pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	Renewal	Application No.	**PA0239437**
Facility Type	Non-Municipal	APS ID	**983438**
Major / Minor	Minor	Authorization ID	**1256275**

Applicant and Facility Information

Applicant Name	**Human Service Center**	Facility Name	**Edgewood Group Home**
Applicant Address	130 W North Street	Facility Address	Human Services Ctr 130 W North Street
	New Castle, PA 16101-3906		New Castle, PA 16101
Applicant Contact	Michele Kelly-Thompson	Facility Contact	
Applicant Phone	(724) 658-3578	Facility Phone	
Applicant E Mail	mkthompson@humanservicescenter.net	Facility E Mail	
Client ID	125	Site ID	615162
Municipality	Pulaski Township	County	Lawrence
Ch 94 Load Status	Not Overloaded	Connection Status	No Limitations
SIC Code	**8361**	SIC Code	4952
SIC Description	**Services - Residential Care**	SIC Description	Trans. & Utilities - Sewerage Systems
Application Received	December 24, 2018	EPA Waived?	Yes
Application Accepted	January 16, 2019	If No, Reason	
Application Purpose	NPDES permit renewal		

Summary of Review

The facility design flow is marginally above that for a small flow sewage treatment facility.

Poor effluent quality led to UV radiation disinfection failure and reactivation of the formerly permitted chlorine disinfection system. A Consent Order and Agreement (CO&A) is pending addressing the poor effluent quality and disinfection. Anticipated compliance is through a connection to a local publicly operated treatment works (POTW).

Proposed:

Reducing the ammonia monthly average from 6.0 to 5.0-mg/L and TRC monthly average from 0.9 to 0.5-mg/L.
(A 3-year compliance schedule will be provided for compliance with the new WQBEL for Ammonia-Nitrogen because the facility has demonstrated that they CANNOT consistently meet this limitation. NO compliance schedule is being provided for TRC since the facility has demonstrated that they CAN consistently meet this limitation). JCD
Increasing the effluent minimum daily DO to 4.0mg/L and DO, pH and TRC monitoring frequency from weekly to daily.
UV radiation monitoring has been discontinued as not necessary.

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		William H. Mentzer William H. Mentzer, P.E. Environmental Engineering Specialist	May 19, 2022
X		Justin C. Dickey Justin C. Dickey, P.E. Environmental Engineer Manager	July 1, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0022
Latitude DP	41º 6' 18.00"	Longitude DP	-80º 25' 6.00"
Latitude NHD	41º 6' 23.07"	Longitude NHD	-80º 25' 11.69"
Quad Name	Edinburg	Quad Code	1002
Wastewater:	Treated domestic wastes from a group home		
Receiving Waters	Unnamed Tributary to Shenango River	Stream Code	35883
NHD Com ID	130025424	RMI	0.88
Drainage Area	0.35	Yield (cfs/mi^2)	0.021
Q_{7-10} Flow (cfs)	0.007	Q_{7-10} Basis	Shenango River at Sharon
Elevation (ft)	870.246	Slope (ft/ft)	0.00028
Watershed No.	20-A	Chapter 93 Class.	WWF
Existing Use	**statewide**	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	default
Temperature (°C	25	WWF default
Hardness (mg/L)		
CBOD5	1.0	Default
Ammonia	0.1	default

Nearest Downstream Public Water Supply Intake	Pennsylvania American Water – New Castle District		
PWS Waters	Shenango River	Flow at Intake (cfs)	118.24
PWS RMI	5.02	Distance from Outfall (mi)	9.67

Changes Since Last Permit Issuance:
none

Other Comments:
Stream flow is minimum flow at Sharon less water intake plus accrued drainage times the yield.

