pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0094536**
Facility Type	**Non-Municipal**	APS ID	**1070991**
Major / Minor	**Minor**	Authorization ID	**1409798**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Allegiance Rehab Center Inc.**	Facility Name	**Allegiance Rehab Center Inc. STP**
Applicant Address	1427 Frankstown Road	Facility Address	1427 Frankstown Road
	Sidman, PA 15955-4611		Sidman, PA 15955-4611
Applicant Contact	Amanda Duffy	Facility Contact	Charlie Hogue
Applicant Phone	(814) 487-8001	Facility Phone	814-487-8001
Client ID	360224	Site ID	329974
Ch 94 Load Status	Not Overloaded	Municipality	Croyle Township
Connection Status	No Limitations	County	Cambria
Date Application Received	July 21, 2022	EPA Waived?	Yes
Date Application Accepted	October 21, 2022	If No, Reason	
Purpose of Application	NPDES permit renewal and transfer.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES renewal and transfer application from The EADS Group, Inc. on behalf of Allegiance Rehab Center Inc. (new permittee) on July 21, 2022 for permittee's Allegiance Rehab Center Inc. STP (facility). The facility is in Croyle Township, Cambria County and the treated effluent is discharged into state watershed 18-E. The current permit is expired on October 31, 2022. The terms and conditions of the current permit is administratively extended since the renewal application was not received at least 180 days prior to the expiration date. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG per 021-2100-001.

This fact sheet is developed in accordance with 40 CFR §124.56.

Changes in this renewal: E. Coli monitoring added, NH3-N summer limit and TRC limits are more stringent, and numeric flow limit is replaced with monitoring requirement.

Sludge use and disposal description and location(s): Biosolids are hauled-off to FHMA WWTP for further treatment and disposal.

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
√		Reza H. Chowdhury, E.I.T. / Project Manager	October 31, 2022
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	11/01/2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.019
Latitude	40º 21' 44"	Longitude	-78º 44' 20"
Quad Name	Beaverdale	Quad Code	1616
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of South Fork Little Conemaugh River (CWF)	Stream Code	45873 (POFU: 45866)
NHD Com ID	123713377	RMI	0.31 (2.99 at POFU)
Drainage Area	0.05 mi^2(0.52 mi^2) at POFU	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.052 cfs at POFU	Q_{7-10} Basis	Please see below
Elevation (ft)	1833.96 (1745.41 at POFU)	Slope (ft/ft)	
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use	**CWF**	Existing Use Qualifier	Ch. 93
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°C)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Saltsburg Municipal Authority, Saltsburg Boro, Indiana County		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	
PWS RMI	0.55	Distance from Outfall (mi)	68.44

Streamflow:

There is no nearby WQN Station or Streamgage from the discharge point. Therefore, USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on October 25, 2022) was utilized to determine the drainage area and low flow statistics of the receiving stream at discharge point. The StreamStats delineation report shows a drainage area at the Outfall 001 to be 0.05 mi^2, and 0.52 mi^2 at POFU. Since the drainage areas are outside of the suggested range, extrapolated estimates based on the drainage area might be resulted from unknown errors. Therefore, a default yield of 0.1 cfs/mi^2, default Q_{30-10}:Q_{7-10} and Q_{1-10}:Q_{7-10} Q_{7-10} of 1.36 and 0.64 will be used, if needed.

Q_{7-10}= 0.52*0.1 or 0.052 cfs at POFU

PWS Intake:

The nearby downstream PWS intake is Saltsburg Municipal Authority in Saltsburg Borough, Indiana County, which is approximately 68.44 miles downstream of discharge point. Due to the distance, dilution, and effluent limitations, it is expected that the discharge will not adversely impact the PWS intake. The distance is calculated as following:

RMI at Outfall 001 on UNT 45873 of South Fork Little Conemaugh River ---------- +0.31 mile
RMI at confluence of UNT 45873 and UNT 45866 S. Fork Little Conemaugh River ---------- +1.74 mile
RMI at confluence of UNT 45866 with S. Fork Little Conemaugh 45848 ---------- +2.72 mile

RMI at confluence of 45848 with Little Conemaugh River 45815 ---------- +11.86 mile
RMI at confluence of 45815 with Conemaugh River 43832 ---------- +52.36 mile
RMI at PWS intake on Conemaugh River ---------- -0.55 mile

Total: 64.88 mile

Wastewater Characteristics:
A pH of 7.18 (median July- September 2021-2022), default temperature of 20^{0}C (Default per 391-2000-007), and default Hardness value of 100 mg/l will be used for modeling, if needed.

