pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0216151**
Facility Type	**Non-Municipal**	APS ID	**1057111**
Major / Minor	**Minor/MISF1**	Authorization ID	**1385646**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Michael Apple**	Facility Name	**Coal Country Campground STP**
Applicant Address	1183 Executive Drive	Facility Address	834 Roseland Rd
	Glasgow, PA 16644-0130		Coalport, PA 16627
Applicant Contact	Michael Apple	Facility Contact	Same as Applicant
Applicant Phone	814-687-3985	Facility Phone	Same as Applicant
Client ID	270549	Site ID	717705
Ch 94 Load Status	Not Overloaded	Municipality	Reade Township
Connection Status	No Limitations	County	Cambria
Date Application Received	February 18, 2022	EPA Waived?	Yes
Date Application Accepted	February 22, 2022	If No, Reason	

Purpose of Application: Renewal of NPDES Permit to authorize a discharge of a treated sewage effluent.

Summary of Review

The permittee has applied for a renewal to NPDES Permit No. PA0216151. NPDES Permit No. PA0216151 was previously issued by the PA Department of Environmental Protection (PADEP) on September 1, 2017 and it expired on August 31, 2022. The renewal application was received by DEP in a timely manner.

The discharge from this STP is within Chesapeake Bay Watershed, so monitoring for TN and TP is included in this permit cycle as the facility is a Phase 5 facility with a discharge between >0.002 MGD and <0.2 MGD.

The electronic data monitoring report (eDMR) review shows no persistent violations for the last three years, which is compatible with the Operations compliance report and inspection reports (last report on April 12, 2019).

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

The Act – 14 PL 834 Municipal Notifications were provided by the January 19, and February 2, 2022 letters and no comments were received.

Sludge use and disposal description and location(s): None, Septic Tank, regularly transported out of property to a sanitary landfill.

Approve	Deny	Signatures	Date
X		Hazim Aldalli Hazim Aldalli / Environmental Engineering Specialist	August 5, 2022
x		Mahbuba Iasmin Mahbuba Iasmin, Ph.D. P.E./ Environmental Engineering Manager	October 25, 2022

Summary of Review
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)	0.00425
Latitude	40º 42' 43.56"	Longitude	-78º 29' 29.61"
Quad Name	Blandburg	Quad Code	40078F4
Wastewater Description:	Sewage Effluent		

Receiving Waters	Tributary 26458 to Clearfield Creek	Stream Code	26458
NHD Com ID	61835877	RMI	1.98
Drainage Area	0.75	Yield (cfs/mi^2)	0.0285
Q_{7-10} Flow (cfs)	0.0214	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1701	Slope (ft/ft)	0.0032
Watershed No.	8-C	Chapter 93 Class.	CWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Clearfield Creek

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

Nearest Downstream Public Water Supply Intake	Shawville Power Station on the West Branch Susquehanna River		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	65.3
PWS RMI	164.2	Distance from Outfall (mi)	>40.0

Changes Since Last Permit Issuance: 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.

Other Comments: DEP issued its Chesapeake Bay discharger Facilities supplemental document “PA DEP’s Phase 3 Watershed Implementation Plan Wastewater Supplement Document, Revised, July 29, 2022.”

Treatment Facility Summary

Treatment Facility Name: Coal Country Campground STP

WQM Permit No.	Issuance Date
1193402	5/12/1995
1193402 A-1	9/10/2009

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Septic system with sand filter	Chlorination (Tablets)	0.00425

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0043	----	Not Overloaded	N/A	Septic Tank

Changes Since Last Permit Issuance: Applicant stated that no changes were made or will be anticipated in the next five years.

Other Comments: None.

Operations Compliance Check Summary Report

Facility: Coal Country Campground
NPDES Permit No.: PA0216151
Compliance Review Period: 3/2017 – 3/2022
Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
2885240	04/12/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2620349	07/27/2017	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

No Violations

Open Violations by Client ID:

No open violations for client id 270549

Enforcement Summary:

No open enforcements

DMR Violation Summary:

BEGIN	END	PARAMETER	SAMPLE_ VALUE	PERMIT _VALUE	UNIT	STAT_BASE_CO DE
6/1/18	6/30/18	Fecal Coliform	2419.6	1000	No./100 ml	Instantaneous Maximum
5/1/21	5/31/21	Fecal Coliform	2419.6	1000	No./100 ml	Instantaneous Maximum
7/1/21	7/31/21	Ammonia-Nitrogen	27.52	24	mg/L	Average Monthly

Compliance Status:

Permittee in compliance.