Treatment Facility Summary

Treatment Facility Name: Edgewood Group Home

WQM Permit No.	Issuance Date
3704404	June 8, 2004

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Ultraviolet	0.0022

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0022	4.6	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments:

This NPDES permit and related WQM permit replaced NPDES permit PA0210897 and WQM Permit 3793405. This NPDES permit moved the discharge 175-feet upstream while the WQM permit included UV disinfection.

Planning approval
Approval Date: 28 July 2003 Planning Code: N6-02-294
Design Year 2004 Design year should be the ultimate need.
Design Population SFTF facilities

Approval Date: 16 October 2003 Planning Code: N6-03-174
Design Year 2004 Design year should be the ultimate need.
Design Population 20 Group home

Design is for 20 disabled or elderly people with 16 people expected to reside on site.

PRETREATMENT/EQUALIZATION

Both the Westfield Adult Housing and Edgewood Group Home wastes are collected at the pump station for equalization and conveyance to the sequencing batch reactor for treatment.

The duplex submersible grinder pump station/equalization tank is rated at 24 gpm (0.03456 MGD) with flow control valving. The pump station is included in the facility description as equalization.

TREATMENT

Treatment is a Wagner Fluid System continuous flow sequencing batch reactor with disinfection.
This is a proprietary single tank system with a bar screen and coarse bubble diffusers.
Air supply is 22 cfm at 4.5 psig
Discharge is to be pumped to disinfection and discharge. Specified pump rate is 183 gpm (0.26 MGD).

DISINFECTION

Disinfection is by ultraviolet light. Specified is two low pressure 40 w lamps at 32,000 µws at 254 nm.
Sunlight Model 200 with low pressure UV lamps operating at least at 32 to 40-mWs/cm^2 at λ254-nm. Specifications include an intensity meter.
Direct flow measurement with a meter is not provided. The SBR is decanted (pumped) to disinfection.

Chlorination is installed and chlorine monitored.

Compliance History

DMR Data for Outfall 001 (from December 1, 2017 to November 30, 2018)

Parameter	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18	MAY-18	APR-18	MAR-18	FEB-18	JAN-18	DEC-17
Flow (MGD) Ave Monthly	0.0013	0.00125	0.00119	0.00104	0.00116	0.00109	0.00115	0.00117	0.00109	0.00116	0.00183	0.00146
pH (S.U.) Minimum	7.0	7.1	7.6	6.9	6.8	7.3	7.4	7.1	7.4	7.3	6.9	6.9
pH (S.U.) Maximum	7.7	7.7	7.8	7.7	7.5	8.1	8.1	8.0	7.8	7.5	7.6	8.1
DO (mg/L) Minimum	6.98	6.10	5.27	5.03	5.51	5.64	5.84	7.26	7.25	7.14	6.87	6.0
TRC (mg/L) Ave Monthly	0.365	0.234	0.235	0.14	0.214	0.21	0.22	0.2	0.23	0.183	0.20	0.28
CBOD5 (mg/L) Average Monthly	21	21.9	14.7	**26.1**	13.6	14.6	22	**49**	**26**	18.3	21	24
TSS (mg/L) Ave Monthly	27.5	57	30	< 11.5	**30.75**	25.2	14.5	9.4	27.5	**54**	23	32
Fecal Coliform (#/100 ml) Geometric Mean	65	500	< 3	< 3	< 4	< 128	< 14	< 1	38	< 2	< 86	< 2
Total Nitrogen (mg/L) Average Monthly	19.15	11.6	10.4	20.95	19	13.6	15.05	15.6	22.9	17.1	8.0	< 17.9
Ammonia (mg/L) Average Monthly	**9.46**	5.06	3.44	12.9	7.7	4.99	4.765	4.2	5	5.61	**6.17**	**6.21**
Total Phosphorus (mg/L) Ave Monthly	4.43	4.2	4.97	7.24	6.8	6.58	6.135	4.5	5.54	5.37	1.89	5.09

DMR Data for Outfall 001 (from February 1, 2019 to January 31, 2020)