Background data:
There is no nearby WQN station from the discharge point. In absence of site-specific data, a default pH of 7.0 S.U., default stream temperature of 20°C, and default hardness of 100 mg/l will be used, as appropriate.

Kiskiminetas-Conemaugh River Watersheds TMDL:
Per previous fact sheet "There is a TMDL for metals in the Kiskiminetas River watershed. This facility is considered a "Negligible Discharge Facility" as identified in Appendix C of the Kiskiminetas-Conemaugh River Watershed TMDL. There is no reason to believe the STP will be discharging these metals in high concentrations. The discharge of metals from a sewage treatment plant of this nature is expected to be less than water quality criteria and not contributing to stream impairment. DEP Guidance does, however, require monitoring of these pollutants at a minimum frequency of 1/year. This monitoring will be incorporated into this renewal." The monitoring requirements will be carried over.

Biosolids management: Biosolids are hauled-off to FHMA WWTP for further treatment and disposal.

Treatment Facility Summary

Treatment Facility Name: Allegiance Rehab Center Inc.

WQM Permit No.	Issuance Date
9324-S T	10/15/2019

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Trickling Filter With Settling	Hypochlorite	0.019

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.019		Not Overloaded		Combination of methods

Changes Since Last Permit Issuance: None, this renewal will be issued to new owner.

Treatment Plant Description

The STP served former Forest Hill Middle School which had approximately 500 students and staff until December 2016 when the middle school was moved tot eh Forest Hill High School Building. The building remained vacant until it was sold to Quality Life Service, Inc. on 2019. The facility is again sold to Allegiance Rehab Center Inc. to who this renewal will be issued to. It's a minor STP with a design flow of 19,000 GPD. Per the 2018 inspection report, the facility consists of the following treatment units:
1. One comminutor
2. One primary Clarifier
3. Two trickling filters
4. One secondary settling tank
5. One erosion chlorinator
6. one chlorine contact tank, and
7. one erosion dechlorinator

Existing Limits

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)	0.019	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily 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	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	14.0	XXX	28.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	7.0	XXX	14.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Manganese, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance History

DMR Data for Outfall 001 (from September 1, 2021 to August 31, 2022)

Parameter	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21
Flow (MGD) Average Monthly	0.0071	0.0076	0.008	0.008	0.008	0.007	0.006	0.006	0.00526	0.0035	0.004	0.006
pH (S.U.) Instantaneous Minimum	6.41	6.18	6.00	6.02	6.1	6.15	6.51	6.23	6.87	6.87	7.05	6.67
pH (S.U.) IMAX	7.13	7.53	6.97	7.15	7.39	7.28	7.99	7.63	7.47	7.73	7.63	7.82
DO (mg/L) Daily Minimum	6.77	5.09	5.67	5.28	8.46	5.83	8.89	8.0	9.35	9.32	6.43	7.09
TRC (mg/L) Average Monthly	0.01	0.07	0.12	0.09	0.21	0.48	0.28	0.42	0.48	0.50	0.23	0.15
TRC (mg/L) IMAX	1.14	0.43	0.53	0.71	0.75	1.49	1.48	1.5	1.37	1.37	1.2	0.50
CBOD5 (mg/L) Average Monthly	3.0	6.07	3.73	4.06	4.32	13.9	14.7	33.4	6.91	3.0	6.12	3.0
CBOD5 (mg/L) IMAX	3.0	8.07	4.46	5.12	8.6	14.2	17.7	38.9	7.61	3.0	9.24	4.69
TSS (mg/L) Average Monthly	1.6	2.4	15.2	9.8	7.8	14.1	23.8	60.0	7.6	6.2	22.7	14.2
TSS (mg/L) IMAX	1.6	3.2	21.6	10.8	10.8	15.2	25.5	80.0	7.6	8.0	35.3	14.4
Fecal Coliform (No./100 ml) Geometric Mean	4	24	65	158	4	< 45	98	984	4677	14	20	473
Fecal Coliform (No./100 ml) IMAX	20	40	4284	1248	8.6	< 100	9678.4	48392	18416	20	20	22398
Total Nitrogen (mg/L) Daily Maximum									2.160			
Ammonia (mg/L) Average Monthly	0.1	0.1	0.17	0.20	0.1	0.481	2.875	7.665	0.668	0.497	0.1	0.1
Ammonia (mg/L) IMAX	0.1	0.1	0.23	0.20	0.1	0.524	3.605	11.9	1.235	0.625	0.1	0.1
Total Phosphorus (mg/L) Daily Maximum									3.2			
Total Aluminum (mg/L) Daily Maximum									< 0.1			
Total Iron (mg/L) Daily Maximum									0.964			
Total Manganese (mg/L) Daily Maximum									0.0279			