Completed by: John Murphy
Completed date: 3/24/2022

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.00425
Latitude 40º 42' 43.00" **Longitude** -78º 29' 30.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations (TBELs)

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)
NH3-N (mg/L)	25	Average Monthly	-	BPJ
D.O. (mg/L)	4.0	Average Monthly	-	BPJ
Total N (mg/L)	Report	Average Monthly	-	92a.61
Total P (mg/L)	Report	Average Monthly	-	92a.61
E. Coli (No./100 ml)	Report	IMAX	-	92a.61

Comments: The stream flow (Q7-10) to wastewater flow (design flow) ratio is more than 3:1 (0.006575/0.0214 = 3.25), and the receiving water (Tributary 26458 to Clearfield Creek) is not a dry stream; Advanced Treatment Requirement is not applicable.

Water Quality-Based Limitations (WQBELs)

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

Parameter	Limit (mg/l)	SBC	Model
TRC	0.4	Average Monthly	DEP TRC Cal.
$CBOD_5$ (May1-Oct 31)	25	Average Monthly	WQM7.0
$CBOD_5$ (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
NH3-N (May1-Oct 31)	10	Average Monthly	WQM7.0
NH3-N (Nov 1- Apr 30)	23	Average Monthly	WQM7.0
Dissolved Oxygen	4.0	Minimum	WQM7.0

Comments: DEP policy allows new parameters introduced into renewed permits, in which the application manager desires for the permittee to collect data to verify reasonable potential for the subsequent permit application review to select any reasonable monitoring frequency that is greater than or equal to once per year.

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) limit of 4.0 mg/L should be established based on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance, which matches with the WQBEL generated by DEP WQM 7.0 (see Appendices B & C).

A WQM 7.0 was used to determine the newly imposed seasonal limits for Ammonia Nitrogen (NH_3-N) and also to redevelop $CBOD_5$ and DO limits.

The new water quality criteria for Ammonia-Nitrogen was incorporated within the DEP WQM 7.0; the model generated more stringent seasonal limitations of 10.0 mg/l for the warm period, and 23.0 mg/l for the cold period that will be imposed for this renewal.

Checking on the eDMR, the facility can meet the newly imposed seasonal Ammonia-Nitrogen limits. As the plant has achieved effluent limits of NH_3-N lower than the new proposed limits, no compliance schedule is necessary. NH_3-N bi-weekly monitoring will be required.

The nearest downstream potable water intake is Shawville Power Station on the West Branch Susquehanna River which is more than 40 miles away from the outfall discharge location. Therefore, Nitrite and Nitrate was not assessed for the drinking water purposes and no significant effects are expected to the water intake as a result of this discharge.

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.

The previously imposed limits for pH Effluent Limitation (6.0 Minimum, and 9.0 Maximum S.U.), Fecal Coliform AML Geo Mean seasonal limits (200 & 2000 CFU/100 ml), and TSS AML Weekly Average and Ins. Max (30, 45, and 60 mg/l) will be unchanged due to Anti-Backsliding as stated in 40 CFR Section 122.44(l).

TN and TP Monitoring

Per DEP SOP (No. BCW-PMT-033: Establishing Effluent Limitations for Individual Sewage Permits):

- Nutrient monitoring is required, at a minimum, 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). Sewage discharges with design flows > 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits.

  The receiving stream is not impaired with nutrients; advanced treatment requirements for TN, and TP will not be imposed. The newly proposed stringent Ammonia limitations will help in lowering TN.

- This subject sewage treatment plant (STP) is located in the Chesapeake Bay Watershed and considered a non-significant discharger per PA DEP's Phase 3 Watershed Implementation Plan (Phase 3 WIP). The Chesapeake Bay TMDL specifies individual waste load allocations (WLAs) for significant sewage treatment facilities. A sewage facility is considered significant if it has a design flow of at least 0.4 MGD. For rollout of its permitting strategy, DEP classified these facilities into three phases. For Phase 5 sewage facilities with individual permits, average annual design flow is > 0.002 MGD and < 0.2 MGD. Due to the subject STP's design flow being < 0.4 MGD, no WLAs will be assigned.