Parameter	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19
Flow (MGD) Ave Monthly	0.00129	0.0011	0.00118	0.00104	0.00109	0.00084	0.00134	0.001439	0.00147	0.000923	0.00114	0.00107
pH (S.U.) Minimum	6.8	7.1	7.2	7.1	7.3	7.6	6.9	6.8	6.9	6.8	7.3	6.7
pH (S.U.) Maximum	7.3	7.7	7.8	7.9	8.1	7.8	7.4	7.4	7.5	7.8	7.9	7.5
DO (mg/L) Minimum	7.12	7.19	6.88	6.04	5.59	5.09	5.44	6.0	6.21	6.35	7.94	7.04
TRC (mg/L) Ave Monthly	0.35	0.31	0.26	0.27	0.38	0.34	0.21	0.155	0.24	0.20	0.27	0.24
CBOD5 (mg/L) Average Monthly	5.54	< 11.35	13.13	10.2	< 5.11	< 21.1	**26**	**70.4**	12	19.7	16.25	10.36
TSS (mg/L) Ave Monthly	11.05	**42.3**	**38.5**	19	7	21.5	**60.5**	29.8	< 5.9	17.9	14.75	< 6
Fecal Coliform (#/100 ml) Geometric Mean	< 77	**< 8**	**28**	12	< 1	< 79	< 6	6	< 3	13	2	3
Total Nitrogen (mg/L) Average Monthly	15.1	14.30	18.5	15.61	8.456	10	15.15	< 38.35	10.83	14.1	18.1	22.4
Ammonia (mg/L) Average Monthly	0.66	2.18	**3.62**	**5.03**	2.985	**4.51**	**4.69**	**14.18**	**4.275**	**3.84**	**5.31**	2.95
Total Phosphorus (mg/L) Average Monthly	3.34	4.14	5.37	6.50	1.90	3.437	3.48	5.26	2.875	5.99	5.13	5.26

DMR Data for Outfall 001 (from April 1, 2021 to March 31, 2022)

Parameter	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21
Flow (MGD) Average Monthly	0.0041	0.004	0.004	0.0038	0.0012	0.0014	0.0018	0.00127	0.001263	0.00127	0.00119	0.0104
pH (S.U.) Minimum	7.5	7.1	6.9	7.1	6.8	7.4	6.7	7.4	6.7	7.3	7.1	7.6
pH (S.U.) Maximum	7.9	7.8	7.4	7.8	7.3	7.7	7.8	7.9	7.4	7.9	7.7	7.7
DO (mg/L) Minimum	6	7.4	8.6	6.6	9.1	5.16	6.8	4.17	5.38	5.42	6.2	5.83
TRC (mg/L) Average Monthly	0.206	0.45	0.18	0.3	0.33	0.25	0.32	0.18	0.24	0.36	0.25	0.24
CBOD5 (mg/L) Average Monthly	14.15	21.9	9.09	27	13.3	15.8	8.28	18.3	46	5.66	10.41	17.97
TSS (mg/L) Average Monthly	35	32	16.9	40	24.4	31.3	12.49	25.5	79.8	14.4	< 7.8	12.7
Fecal Coliform (CFU/100 ml) Geometric Mean	> 52	< 1	< 1	55	< 2	< 7	< 1	< 2	21	< 8	66	< 2
Total Nitrogen (mg/L) Average Monthly	27.6	18.2	413.4	19	433.8	< 43	25.5	< 39.3	41	15.16	11.41	18.66
Ammonia (mg/L) Average Monthly	3.9	2.98	4.1	5.96	23	34.0	13.81	8.93	19.62	9.0	1.98	3.06
Total Phosphorus (mg/L) Average Monthly	6.81	4.69	2.67	3.32	2.3	3.14	2.51	3.59	5.6	4.48	7.16	4.95