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2021 To: August 31, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	01/31/22	Avg Mo	33.4	mg/L	25.0	mg/L
TSS	01/31/22	Avg Mo	60.0	mg/L	30.0	mg/L
TSS	01/31/22	IMAX	80.0	mg/L	60.0	mg/L
Fecal Coliform	12/31/21	Geo Mean	4677	No./100 ml	2000	No./100 ml
Fecal Coliform	06/30/22	IMAX	4284	No./100 ml	1000	No./100 ml
Fecal Coliform	05/31/22	IMAX	1248	No./100 ml	1000	No./100 ml
Fecal Coliform	12/31/21	IMAX	18416	No./100 ml	10000	No./100 ml
Fecal Coliform	01/31/22	IMAX	48392	No./100 ml	10000	No./100 ml

Other Comments: The submitted Non-Compliance Reporting form for January 2022 indicated that the rotating assemblies on trickling filter froze for a period of 2 weeks and was not operable which caused the non-compliances. The permittee was unsure about December 2021 fecal non-compliance. Chlorine puck stuck in the chlorine tube causing May 2022 non-compliance. Chlorine tablets were put in wrong tube causing June 2022 non-compliance.

Summary of Inspections:
June 25, 2019: RTPT conducted. No violation noted during the inspection. Recommended not to allow mowed grass enter the STP and to use environmentally friendly cleaners and chemicals.

June 20, 2018: CEI conducted. No violation noted during the inspection. Recommended not to allow mowed grass enter the STP.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.019
Latitude 40º 21' 44.00" **Longitude** -78º 44' 20.00"
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

WQM 7.0:

WQM 7.0 is a water quality model designed to assist DEP to determine appropriate permit requirements for $CBOD_5$, NH_3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. DEP recently updated this model (ver. 1.1) to include new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. The model was utilized for this permit renewal by using updated Q_{7-10} and historic background water quality levels of the receiving stream. The following data were used in the attached computer model of the stream:

- Discharge pH 7.18 (median Jul-Sep, 2021-2022, eDMR data)
- Discharge Temperature 20°C (Default per 391-2000-007)
- Discharge Hardness 100 mg/l (Default data)
- Stream pH 7.0 (Default per 391-2000-013)
- Stream Temperature 20°C (Default per 391-2000-013, CWF)
- Stream Hardness 100 mg/l (Default)

The following nodes were considered in modeling:

Node 1: At POFU (Confluence of UNT 45873 with 45866, both UNTs to S. Fork Little Conemaugh River)
Elevation: 1745.41 ft (USGS National Map viewer, 10/25/2022)
Drainage Area: 0.52 mi^2 (StreamStat Version 3.0, 10/25/2022)
River Mile Index: 2.99 (PA DEP eMapPA)
Low Flow Yield: 0.1 cfs/mi^2
Discharge Flow: 0.019 MGD

Node 2: At confluence with UNT 45868 (UNT of S. Fork Little Conemaugh River)
Elevation: 1637.42 ft (USGS National Map viewer, 10/25/2022)
Drainage Area: 1.97 mi^2 (StreamStat Version 3.0, 10/25/2022)
River Mile Index: 1.74 (PA DEP eMapPA)
Low Flow Yield: 0.1 cfs/mi^2
Discharge Flow: 0.0 MGD

Pre-Draft survey:
Based on the Reasonable Potential (RP) analysis, a new pollutant was identified with new WQBELs. Per PADEP's SOP titled "*Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers (SOP No. BCW-PMT-037, revised May 20, 2021)*", the permittee were provided a pre-draft survey on May 12, 2022. The response was received on May 16, 2022.

NH_3-N:
WQM 7.0 suggested NH_3-N limit of 6.36 mg/l as monthly average and 12.72 mg/l as IMAX limit during summer to protect water quality standards. The winter season limits are calculated by multiplying the summer limits with a factor of 3 (per 391-2000-013) that resulted in average monthly limit of 19.08 mg/l, and IMAX limit of 38.16 mg/l. However, the existing permit used a factor of 2 to calculate the winter limits. The current permit has winter limit of 14.0 mg/l as average monthly and 28.0 mg/l as IMAX which are more stringent than current model output values and will be carried over. A review of past 12 months DMR data indicated that the facility will be meeting new summer limits at 100% of the time, therefore, no schedule is needed. Non-POTW facilities are not subjected to mass limits.

