Watershed

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

Nearest Downstream Public Water Supply Intake	Ambridge Water Authority		
PWS Waters	Ambridge reservoir	Flow at Intake (cfs)	10.4
PWS RMI	0.29	Distance from Outfall (mi)	8.44

Changes Since Last Permit Issuance:

- Addition of E. coli monitoring in accordance with 25 Pa. Code 93.7(a).
- Addition of monitoring requirements for Iron, Manganese and Aluminum.

Other Comments:

The discharge is to Raccoon Creek, which is part of the Raccoon Creek Watershed that has a Final TMDL and is impaired by metals and pathogens. According to 25 Pa. Code § Chapter 92.a.61, Each person who discharges pollutants may be required to monitor and report all toxic, conventional, nonconventional and other pollutants in its discharge, at least once a year, and on a more frequent basis if required by a permit condition. The monitoring requirements will be specified in the permit. Annual monitoring of these pollutants will remain in part A of the permit and will be re-evaluated during the next permit cycle to ensure they are not contributing to stream impairment.

Treatment Facility Summary				
Treatment Facility Name: Independence School STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Air	Chlorination	0.001
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.006		Not Overloaded	Aerobic Sewage Holding Tank	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: N/A

Operations Compliance Check Summary Report

Facility: INDEPENDENCE SCHOOL STP

NPDES Permit No.: PA0034258

Compliance Review Period: 9/1/20-9/25/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
12/12/2023	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
12/12/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	08/14/2024

Open Violations by Client ID:

No open violations for Client ID 3599

Enforcement Summary:

No enforcements executed during review period

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMIT LIMIT	UNIT	STAT_BASE_CODE
May-24	Total Suspended Solids	31.5	30	mg/L	Average Monthly
Oct-23	Fecal Coliform	> 2420	10000	No./100 ml	Instantaneous Maximum
Oct-22	Fecal Coliform	2111.8	2000	No./100 ml	Geometric Mean
Sep-22	Fecal Coliform	272	200	No./100 ml	Geometric Mean
Sep-20	Fecal Coliform	1067	200	No./100 ml	Geometric Mean
Sep-20	Fecal Coliform	1300	1000	No./100 ml	Instantaneous Maximum

Compliance Status: Facility is in general compliance with no open violations or pending enforcements at this time.

Completed by: Amanda Illar **Completed date:** 9/29/25

Compliance History

DMR Data for Outfall 001 (from September 1, 2024 to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
Flow (MGD) Average Monthly				0.001253	0.001122	0.001079	0.2218	0.001129	0.001276	0.000818	0.000980	2001
Flow (MGD) Daily Maximum				900	800	700	1100	800	800	600	500	800
pH (S.U.) Instantaneous Minimum				7.2	7.0	7.0	7.1	7.0	7.0	7.1	7.0	7.0
pH (S.U.) Instantaneous Maximum				7.6	7.7	7.7	7.6	7.7	7.5	7.6	7.6	7.4
DO (mg/L) Instantaneous Minimum				6.8	6.7	6.9	6.9	7.6	7.5	6.9	6.9	6.8
TRC (mg/L) Average Monthly				0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.18
TRC (mg/L) Instantaneous Maximum				0.5	0.6	0.3	0.5	0.4	0.5	0.4	0.4	0.4
CBOD5 (mg/L) Average Monthly				< 3.0	3.0	< 3.0	< 3.0	4.0	< 3.0	4.8	3.65	< 3.0
CBOD5 (mg/L) Instantaneous Maximum				< 3.0	3.1	< 0.30	< 3.0	5.1	< 3.0	7.7	3.7	< 3.0
TSS (mg/L) Average Monthly				< 5.0	13.25	12.2	13.8	16.8	11.25	16.5	27.5	16.4
TSS (mg/L) Instantaneous Maximum				< 5.0	18.5	19.5	15.5	20	17.0	18.5	27.5	28
Fecal Coliform (No./100 ml) Geometric Mean				0.09	19.3	1.2	45.8	62.4	17.5	18	27	1.7
Fecal Coliform (No./100 ml) Instantaneous Maximum				0.09	34	15	210	260	308	326	55	3
Total Nitrogen (mg/L) Daily Maximum									0.85			

Ammonia (mg/L) Average Monthly				< 0.30	0.3	0.5	1.6	3.4	4.4	1.1	0.3	0.3
Ammonia (mg/L) Instantaneous Maximum				< 0.30	0.39	0.71	2.00	5.16	8.31	1.40	0.38	0.32
Total Phosphorus (mg/L) Daily Maximum									3.23			

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .006
Latitude 40º 32' 40.00" **Longitude** -80º 19' 15.00"
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)

Comments: Imposed the above Technology-Based Limitations for CBOD5, TSS, pH, and Fecal Coliform.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia - Nitrogen	25	Average Monthly	WQM 7.0 Version 1.1
TRC	0.5	Average Monthly	TRC_CALC

Comments:

In accordance with Section 1.A. Note 4 of the Department's SOP *Establishing Effluent Limitations for Individual Sewage Permits* [SOP no. BCW-PMT-033 Version 1.9], for existing permits where WQM modeling results for summer indicate that an average monthly limit of 25 mg/L is acceptable, a year-round monitoring requirement will be imposed for ammonia-nitrogen as a minimum. A minimum Dissolved Oxygen (DO) limit of 4.0 mg/L should be established based on BPJ to ensure adequate operation and maintenance. The minimum DO limit may need to be increased due to water quality considerations.