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2018 to: November 30, 2018

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	03/31/18	Avg Mo	26	mg/L	25	mg/L
CBOD5	08/31/18	Avg Mo	26.1	mg/L	25	mg/L
CBOD5	04/30/18	Avg Mo	49	mg/L	25	mg/L
TSS	07/31/18	Avg Mo	30.75	mg/L	30	mg/L
TSS	10/31/18	Avg Mo	57	mg/L	30	mg/L
TSS	02/28/18	Avg Mo	54	mg/L	30	mg/L
Ammonia	07/31/18	Avg Mo	7.7	mg/L	6.0	mg/L
Ammonia	08/31/18	Avg Mo	12.9	mg/L	6.0	mg/L

Effluent Violations for Outfall 001, from: March 1, 2019 To: January 31, 2020

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	**07/31/19**	**Avg Mo**	**26**	**mg/L**	**25**	**mg/L**
CBOD5	06/30/19	Avg Mo	70.4	mg/L	25	mg/L
TSS	**11/30/19**	**Avg Mo**	**38.5**	**mg/L**	**30**	**mg/L**
TSS	**12/31/19**	**Avg Mo**	**42.3**	**mg/L**	**30**	**mg/L**
TSS	**07/31/19**	**Avg Mo**	**60.5**	**mg/L**	**30**	**mg/L**
Ammonia	**06/30/19**	**Avg Mo**	**14.18**	**mg/L**	**6.0**	**mg/L**

Effluent Violations for Outfall 001, from: May 1, 2021 To: March 31, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	12/31/21	Avg Mo	27	mg/L	25	mg/L
CBOD5	07/31/21	Avg Mo	46	mg/L	25	mg/L
TSS	12/31/21	Avg Mo	40	mg/L	30	mg/L
TSS	07/31/21	Avg Mo	79.8	mg/L	30	mg/L
TSS	10/31/21	Avg Mo	31.3	mg/L	30	mg/L
TSS	02/28/22	Avg Mo	32	mg/L	30	mg/L
TSS	03/31/22	Avg Mo	35	mg/L	30	mg/L
Fecal Coliform	03/31/22	Geo Mean	> 52	CFU/100 ml	2000	CFU/100 ml
Ammonia	06/30/21	Avg Mo	9.0	mg/L	6.0	mg/L
Ammonia	07/31/21	Avg Mo	19.62	mg/L	6.0	mg/L
Ammonia	10/31/21	Avg Mo	34.0	mg/L	6.0	mg/L
Ammonia	09/30/21	Avg Mo	13.81	mg/L	6.0	mg/L
Ammonia	08/31/21	Avg Mo	8.93	mg/L	6.0	mg/L
Ammonia	11/30/21	Avg Mo	23	mg/L	18	mg/L

Summary of Inspections: March 9, 2017. Joseph McIlvenny, certified operator; Angela Hernsley, WQS. Recording and totalizing flow meter present

Other Comments:

NOV issued January 11, 2019 for effluent violations
0.394 dry tons sludge removed to the New Castle STP

	Influent			Effluent			
Month	year	mean MGD	mean PPD	min	mean	max	#
Annual Average		0.00220					
Hydraulic		0.00220					
Organic			4.6				
Annual average	2018	0.00121					
	2017	0.00123					
	2015	0.00123					
PH				7.0		7.3	8
TRC				0.06	0.375	0.84	8
Coliform				< 1	< 1	< 1	2
CBOD5				19.1	20.1	21	2
TSS				< 5	< 9.25	13.5	2
Ammonia				< 0.5	< 2.05	3.59	2
N				10.3	16.1	21.9	2
P				3.98	4.49	5,0	2

Incomplete tabulation that is not verified through self-monitoring reports

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0022
Latitude 41º 6' 18.00" **Longitude** -80º 25' 6.00"
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)
DO	4-mg/L	Daily minimum		

Comments:
A 4-mg/l daily minimum DO limit is recommended based on the self-monitoring reports.