$CBOD_5$:
The WQM 7.0 model suggests a monthly average $CBOD_5$ limit of 25 mg/l which is equal to current limit and will be carried over. The IMAX limit of 50.0 mg/l will also be carried over.

Dissolved Oxygen (DO):
The existing permit has a minimum DO of 5.0 mg/l which is consistent with Ch. 93.7 for CWF and will be carried over.

Toxics:
Based on the available data, PADEP utilizes Toxics Management Spreadsheet (TMS) to (1) evaluate reasonable potential for toxic pollutants to cause or contribute to an excursion above the water quality standards and (2) develop WQBELs for those such toxic pollutants (i.e., 40 CFR § 122.44(d)(1)(i)). It is noteworthy that some of these pollutants that may be reported as "non-detect", but still exceeded the criteria, were determined to be candidates for modeling because the method detection levels used to analyze those pollutants were higher than target QLs and/or the most stringent Chapter 93 criteria. The model then recommended the appropriate action for the Pollutants of Concerns based on the following logic:

1. In general, establish limits in the draft permit where the effluent concentration determined in B.1 or B.2 equals or exceeds 50% of the WQBEL (i.e., RP is demonstrated). Use the average monthly, maximum daily and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).

2. For non-conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 25% - 50% of the WQBEL.

3. For conservative pollutants, in general, establish monitoring requirements where the effluent concentration determined in B.1 or B.2 is between 10% - 50% of the WQBEL.

***NOTE 4** – If the effluent concentration determined in B.1 or B.2 is "non-detect" at or below the target quantitation limit (TQL) for the pollutant as specified in the TMS and permit application, the pollutant may be eliminated as a candidate for WQBELs or monitoring requirements unless 1) a more sensitive analytical method is available for the pollutant under 40 CFR Part 136 where the quantitation limit for the method is less than the applicable water quality criterion and 2) a detection at the more sensitive method may lead to a determination that an effluent limitation is necessary, considering available dilution at design conditions.*

***NOTE 5** – If the effluent concentration determined in B.1 or B.2 is a detection below the TQL but above or equal to the applicable water quality criterion, WQBELs or monitoring may be established for the pollutant.*

4. Application managers may, on a site- and pollutant-specific basis, deviate from these guidelines where there is specific rationale that is documented in the fact sheet.

The facility was required to monitor Total Aluminum, Total Iron, and Total Manganese as part of the TMDL. Model output is provided below:

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Iron	Report	Report	Report	Report	Report	µg/L	4,154	CFC	Discharge Conc > 10% WQBEL (no RP)

Total Aluminum:
TMS didn't identify Total Aluminum as Chemical of Concern (CoC), however, per BCW-PMT-037 (revised March 22, 2021), TMDL parameters are to be monitored at least annually if no WQBEL is established. Existing monitoring requirement will be carried over.

Total Iron:
TMS recommended monitoring for Total Iron, which is an existing requirement and will be carried over.

Total Manganese:
TMS didn't recommend monitoring or limits requirement for Total Manganese. However, similar to Total Aluminum, existing monitoring will be carried over.

Additional Considerations

Fecal Coliform:
The 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. These are the existing limits and will be carried over.

E. Coli:
Pa Code 25 §92a.61 requires E. Coli monitoring. DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends annual E. Coli monitoring for all dischargers with flow between ≥0.002 MGD to <0.05 MGD. This requirement will be applied from this permit term.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 § 95.2(1)) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b).

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.268 mg/l would be needed to prevent toxicity concerns at the discharge point for Outfall 001. The proposed Instantaneous Maximum (IMAX) limit is 0.875 mg/l. Current permit has average monthly and IMAX limits of 0.5 mg/l and 1.6 mg/l, respectively. The proposed limits are more stringent. A review of the last 12 months DMR data indicated that the facility can't meet the more stringent limit at least 90% of the time, therefore, a compliance schedule will be provided for first 12 months. The compliance schedule is shorter since the facility already have a dechlorination system installed. The more stringent limits will be effective from 2nd year of the permit term. The values were rounded down to 0.26 mg/l and 0.87 mg/l, respectively, per PADEP's technical guidance 362-0400-001, chapter 5.C.2.

Flow Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). The existing numeric limit on total flow will be replaced by average monthly and daily maximum reporting requirement.

Best Professional Judgement (BPJ):

Total Nitrogen:

PADEP's SOP BCW-PMT-033 suggests monitoring requirement, at a minimum, for facilities with design flow greater than 2,000 GPD. This requirement is applied for all facilities meeting the flow criteria. This is an existing requirement and will be carried over.

