pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0254215**
Facility Type	**Non-Municipal**	APS ID	**1013554**
Major / Minor	**Minor**	Authorization ID	**1309274**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Rox Coal, Inc.**	Facility Name	**Horning Deep Mine**
Applicant Address	PO Box 260	Facility Address	SR 4015
	Friedens, PA 15541		Somerset, PA 15501
Applicant Contact	Matthew Twichell, Mining Engineer	Facility Contact	Matthew Twichell, Mining Engineer
Applicant Phone	(814) 443-4668, ext. 293	Facility Phone	(814) 443-4668, ext. 293
Client ID	8306	Site ID	698364
Ch 94 Load Status	Not Overloaded	Municipality	Stonycreek Township
Connection Status	No Limitations	County	Somerset County
Date Application Received	March 19, 2020	EPA Waived?	Yes
Date Application Accepted	April 10, 2020	If No, Reason	-

Purpose of Application: Renewal of a minor NPDES Permit for an existing discharge of treated sanitary wastewater.

Summary of Review

Act 14 - Proof of Notification was submitted and received.

A Part II Water Quality Management permit is not required at this time. However, a Water Quality Management permit application will be required prior to any construction of the proposed STP, and prior to any discharge.

The applicant should be able to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

A. Stormwater into sewers
B. Right of way
C. Solids handling
D. Public Sewer Availability
E. Effluent Chlorine Optimization and Minimization
F. WQM Permit prior to discharging

SPECIAL CONDITIONS:

II. Solids Management

There are no open violations in efacts associated with the subject Client ID (8306) as of 2/24/2021.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	2/24/2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	2/28/2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0035
Latitude	39º 58' 58.00"	Longitude	-78º 56' 59.00"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Glades Creek (CWF)	Stream Code	45777
NHD Com ID	123713679	RMI	3.1
Drainage Area	1.73	Yield (cfs/mi^2)	0.04
Q_{7-10} Flow (cfs)	0.069	Q_{7-10} Basis	USGS Low Flow Stats Station 03040000 Stony Creek at Hooversville
Elevation (ft)	2253	Slope (ft/ft)	0.000757
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	Suspended Solids		
Source(s) of Impairment	Agriculture		
TMDL Status	Final, 01/29/2010	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	Hooversville Municipal Authority		
PWS Waters	Stonycreek River	Flow at Intake (cfs)	9.0
PWS RMI	25.2	Distance from Outfall (mi)	20.0

Kiskiminetas River Basin

There is a TMDL for metals in the Kiskiminetas River watershed. The contribution for metals from a sewage plant of this nature is expected to be less than water quality criteria and therefore not contributing to stream impairment. However, 1/year monitoring is imposed for plants rated between 0.002 mgd up to 0.499 mgd for Total Iron, Total Manganese, and Total Aluminum. Monitoring is required to establish data to ensure there are no impacts on the quality of the receiving stream.

Sludge use and disposal description and location(s): Sludge is not used, it is disposed of at an approved landfill.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for a proposed discharge of 0.0035 MGD of treated sewage from a non-municipal STP in Stonycreek Township, Somerset County.

Treatment has not been permitted for this facility. Holding tanks are currently in use and pumped when necessary until the sewage treatment facility is permitted and installed.

1. Streamflow:

Stony Creek River (USGS gage 03040000):

Q_{7-10}:	8.99	cfs	(USGS StreamStats)
Drainage Area:	245	sq. mi.	(USGS StreamStats)
Yieldrate:	0.036	cfsm	calculated

Glades Run:

Yieldrate:	0.04	cfsm	calculated above
Drainage Area:	1.73	sq. mi.	(USGS StreamStats)
Q_{7-10}:	0.069	cfs	calculated

% of stream allocated: 100% Basis: No nearby discharges

2. Wasteflow:

Maximum discharge: 0.0035 MGD = 0.0054 cfs

Runoff flow period: 24 hours Basis: Runoff flow for a Municipal STP

There is greater than 3 parts stream flow (Q7-10) to 1 part effluent (design flow). In accordance with the SOP, and since this is an existing discharge, the treatment requirements in document number 391-2000-014, titled, "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers", dated April 12, 2008, will not be implemented in this NPDES Permit.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, Phosphorus, NH_3-N, $CBOD_5$, Dissolved Oxygen, and Total Residual Chlorine. NH_3-N, $CBOD_5$, and Dissolved Oxygen were evaluated using WQM 7.0 at the discharge point.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as a daily maximum.

Basis: Application of Chapter 92a47 technology-based limits

c. Fecal Coliform

05/01 - 09/30:	200/100ml	(monthly average geometric mean)
	1,000/100ml	(instantaneous maximum)
10/01 - 04/30:	2,000/100ml	(monthly average geometric mean)
	10,000/100ml	(instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits

d. Phosphorus

☐ Limit necessary due to:

☐ Discharge to lake, pond, or impoundment
☐ Discharge to stream

Basis: N/A

☒ Limit not necessary

Basis: Chapter 96.5 does not apply. However, the previous monitoring for Total Phosphorus will be retained in accordance with the SOP, based on Chapter 92a.61.

e. Total Nitrogen

The previous monitoring for Total Nitrogen will be retained in accordance with the SOP, based on Chapter 92a.61.

f. Ammonia-Nitrogen (NH_3-N)