DEP will issue individual permits with monitoring and reporting requirements for Total Nitrogen and Total Phosphorus throughout the permit term at a frequency no less than annually as stated in PA DEP's Phase 3 Watershed Implementation Plan Wastewater Supplement Document, Revised, July 29, 2022.

Disinfection

Total Residual Chlorine (TRC) limits are updated based on the DEP preset values entered in the Department Calculation Sheet (see Appendix D) for chlorine stream and discharge demands. Water quality based effluent limits of 0.4 mg/l average monthly and IMAX of 1.5 mg/l will be imposed as determined from DEP TRC spreadsheet analysis shown in Appendix D. Per eDMR, the plant has achieved effluent limits of TRC lower than these limits, no compliance schedule is necessary to be given.

E. Coli

Pursuant to 25 Pa. code § 92a.61(b), annual monitoring for *E. Coli* will be imposed at Outfall 001 to determine if *E. Coli* will be a pollutant of concern, which is consistent with DEP SOP No. BCW-PMT-033 revised March 24, 2021.

Clearfield Creek TMDL

The Clearfield Creek Watershed is affected by pollution from abandoned mine drainage (AMD). The AMD has caused high levels of metals and low pH in the mainstem of Clearfield Creek upstream of Clearfield, PA.

Segment ID 26458 is not impaired and the facility is not contributing to the Metals TMDL in Clearfield Creek. The receiving stream has attaining use of aquatic life.

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" (362-0400-001), SOPs and/or BPJ.

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

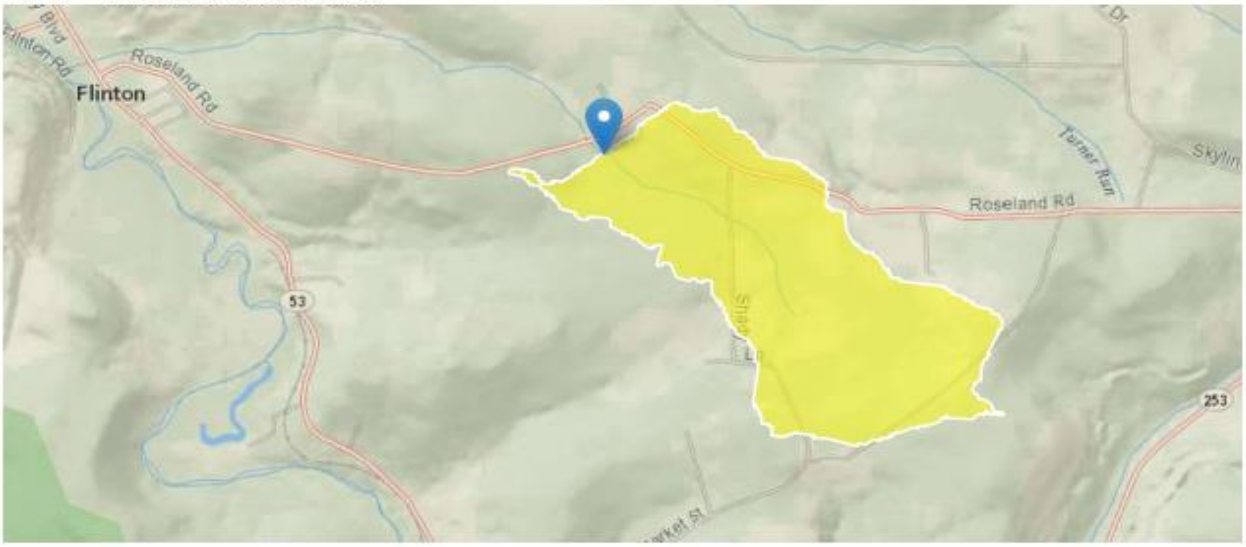
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.4	XXX	1.5	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	23.0	XXX	46.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
E Coli (No./100ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001
Other Comments: None.