Total Phosphorus:

PADEP's SOP BCW-PMT-033 suggests monitoring requirement, at a minimum, for facilities with design flow greater than 2,000 GPD. This requirement is applied for all facilities meeting the flow criteria. This is an existing requirement and will be carried over.

Monitoring Frequency and Sample Types:

Otherwise specified above, the monitoring frequency and sample type of compliance monitoring for existing parameters are recommended by DEP's SOP and Permit Writers Manual and/or on a case-by-case basis using best professional judgment (BPJ).

Anti-Backsliding

The proposed limits are at least as stringent as are in existing permit, unless otherwise stated; therefore, anti-backsliding is not applicable.

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	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	5.0 Daily Min	XXX	XXX	XXX	Daily when Discharging	Grab
TRC (interim)	XXX	XXX	XXX	0.5	XXX	1.6	Daily when Discharging	Grab
TRC (final)	XXX	XXX	XXX	0.26	XXX	0.87	Daily when Discharging	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	14.0	XXX	28.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	6.36	XXX	12.72	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

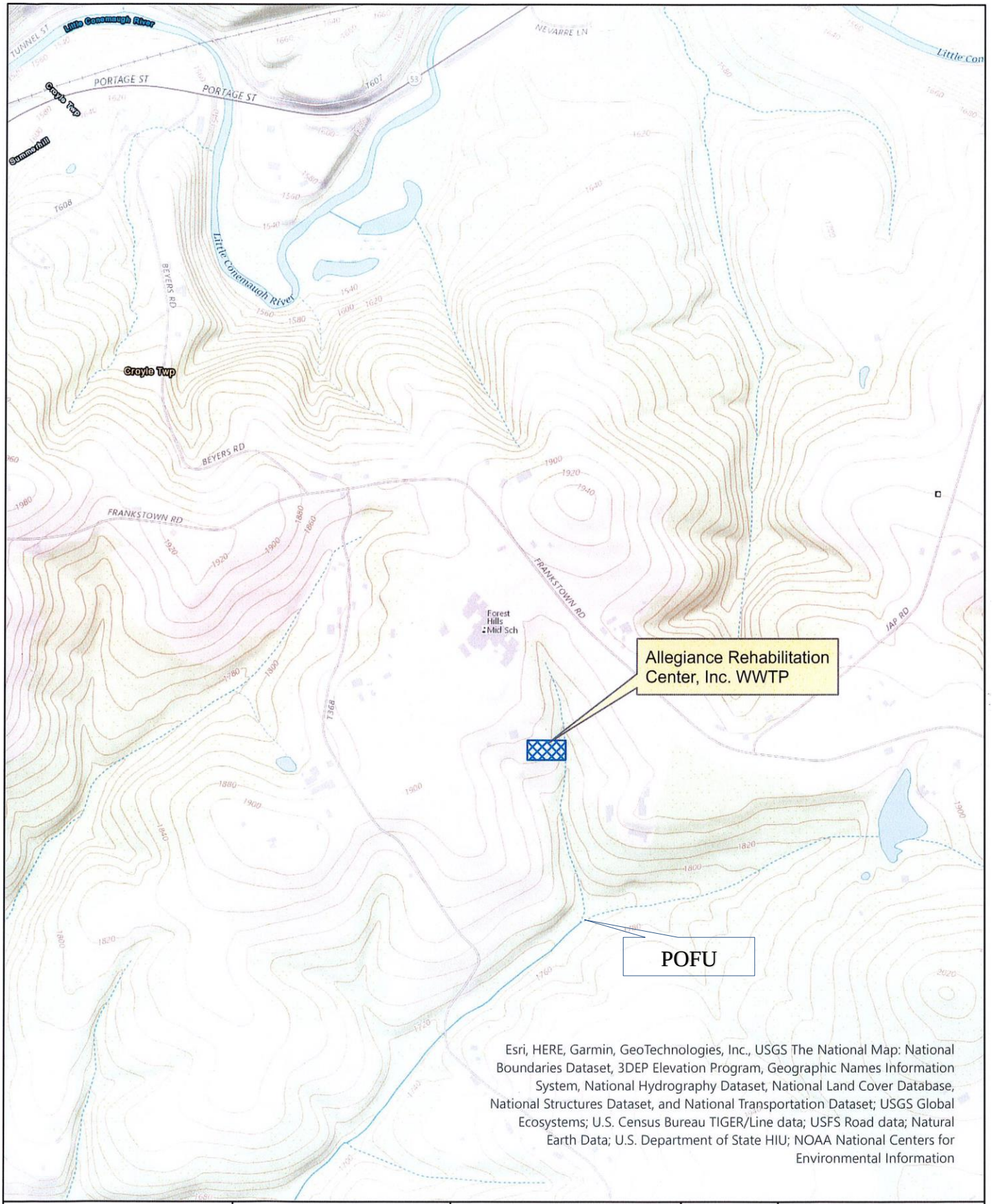
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: At Outfall 001

