pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0001350**
Facility Type	**Non-Municipal**	APS ID	**1028193**
Major / Minor	**Minor**	Authorization ID	**1335718**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**The Washington County Coal Company**	Facility Name	**Somerset Portal STP**
Applicant Address	46226 National Road	Facility Address	860 Vanceville Road
	Saint Clairsville, OH 43950-8742		Eighty Four, PA 15330
Applicant Contact	Jon Nagel	Facility Contact	
Applicant Phone	(724) 338-3100	Facility Phone	
Client ID	310093	Site ID	257787
Ch 94 Load Status	Not Overloaded	Municipality	Somerset Township
Connection Status	No Limitations	County	Washington
Date Application Received	December 4, 2020	EPA Waived?	Yes
Date Application Accepted	December 8, 2020	If No, Reason	

Purpose of Application: Renewal of an NPDES Permit for an existing discharge of treated sewage.

Summary of Review

This is a privately owned sewage treatment plant serving an industrial facility engaged in coal mining activities.

No changes to discharge quantity or quality were proposed as part of this permit renewal.

The facility is currently using the eDMR system for reporting.

There are currently no open violations listed in EFACTS for this permittee (5/25/2021).

A WQM Permit amendment application must be submitted for a dechlorination unit that has been installed.

Sludge use and disposal description and location(s): Sludge is hauled offsite by a septic hauler for disposal at Liquid Asset Disposal in Wheeling, WV.

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		Adam Pesek Adam J. Pesek, E.I.T. / Environmental Engineering Specialist	May 25, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	May 27, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.00972
Latitude	40º 7' 38.0"	Longitude	-80º 3' 37"
Quad Name	Hackett	Quad Code	01705
Wastewater Description:	Treated Sewage Effluent		

Receiving Waters	Center Branch Pigeon Creek	Stream Code	39723
NHD Com ID	99410260	RMI	1.85
Drainage Area	4.37	Yield (cfs/mi^2)	0.01137
Q_{7-10} Flow (cfs)	.0497	Q_{7-10} Basis	USGS Streamstats Regression Analysis
Elevation (ft)	993	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
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		Name	

Background/Ambient Data		Data Source
pH (SU)	8.0	3/12/2020 Stream Sample directly above Mine No. 60 Reservoir
Temperature (°C)	25	Default (WWF)
Hardness (mg/L)	443	3/12/2020 Stream Sample directly above Mine No. 60 Reservoir
Other: NH_3-N	< 0.02	3/12/2020 Stream Sample directly above Mine No. 60 Reservoir

Nearest Downstream Public Water Supply Intake		PA American Water Company - Aldrich Station	
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	23.5	Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Somerset Portal STP

WQM Permit No.	Issuance Date
467S050 T-2	9/8/2016
467S050 T-1	10/27/1993
467S050	1/15/1968

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with NH3-N removal	Septic Tank Sand Filter W/Sol Removal	Hypochlorite	0.00972

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.00972	16.2	Not Overloaded	Septic Tank	Hauled offsite by septic hauler

Changes Since Last Permit Issuance: the application indicated that the permittee had installed a dechlorination unit without a WQM Permit Amendment. To come into compliance, the permittee must apply for and receive a WQM Permit Amendment. A WQM Permit application has not been submitted to date (4/30/2021).

Other Comments: Organic capacity was previously calculated using the following equation:

0.0097 mgd x 8.345 x 200 mg/l = 16.2 lbs/day

Compliance History	
Summary of DMRs:	A DMR review done during the 2/2/2021 inspection did not find any effluent violations at that time.
Summary of Inspections:	The last site inspection was conducted on 2/2/21. The inspection report found the plant to be well maintained and in good working order. Sludge records were not available onsite at the inspection. Recommendations included: • Calibration records need to be maintained for pH, DO, and TRC. • Daily log, repair log, and routine maintenance logs need to be maintained. • Please add visual observations, any process adjustments, or any problems or concerns to the daily log. • Sludge removal records need to be kept on-site and retained for at least five years. The report also requested that the on-site lab needs registered with DEP Bureau of Labs and make sure Standard Laboratories is also registered with PA DEP. I will need both PA DEP Lab ID numbers.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from March 1, 2020 to February 28, 2021)