Appendix A – StreamStats Report –

StreamStats Report

Region ID: PA
Workspace ID: PA20220324010632483000
Clicked Point (Latitude, Longitude): 40.71223, -78.49184
Time: 2022-03-23 21:06:51 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.75	square miles
ELEV	Mean Basin Elevation	1701	feet
PRECIP	Mean Annual Precipitation	39	inches

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.75	square miles	2.33	1720
ELEV	Mean Basin Elevation	1701	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	0.0638	ft^3/s
30 Day 2 Year Low Flow	0.0921	ft^3/s
7 Day 10 Year Low Flow	0.0214	ft^3/s
30 Day 10 Year Low Flow	0.032	ft^3/s
90 Day 10 Year Low Flow	0.0496	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: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Appendix B – WQM 7.0 Modeling – Summer Conditions

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield 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)
1.980	Coal Co Cap STP	PA0216151	0.004	CBOD5	25		
				NH3-N	10.24	20.48	
				Dissolved Oxygen			4

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield 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
1.980	Coal Co Cap ST	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
1.980	Coal Co Cap ST	1.89	10.24	1.89	10.24	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)		
1.98	Coal Co Cap STP	25	25	10.24	10.24	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.980	0.004	18.825	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.216	0.287	11.201	0.030
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.41	0.346	2.55	0.639
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
10.510	20.959	Owens	5
Reach Travel Time (days)			
3.995			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.400	6.50	1.98	8.43
0.799	5.70	1.53	8.43
1.199	5.00	1.19	8.43
1.598	4.39	0.92	8.43
1.998	3.85	0.71	8.43
2.397	3.38	0.55	8.43
2.797	2.96	0.43	8.43
3.196	2.60	0.33	8.43
3.596	2.28	0.26	8.43
3.995	2.00	0.20	8.43

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	6		

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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield 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												
1.980	0.02	0.00	0.02	.0066	0.00517	.287	3.22	11.2	0.03	3.995	20.00	7.00
Q1-10 Flow												
1.980	0.01	0.00	0.01	.0066	0.00517	NA	NA	NA	0.03	4.785	20.00	7.00
Q30-10 Flow												
1.980	0.03	0.00	0.03	.0066	0.00517	NA	NA	NA	0.03	3.486	20.00	7.00

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
08C	26458	Trib 26458 to Clearfield Creek	**1.980**	1701.00	0.75	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	0.029	0.02	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
Coal Co Cap STP	PA0216151	0.0043	0.0043	0.0043	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	9.01	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Appendix C – WQM 7.0 Modeling – Winter Conditions

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield 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)
1.980	Coal Co Cap STP	PA0216151	0.004	CBOD5	25		
				NH3-N	23.68	47.36	
				Dissolved Oxygen			4

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield 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
1.980	Coal Co Cap ST	24.1	50	24.1	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
1.980	Coal Co Cap ST	4.36	23.68	4.36	23.68	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)		
1.98	Coal Co Cap STP	25	25	23.68	23.68	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.980	0.004	7.350	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.216	0.287	11.201	0.030
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.41	0.586	5.56	0.264
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
10.510	20.959	Owens	5
Reach Travel Time (days)			
3.995			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.400	6.50	5.01	10.80
0.799	5.70	4.50	10.80
1.199	5.00	4.05	10.80
1.598	4.39	3.65	10.80
1.998	3.85	3.28	10.80
2.397	3.38	2.95	10.80
2.797	2.96	2.66	10.80
3.196	2.60	2.39	10.80
3.596	2.28	2.15	10.80
3.995	2.00	1.93	10.80

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	6		

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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
08C	26458	Trib 26458 to Clearfield 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												
1.980	0.02	0.00	0.02	.0066	0.00517	.287	3.22	11.2	0.03	3.995	7.35	7.00
Q1-10 Flow												
1.980	0.01	0.00	0.01	.0066	0.00517	NA	NA	NA	0.03	4.785	8.24	7.00
Q30-10 Flow												
1.980	0.03	0.00	0.03	.0066	0.00517	NA	NA	NA	0.03	3.486	6.84	7.00

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
08C	26458	Trib 26458 to Clearfield Creek	**1.980**	1701.00	0.75	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	0.057	0.02	0.00	0.000	0.000	0.0	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
Coal Co Cap STP	PA0216151	0.0043	0.0043	0.0043	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

Appendix D – DEP Total Residual Chlorine Sheet –

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0214	= Q stream (cfs)	0.5	= CV Daily
0.00425	= 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 = 1.057	1.3.2.iii	WLA cfc = 1.023
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.394	5.1d	LTA_cfc = 0.595

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.485	AFC
		INST MAX LIMIT (mg/l) = 1.586	

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)**