Other Comments: None

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Permit No. PA0094536



THE EADS GROUP
ENGINEERING, ARCHITECTURE, and DESIGN SERVICES

ALLEGIANCE REHABILITATION CENTER, INC.
LOCATION MAP
NPDES RENEWAL
PA 0094536

Legend
Allegiance Rehabilitation Center, Inc. WWTP
Municipal Boundary

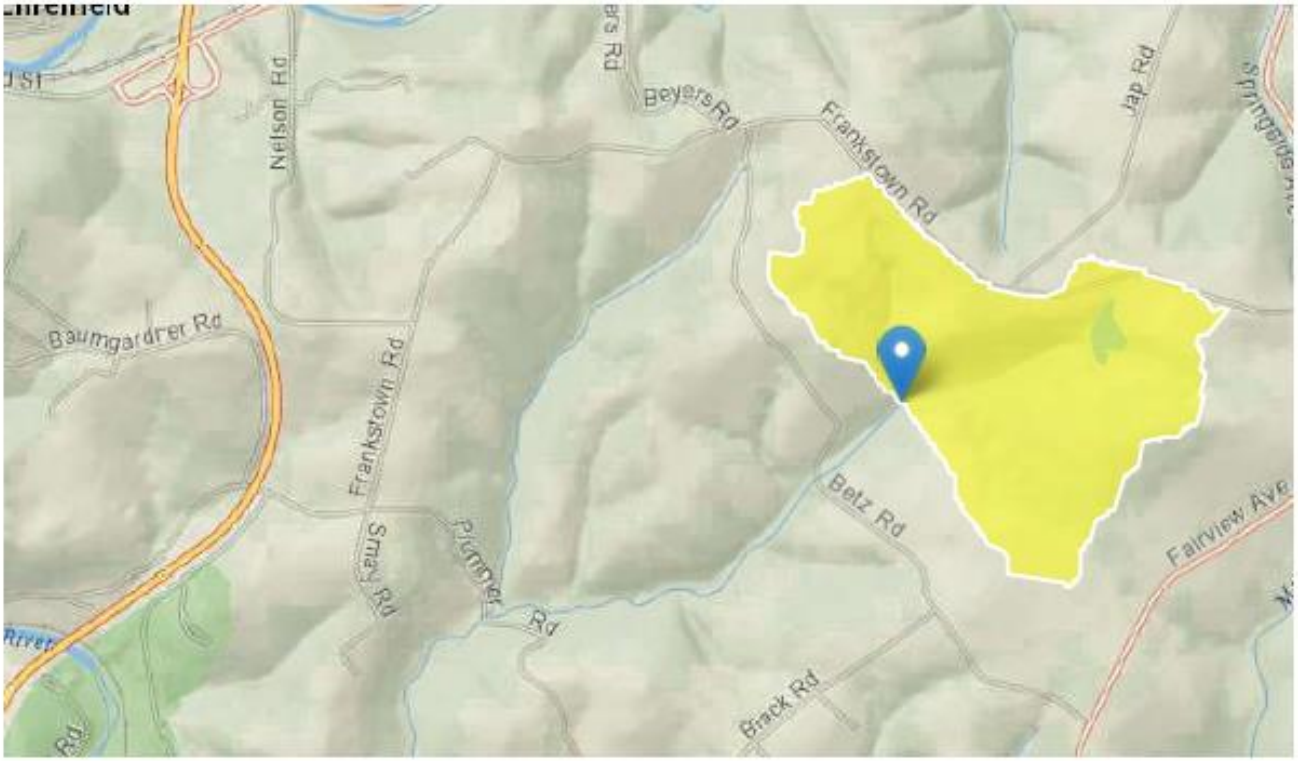
N
W E
S

DRAWN BY: SMM
CHECKED BY: BJB
LOCATION: SIDMAN, PA
SCALE: 1in = 1,000ft

Permit No. PA0094536

PA0094536 at POFU

Region ID: PA
Workspace ID: PA20221026004402287000
Clicked Point (Latitude, Longitude): 40.35775, -78.73809
Time: 2022-10-25 20:44:22 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.52	square miles
ELEV	Mean Basin Elevation	1882	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Permit No. PA0094536