Median discharge pH to be used:	7.0	Standard Units (S.U.)
		Basis: default value used in the absence of data
Discharge temperature:	25°C	(default value used in the absence of data)
Median stream pH to be used:	7.0	Standard Units (S.U.)
		Basis: default value used in the absence of data
Stream Temperature:	25˚C	(default value used for WWF modeling)
Background NH_3-N concentration:	0.1	mg/l
		Basis: Default value.
Calculated NH_3-N Summer limits:	25.0	mg/l (monthly average)
	50.0	mg/l (instantaneous maximum)
Calculated NH_3-N Winter limits:	25.0	mg/l (monthly average)
	50.0	mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer technology-based limits above (see Attachment 1), which are the same as in the previous permit. The winter limits are calculated as three times the summer

limits, but since the technology-based limits are more protective, they will be used. Since the calculated limits are technology-based, per the SOP, year-round monitoring will be retained with this renewal.

g. $CBOD_5$

Median discharge pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 25˚C (default value used for WWF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value

$CBOD_5$ Summer limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

$CBOD_5$ Winter limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the calculated summer limits above (see Attachment 1), which are the same as the previous NPDES Permit. The winter limits are calculated as three times the summer limits, but since the technology-based limits are more protective, they will be used. Since the summer and winter limits are technology-based, per the SOP, the year-round limit of 25.0 mg/l monthly average and 50.0 mg/l instantaneous maximum will be retained with this renewal.

h. Dissolved Oxygen (DO)

☒ 4.0 mg/l - minimum desired in effluent to protect all aquatic life
☐ 5.0 mg/l - desired in effluent for CWF, WWF, or TSF
☐ 6.0 mg/l - minimum required due to discharge falling under guidance document 391-2000-014
☐ 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: The Dissolved Oxygen minimum of 4.0 mg/l will be retained with this renewal. The technology-based minimum of 4.0 mg/l is recommended by the WQ Model (see Attachment 1) and the SOP based on Chapter 93.7, under the authority of Chapter 92a.61. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

i. Total Residual Chlorine (TRC)

☐ No limit necessary

Basis: N/A

☒ TRC limits: 0.5 mg/l (monthly average)
1.6 mg/l (instantaneous maximum)

Basis: The technology-based TRC limits above were calculated using the TRC_Calc spreadsheet (see Attachment 2). The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

j. Influent Total Suspended Solids and BOD_5

Monitoring for these two parameters will be retained as recommended in the SOP for POTWs, and as authorized under Chapter 92a.61.

k. Anti-Backsliding

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 since no sampling has been performed for this facility.

5. Reasonable Potential for Downstream Public Water Supply (PWS):

Bromide has been linked to the formation of disinfection byproducts at increased levels in public water systems. Where the concentration of bromide in a discharge exceeds 1 mg/L, as is shown from eDMR, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Since this facility is designed for only 0.0035 MGD, and has no Bromide sampling data, monitoring for Bromide will not be added to this renewal permit.

Nearest Downstream potable water supply (PWS): Hooversville Municipal Authority

Distance downstream from the point of discharge: 20.0 miles (approximate)

☒ No limits necessary
☐ Limits needed

Basis: Significant dilution available.

6. Attachment List:

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC_Calc Spreadsheet

(The Attachments above can be found at the end of this document)

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	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	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
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Total Aluminum	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for Total Residual Chlorine (TRC) are technology based on Chapter 92a.48. The limits for $CBOD_5$, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for influent BOD5 and influent Total Suspended Solids is based on Chapter 92a.61. Monitoring for Ammonia-Nitrogen, Total Nitrogen, Total Phosphorus, Total Aluminum, Total Iron, and Total Manganese is based on Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45777	GLADES 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)
3.100	Horning Mine	PA0254215	0.004	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45777	GLADES CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.100	0.004	20.363	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.581	0.359	15.538	0.037
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.67	0.522	1.81	0.720
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.935	16.044	Owens	5
Reach Travel Time (days)			
0.821			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.082	3.51	1.71	8.19
0.164	3.36	1.61	8.19
0.246	3.22	1.52	8.19
0.328	3.08	1.43	8.19
0.410	2.95	1.35	8.19
0.493	2.83	1.27	8.19
0.575	2.70	1.20	8.19
0.657	2.59	1.13	8.19
0.739	2.48	1.07	8.19
0.821	2.37	1.00	8.19

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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45777	GLADES 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												
3.100	0.07	0.00	0.07	.0054	0.00076	.359	5.58	15.54	0.04	0.821	20.36	7.00
Q1-10 Flow												
3.100	0.04	0.00	0.04	.0054	0.00076	NA	NA	NA	0.03	1.031	20.54	7.00
Q30-10 Flow												
3.100	0.09	0.00	0.09	.0054	0.00076	NA	NA	NA	0.04	0.699	20.27	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
18E	45777	GLADES CREEK	**3.100**	2253.00	1.73	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	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
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
Horning Mine	PA0254215	0.0035	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	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
18E	45777	GLADES CREEK	**2.600**	2251.00	2.20	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	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
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

Attachment 2

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.07	= Q stream (cfs)	0.5	= CV Daily
0.0035	= 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 = 4.143	1.3.2.iii	WLA cfc = 4.032
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.544	5.1d	LTA_cfc = 2.344

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)**