Water Quality-Based Limitations

Previous modelling identified ammonia for water quality evaluation.
The following limitations were determined through water quality modeling (output files attached):

Parmenter		Drainage	pH	Limit (mg/l)			SBC	Model		
		Sq Mile	SU	Mg/L	Mg/L	Mg/L		Mg/L	Mg/L	Mg/L
ammonia	summer	0.4	7.04		6.0	12.0	NA		6.3	12.5
	winter		7.04		18.0	36.0				
DO				3.0				3.0		
ammonia	summer	0.4	7.04		6.0	12.0			6.04	12.08
	winter				18.0	36.0				
DO								4.0		
ammonia	summer	**0.35**	7.6		5.0	10.0			5.25	10.5
	winter				15.0	30.0				
DO				4.0				4.0		
ammonia	summer				5.0	10.0			5.31	10.62
	winter				15.0	30.0				
DO				4.0				4.0		

Comments:

Stream Stats has reduced the drainage area from 0.422 to 0.35-square miles. Current operation reports a higher effluent pH. Previous review used a 7.04-SU summer median pH. The current summer median pH is 7.6-SU. The higher effluent pH lowers the effluent ammonia limitations by 1.0-mg/L.

A three-year compliance schedule will be provided for Ammonia-Nitrogen. However, it is anticipated that the facility will be connected to public sewer by November 2023. JCD

Best Professional Judgment (BPJ) Limitations

Comments:
Based on the facility design flow phosphorus and nitrogen have been identified for potential regulation.

Anti-Backsliding

Nothing appropriate

1A	B	C	D	E	F	G	H	I	J	K	L	M
	Discharger		Human Services Center						Tuesday, March 3, 2020			
	Site		Edgewood Group Home					Revised	Thursday, May 19, 2022			
	Municipality		Pulaski Townhip									
	County		Lawrence									
	NPDES Permit		PA0239437									
2	**TRC EVALUATION**											
3	Input appropriate values in B4:B8 and E4:E7											
4	0.0090		**= Q stream (cfs)**			**0.5**	**= CV Daily**					
5	0.0022		**= Q discharge (MGD)**			**0.5**	**= CV Hourly**					
6	30		**= no. samples**			**1**	**= AFC_Partial Mix Factor**					
7	0.4		**= Chlorine Demand of Stream**			**1**	**= CFC_Partial Mix Factor**					
8	0		**= Chlorine Demand of Discharge**			**15**	**= AFC_Criteria Compliance Time (min)**					
9	**1.4**		**= BAT/BPJ Value**			**720**	**= CFC_Criteria Compliance Time (min)**					
	1		**= % Factor of Safety (FOS)**				**=Decay Coefficient (K)**					
10	Source		Reference	AFC Calculations				Reference	CFC Calculations			
11	TRC		**1.3.2.iii**	WLA afc = 1				**1.3.2.iii**	WLA cfc = 1.085			
12	PENTOXSD TRG		**5.1a**	LTAMULT afc = 0.373				**5.1c**	LTAMULT cfc = 0.581			
13	PENTOXSD TRG		**5.1b**	LTA_afc= 0				**5.1d**	LTA_cfc = 0.631			
14												
15	Source					Effluent Limit Calculations						
16	PENTOXSD TRG		5.1f			AML MULT = 1.231						
17	PENTOXSD TRG		5.1g			AVG MON LIMIT (mg/l) = 0.511			AFC			
18						INST MAX LIMIT (mg/l) = 1.670						

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)**

(0.011/EXP(-k*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-k*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