Parameter	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20
Flow (MGD) Average Monthly		0.00070	0.00060	0.000800	0.000800		0.00180		0.00010	0.00200	0.00480	0.00500
pH (S.U.) Minimum		7.5	8.0	7.9	7.26		7.38		7.85	6.98	6.86	6.81
pH (S.U.) Maximum		7.7	8.0	7.9	7.26		7.38		8.85	8.33	8.53	8.47
DO (mg/L) Minimum		9.4	9.0	8.1	8.4		8.1		8.6	6.7	7.5	8.8
TRC (mg/L) Average Monthly		0.048	0.0225	0.02	0.05		0.02		0.02	0.02	0.01	0.04
TRC (mg/L) Instantaneous Maximum		0.08	0.025	0.02	0.05		0.02		0.03	0.06	0.09	0.32
CBOD5 (mg/L) Average Monthly		1.19	1.39	1.24	2.48		E		5.3	< 2.0	< 4.4	< 2.0
CBOD5 (mg/L) Instantaneous Maximum		1.19	1.39	1.24	2.48		E		5.3	< 2.0	< 6.8	< 2.0
TSS (mg/L) Average Monthly		< 3.0	< 3.0	< 3.0	< 3.0		E		10.0	< 3.0	< 3.0	< 3.0
TSS (mg/L) Instantaneous Maximum		< 3.0	< 3.0	< 3.0	< 3.0		E		10.0	< 3.0	< 3.0	< 3.0
Fecal Coliform (No./100 ml) Average Monthly		< 1.0	< 1.0	< 1.0	< 1.0		E		< 1	< 1.0	< 1	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum		< 1.0	< 1.0	< 1.0	< 1.0		E		< 1	< 1.0	< 1	< 1.0
Total Nitrogen (mg/L) Daily Maximum			< 3.87									
Ammonia (mg/L) Average Monthly		< 0.15	0.21	< 0.15	< 0.15		E		< 0.15	< 0.15	< 0.15	< 1.415
Ammonia (mg/L) Instantaneous Maximum		< 0.15	0.21	< 0.15	< 0.15		E		< 0.15	< 0.15	< 0.15	2.66
Total Phosphorus (mg/L) Daily Maximum			0.240									

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.00972
Latitude 40º 7' 38.00" **Longitude** -80º 3' 37.00"
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)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen	3.0	Average Monthly	WQM 7.0 Ver. 1.1
Total Residual Chlorine	0.49	Average Monthly	TRC Calc Spreadsheet
Total Residual Chlorine	1.6	IMAX	TRC Calc Spreadsheet

Comments: A seasonal multiplier of "3" is applied to ammonia nitrogen limits in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

The calculated ammonia nitrogen WQBELs are significantly more stringent than the previously calculated limits, mainly due to the revised stream flow, calculated discharge and stream pH, and new water quality criteria. Based on a review of eDMRs, the permittee should be able to meet the new limits consistently when the permit is renewed.

Best Professional Judgment (BPJ) Limitations

N/A

Additional Considerations

Monitoring for E. Coli, total nitrogen, and total phosphorus will be placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Monitoring for D.O. will be placed in the permit instead of a limit of a minimum of 4.0 mg/l due to the type of treatment used (septic tank/sand filter).

Anti-Backsliding

N/A

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 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	Report Daily Min	XXX	XXX	XXX	2/month	Grab
TRC	XXX	XXX	XXX	0.49	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001 (after disinfection)

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
19C	39723	CENTER BRANCH PIGEON CREEK	1.850	993.00	4.37	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	0.011	0.00	0.05	0.000	0.000	0.0	0.00	0.00	25.00	8.00	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
Somerset Portal	PA0001350	0.0097	0.0000	0.0000	0.000	20.00	8.10

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	7.54	0.00	0.00
NH3-N	25.00	0.02	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
19C	39723	CENTER BRANCH PIGEON CREEK	**0.001**	966.00	6.84	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	0.011	0.00	0.09	0.000	0.000	0.0	0.00	0.00	25.00	8.00	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
19C	39723	CENTER BRANCH PIGEON 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												
1.850	0.05	0.00	0.05	.015	0.00277	.343	6.05	17.68	0.03	3.619	23.84	8.02
Q1-10 Flow												
1.850	0.03	0.00	0.03	.015	0.00277	NA	NA	NA	0.03	4.338	23.40	8.03
Q30-10 Flow												
1.850	0.07	0.00	0.07	.015	0.00277	NA	NA	NA	0.04	3.157	24.09	8.02

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
19C	39723	CENTER BRANCH PIGEON 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
1.850	Somerset Portal	2.79	8.64	2.79	8.64	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
1.850	Somerset Portal	.58	3.11	.58	3.11	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)		
1.85	Somerset Portal	25	25	3.11	3.11	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19C	39723	CENTER BRANCH PIGEON CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.850	0.010	23.839	8.021
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
6.054	0.343	17.676	0.031
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.34	0.301	0.74	0.941
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.718	16.908	Owens	5
Reach Travel Time (days)			
3.619			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.362	6.45	0.53	7.54
0.724	5.66	0.37	7.54
1.086	4.97	0.27	7.54
1.448	4.36	0.19	7.54
1.810	3.83	0.13	7.54
2.172	3.36	0.10	7.54
2.534	2.95	0.07	7.54
2.896	2.59	0.05	7.54
3.258	2.28	0.03	7.54
3.619	2.00	0.02	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19C	39723	CENTER BRANCH PIGEON 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)
1.850	Somerset Portal	PA0001350	0.010	CBOD5	25		
				NH3-N	3.11	6.22	
				Dissolved Oxygen			4

TRC EVALUATION			Somerset Portal STP			
Input appropriate values in B4:B8 and E4:E7						
0.0497	= Q stream (cfs)		0.5	= CV Daily		
0.00972	= 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 =	1.073	1.3.2.iii	WLA cfc =	1.039
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.400	5.1d	LTA_cfc =	0.604
Source		Effluent Limit Calculations				
PENTOXSD TRG	5.1f	AML MULT =	1.231			
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.492	AFC		
		INST MAX LIMIT (mg/l) =	1.610			

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)**