Year-round monitoring is imposed at a sampling frequency of 2/month in accordance with Table 6.3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's *Technical Guidance for Development and Specification of Effluent Limitations* [Doc No. 362-0400-001]. This monitoring requirement is not changing from the previous permit. The highest Ammonia-Nitrogen average monthly result for the last year was 4.4 mg/L, which is significantly less than the technology based effluent limitation of 25 mg/L.

Additional Consideration:

Sewage discharges will include monitoring, at a minimum, for E. Coli, in new and reissued permits, with a monitoring frequency of 1/year for design flows of 0.002 and 0.05 MGD per 25 Pa. Code § 92a.061 and Section I.A, Note 12, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). The discharge is to waters not impaired for nutrients. A 1/year monitoring requirement for Total N & Total P has been added to the permit per Chapter 92a.61 and Section I.A, Note 7 & 8, SOP No. BCW-PMT-033, Establishing Effluent Limitations for Individual Sewage Permits

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	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	Daily when Discharging	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	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia - Nitrogen	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	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/year	Grab

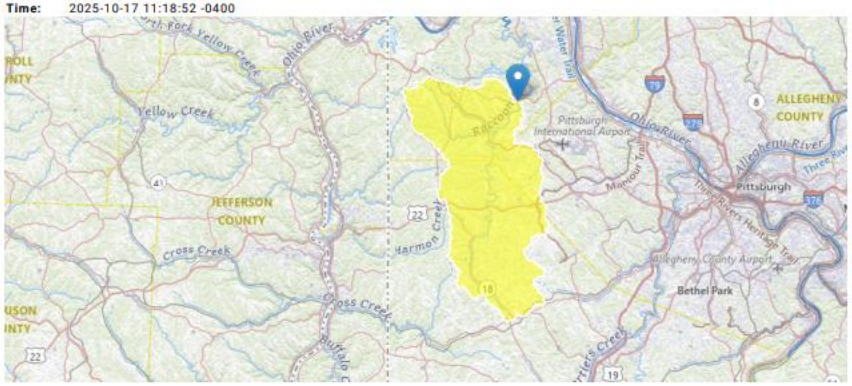
Compliance Sampling Location: Outfall 001

Other Comments: None

Attachment 1 – USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20251017151830734000
Clicked Point (Latitude, Longitude): 40.54464, -80.32202
Time: 2025-10-17 11:18:52 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	132	square miles
ELEV	Mean Basin Elevation	1131	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	132	square miles	2.26	1400
ELEV	Mean Basin Elevation	1131	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	6.96	ft^3/s	43	43
30 Day 2 Year Low Flow	10.7	ft^3/s	38	38

Statistic	Value	Unit	SE	ASEp
7 Day 10 Year Low Flow	3.28	ft^3/s	66	66
30 Day 10 Year Low Flow	4.83	ft^3/s	54	54
90 Day 10 Year Low Flow	7.69	ft^3/s	41	41

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: 4.29.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Pennsylvania
Department of
Environmental Protection

Attachment 2 – WQM 7.0 Version 1.1 – Summer Period

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
20D	33564	RACCOON CREEK	**19.240**	1131.00	132.00	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	0.025	0.00	0.00	0.000	0.000	10.0	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
Independence El	PA0034258	0.0000	0.0060	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	8.38	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
20D	33564	RACCOON CREEK	**18.860**	811.65	140.00	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	0.025	0.00	0.00	0.000	0.000	10.0	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	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 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	5.5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON 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												
19.240	3.27	0.00	3.27	.0093	0.15917	1.338	13.18	9.85	0.19	0.125	20.00	7.00
Q1-10 Flow												
19.240	2.10	0.00	2.10	.0093	0.15917	NA	NA	NA	0.15	0.160	20.00	7.00
Q30-10 Flow												
19.240	4.45	0.00	4.45	.0093	0.15917	NA	NA	NA	0.22	0.105	20.00	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON 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
19.240	Independence El	16.76	50	16.76	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
19.240	Independence El	1.89	25	1.89	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)		
19.24	Independence El	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
19.240	0.006	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
13.181	1.338	9.849	0.186
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.07	0.047	0.07	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.368	281.444	Tsivoglou	5.5
Reach Travel Time (days)			
0.125			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.012	2.06	0.07	8.24
0.025	2.06	0.07	8.24
0.037	2.06	0.07	8.24
0.050	2.06	0.07	8.24
0.062	2.06	0.07	8.24
0.075	2.06	0.07	8.24
0.087	2.06	0.07	8.24
0.100	2.06	0.07	8.24
0.112	2.05	0.07	8.24
0.125	2.05	0.06	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20D	33564	RACCOON 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)
19.240	Independence El	PA0034258	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Attachment 3: TRC CALC

TRC_CALC - Independence Elementary School

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

3.28	= Q stream (cfs)	0.5	= CV Daily
0.006	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 112.745	1.3.2.iii	WLA cfc = 109.910
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 42.011	5.1d	LTA_cfc = 63.896

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)