	Chlorine Required		=	intermittent	Chlorine Demand	+	Chlorine Residual
Stream	Reach/Node		2	1	2		
Stream	Flow	Conditions		perennial	unknown		
Stream	Code			35883	35883		
	Function			Outfall	unknown		
Samples				30	30		
reach	outfall		RMI	0.87	0.87		
	Reach End		RMI	0	0		
reach			feet	4593.6	4593.6		
drainage			sq miles	0.35	0.42		
TRC	limitation	average	mg/L	0.327	0.151		
		maximum	mg/L	1.070	1.670		
elevation		modelled	feet	870.246	870.246		
elevation		modelled	feet	803.72	803.72		
slope		modelled	foot/foot	0.014	0.014		
low flow			cfs/sq mi	0.021	0.021		
discharge			mgd	0.0022	0.0022		
Runoff	Period		hours	24.000	24.000		

Previously 1.4-mg/L technogy requirement was evaluated using discharge and stream chlorine demand. A 0.9-g/L water-quality based limitation was then determined. The current review does not use a discharge chlorine demand and evaluates the 0.5-mg/L effluent default TRC value.

stream	flow		cfs	0.00748	0.00898
stream	flow		MGD	0.004837	0.005804
stream	flow	total	MGD	0.007037	0.008004
stream	chlorine	demand	mg/L	0.3	0.4
dischaege	discharge	demand	mg/L		
stream	Total Stream/Waste		ratio	3.2	3.6

A 0.3-mg/L water-quality based limit should not be necessary in the dry stream reach.

permitted	TRC	mean	BAT	0.5	0.5
permitted	TRC	maximum	WQ	1.2	1.2

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	35883	Trib 35883 to Shenango 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)
0.880	Edgewood	PA0239437	0.002	CBOD5	25		
				NH3-N	6.04	12.08	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	35883	Trib 35883 to Shenango River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.880	0.002	23.578	7.011
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.064	0.246	8.379	0.024
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
8.54	0.539	1.79	0.922
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.533	23.492	Owens	5
Reach Travel Time (days)			
2.286			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.229	7.39	1.45	7.54
0.457	6.39	1.18	7.54
0.686	5.53	0.95	7.54
0.914	4.78	0.77	7.54
1.143	4.13	0.62	7.54
1.372	3.57	0.51	7.54
1.600	3.09	0.41	7.54
1.829	2.67	0.33	7.54
2.058	2.31	0.27	7.54
2.286	2.00	0.22	7.54

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	35883	Trib 35883 to Shenango 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
0.880	Edgewood	7.67	19.85	7.67	19.85	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
0.880	Edgewood	1.44	6.04	1.44	6.04	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)		
0.88	Edgewood	25	25	6.04	6.04	4	4	0	0

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
20A	35883	Trib 35883 to Shenango 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												
0.880	0.01	0.00	0.01	.0034	0.01432	.246	2.06	8.38	0.02	2.286	23.58	7.01
Q1-10 Flow												
0.880	0.01	0.00	0.01	.0034	0.01432	NA	NA	NA	0.02	2.701	23.08	7.01
Q30-10 Flow												
0.880	0.01	0.00	0.01	.0034	0.01432	NA	NA	NA	0.03	2.011	23.87	7.01

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
20A	35883	Trib 35883 to Shenango River	**0.000**	803.72	766.16	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	0.00	0.00	0.000	0.000	0.0	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
		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

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
20A	35883	Trib 35883 to Shenango River	**0.880**	870.25	0.40	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	0.00	0.00	0.000	0.000	0.0	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
Edgewood	PA0239437	0.0022	0.0022	0.0022	0.000	20.00	7.04

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	0.10	0.00	0.70

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 Three Years from Permit Effective 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	1/week	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	25.0	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
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	18.0	XXX	36	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	6.0	XXX	12	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab

Compliance Sampling Location: Outfall 001 after disinfection
Other Comments: Due to the facility design flow daily DO, chlorine, and pH monitoring is recommended.

Proposed Effluent Limitations and Monitoring Requirements (continued)

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: Three Years 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		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	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	25.0	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
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.0	XXX	10	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab

Compliance Sampling Location: Outfall 001 after disinfection
Other Comments: Due to the facility design flow daily DO, chlorine, and pH monitoring is recommended.