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.52	square miles	2.33	1720
ELEV	Mean Basin Elevation	1882	feet	898	2700
PRECIP	Mean Annual Precipitation	45	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	0.0662	ft^3/s
30 Day 2 Year Low Flow	0.0992	ft^3/s
7 Day 10 Year Low Flow	0.0268	ft^3/s
30 Day 10 Year Low Flow	0.038	ft^3/s
90 Day 10 Year Low Flow	0.057	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/)

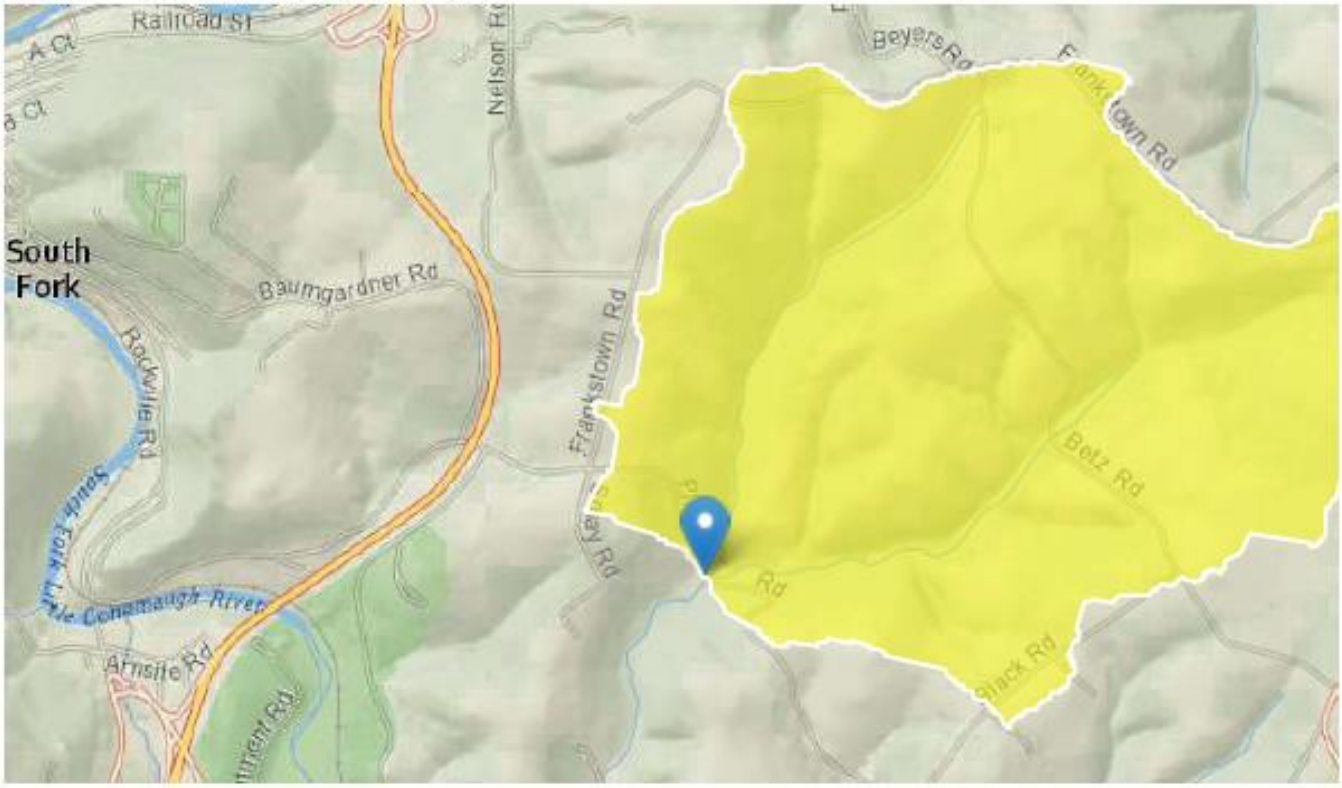
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the

Permit No. PA0094536

PA0094536 at Node 2

Region ID: PA
Workspace ID: PA20221026004656080000
Clicked Point (Latitude, Longitude): 40.35032, -78.75738
Time: 2022-10-25 20:47:15 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.97	square miles
ELEV	Mean Basin Elevation	1831	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Permit No. PA0094536

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.97	square miles	2.33	1720
ELEV	Mean Basin Elevation	1831	feet	898	2700
PRECIP	Mean Annual Precipitation	45	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	0.253	ft^3/s
30 Day 2 Year Low Flow	0.371	ft^3/s
7 Day 10 Year Low Flow	0.11	ft^3/s
30 Day 10 Year Low Flow	0.152	ft^3/s
90 Day 10 Year Low Flow	0.225	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/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the

Permit No. PA0094536

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Allegiance Rehab Center Inc | NPDES Permit No.: PA0094536 | Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste | Wastewater Description: Treated effluent

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.019	100	7.18						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.6 if left blank: Daily CV	0.6 if left blank: Hourly CV	0 if left blank: Strea m CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteri a Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	100									
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L		964									
	Total Lead	µg/L											
	Total Manganese	µg/L		27.9									
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Permit No. PA0094536

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

Permit No. PA0094536

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Permit No. PA0094536

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Allegiance Rehab Center Inc, NPDES Permit No. PA0094536, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT to S. Ford Little Conemaugh River** No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	045866	2.99	1745.41	0.52			Yes
End of Reach 1	045866	1.74	1637.42	1.97			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.99	0.1										100	7		
End of Reach 1	1.74	0.1													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.99														
End of Reach 1	1.74														

Permit No. PA0094536

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Allegiance Rehab Center Inc, NPDES Permit No. PA0094536, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 0.292 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.06

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	2,077	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ *CFC* CCT (min): 0.292 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.06

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,154	WQC = 30 day average; PMF = 1
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ *THH* CCT (min): 0.292 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,769	

☑ *CRL* CCT (min): 0.175 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	

Permit No. PA0094536

Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Iron	Report	Report	Report	Report	Report	µg/L	4,154	CFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Aluminum	1,331	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,769	µg/L	Discharge Conc ≤ 10% WQBEL

Permit No. PA0094536

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.052	= Q stream (cfs)	0.5	= CV Daily
0.019	= 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 = 0.583	1.3.2.iii	WLA cfc = 0.561
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.217	5.1d	LTA_cfc = 0.326

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.268	AFC
		INST MAX LIMIT (mg/l) = 0.875	

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)

Permit No. PA0094536

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	45866	Trib 45866 to S Fk Little Conemaugh	2.990	1745.41	0.52	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	0.100	0.00	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
Allegiance STP	PA0094536	0.0190	0.0190	0.0190	0.000	20.00	7.18

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	5.00	8.24	0.00	0.00
NH3-N	7.00	0.00	0.00	0.70

Permit No. PA0094536

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	45866	Trib 45866 to S Fk Little Conemaugh	1.740	1637.42	1.97	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	0.100	0.00	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
		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

Permit No. PA0094536

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45866	Trib 45866 to S Fk Little Conemaugh

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												
2.990	0.05	0.00	0.05	.0294	0.01636	.34	3.64	10.7	0.07	1.163	20.00	7.06
Q1-10 Flow												
2.990	0.03	0.00	0.03	.0294	0.01636	NA	NA	NA	0.06	1.346	20.00	7.08
Q30-10 Flow												
2.990	0.07	0.00	0.07	.0294	0.01636	NA	NA	NA	0.07	1.035	20.00	7.05

Permit No. PA0094536

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		

Permit No. PA0094536

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45866	Trib 45866 to S Fk Little Conemaugh

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
2.990	Allegiance STP	9.16	14	9.16	14	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
2.990	Allegiance STP	1.87	6.36	1.87	6.36	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)		
2.99	Allegiance STP	25	25	6.36	6.36	5	5	0	0

Permit No. PA0094536

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45866	Trib 45866 to S Fk Little Conemaugh

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.990	0.019	20.000	7.057
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.641	0.340	10.701	0.066
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.31	1.104	2.30	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.072	25.727	Owens	6
Reach Travel Time (days)			
1.163			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.116	9.06	2.12	8.22
0.233	7.97	1.95	8.24
0.349	7.01	1.80	8.24
0.465	6.17	1.66	8.24
0.581	5.43	1.53	8.24
0.698	4.77	1.41	8.24
0.814	4.20	1.30	8.24
0.930	3.69	1.20	8.24
1.046	3.25	1.10	8.24
1.163	2.86	1.02	8.24

Permit No. PA0094536

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45866	Trib 45866 to S Fk Little Conemaugh

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)
2.990	Allegiance STP	PA0094536	0.019	CBOD5	25		
				NH3-N	6.36	12.72	
				Dissolved Oxygen			5