pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0042587**
Facility Type	**Non-Municipal**	APS ID	**1115406**
Major / Minor	**Minor**	Authorization ID	**1488136**

Commented [IM1]: I believe this is a renewal only. When we renew the NPDES permit, the previous amendment notation goes away.

Applicant and Facility Information

Applicant Name	**Cp Portfolio I LP**	Facility Name	**Angel MHP STP**
Applicant Address	75 Penn Adamsburg Road	Facility Address	60 Carl Avenue
	Jeannette, PA 15644-2900		Eighty Four, PA 15330-2848
Applicant Contact	Kelly Thomas	Facility Contact	Thomas Bibby
Applicant Phone	(724) 209-4442	Facility Phone	(724) 366-5184
Client ID	381848	Site ID	248156
Ch 94 Load Status	Not Overloaded	Municipality	North Strabane Township
Connection Status	No Limitations	County	Washington
Date Application Received	March 26, 2024	EPA Waived?	Yes
Date Application Accepted	June 11, 2024	If No, Reason	

Purpose of Application: NPDES Permit Renewal for Discharge of Treated Sewage Effluent.

Summary of Review

DEP received an application for a renewal NPDES Permit No. PA0042587, which was previously issued on April 1, 2019. The permit expired on May 31, 2024, application was received on March 26, 2024 which was considered late. The facility is an extended aeration sewage treatment plant servicing a mobile home park.

The design discharge flow rate is 0.025 MGD, and the discharge is to an unnamed tributary of Chartiers Creek, which is classified as high quality-warm water fisheries (HQ-WWF) and located in the State Watershed 20-F.

The WQM permit No. 6377404 authorized the construction of this facility which consists of: comminutor and bar screen, equalization tank, aeration tank, clarifier, sludge digester, sand filters, chlorine contact tank and dechlorination.

The WQM permit 6377404 T-3 was transferred on October 30, 2024.

An Operations Compliance Check Summary Report was completed by DEP's Operations Section on August 16, 2024 and concluded that facility is in general compliance with one open violation for failure to pay the Annual Operator Certification Program Fee. Both violations were resolved by the WMS client ID report on October 24, 2024 (See Attachment A) . Checking on last time this facility was inspected, the inspection report on August 12, 2024 stated that no violations were noticed during this inspection.

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

No industrial users are discharging to this facility per the application.

Approve	Deny	Signatures	Date
X		Hazim Aldalli / Environmental Engineering Specialist	December 26, 2024
X		Mahbuba Iasmin / Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	January 10, 2025

Summary of Review

The applicant provides a proof of Act 14, P.L. 834 compliance with the March 1, 2024 letters, no comments were received.

The applicant is currently enrolled in and will continue to use eDMR.

Sludge use and disposal description and location(s): Sludge/ biosolids produced for 2023 was 1.1 dry tons and was hauled by a private contractor to be disposed in Clairton STP . Also, this plant (per application) is not receiving additional sludge from other sources.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.025
Latitude	40º 12' 49"	Longitude	-80º 8' 0.0"
Quad Name	Washington East	Quad Code	40080B2
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Unnamed Tributary of Chartiers Creek (HQ-WWF)	Stream Code	36977
NHD Com ID	99694064	RMI	0.27
Drainage Area	0.14	Yield (cfs/mi^2)	0.005
Q_{7-10} Flow (cfs)	0.000695	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1108	Slope (ft/ft)	0.04
Watershed No.	20-F	Chapter 93 Class.	HQ-WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Attaining Use: Aquatic life; Impaired: Recreational		
Cause(s) of Impairment			
Source(s) of Impairment	Pathogens; Unknown		
TMDL Status	Final	Name	Chartiers Creek, Chartiers Creek Watershed TMDL for PCBs and Chlordane

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

Nearest Downstream Public Water Supply Intake	WEST VIEW WATER AUTHORITY		
PWS Waters	Ohio River	Flow at Intake (cfs)	5880
PWS RMI	35.35	Distance from Outfall (mi)	>20.0

Changes Since Last Permit Issuance:

- The receiving stream was evaluated as a dry/intermittent stream per the previous pollution report with zero (0.0 cfs) flow calculated, the report also stated that a $CBOD_5$ of 10 mg/L and TSS of 10 mg/L were assigned to this discharge to avoid public health nuisance.
- Q_{7-10} flow, elevation, drainage area, and low flow yield were all updated to match USGS Stream Stats new data (see Attachment B).
- DEP updated its WQM 7.0 criteria for Ammonia-Nitrogen (NH_3-N) in 2019. Limits and conditions of this permit need to be redeveloped to an adequate level to protect water quality.
- *E. Coli* monitoring requirements will be introduced to this renewal which is in compliance with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Treatment Facility Summary

Treatment Facility Name: Angel MHP STP

WQM Permit No.	Issuance Date
6377404 T-3	10/30/2024
6377404 T-2	3/17/2021
6377404 T-1	Unknown
6394401	3/21/1994

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorine With Dechlorination	0.009

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.025	6.6	Not Overloaded	Holding Tank	Hauled & Disposed

Changes Since Last Permit Issuance: The NPDES and the WQM permits were transferred on March 17, 2021 from the MLM Enterprises to the existing permittee.

Other Comments: None.

Compliance History

Operations Compliance Check Summary Report

Facility: Angel MHP LLC
NPDES Permit No.: PA0042587
Compliance Review Period: 8/1/19-8/15/24

Inspection Summary:

INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	INSPECTION COMMENT
08/12/2024	Routine/Partial Inspection	No Violations Noted	
06/07/2024	Complaint Inspection	No Violations Noted	
06/06/2024	Administrative/File Review	Violation(s) Noted	
12/28/2023	Administrative/File Review	Violation(s) Noted	
01/03/2023	Administrative/File Review	Violation(s) Noted	
08/25/2022	Administrative/File Review	No Violations Noted	Administrative file review of eDMRs 2020 - July 2022
08/25/2022	Compliance Evaluation	Violation(s) Noted	
06/02/2021	Administrative/File Review	Violation(s) Noted	
10/21/2019	Routine/Partial Inspection	Violation(s) Noted	

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
06/06/2024	92A.62	NPDES - Failure to pay annual fee	08/13/2024
12/28/2023	302.202	Operator Certification - Failure to submit annual system fee	
01/03/2023	302.202	Operator Certification - Failure to submit annual system fee	02/01/2023
06/02/2021	92A.62	NPDES - Failure to pay annual fee	06/02/2021
10/21/2019	92A.61(C)	NPDES - Failure to monitor pollutants as required by the NPDES permit	10/21/2019

Open Violations by Client ID:
One open violation exists for Client ID 354500 (See item highlighted in table above).

Enforcement Summary:

ENF ID	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
430138	Notice of Violation	06/06/2024	92A.62	Comply/Closed	08/13/2024
424727	Notice of Violation	12/28/2023	302.202		
411233	Notice of Violation	01/03/2023	302.202	Comply/Closed	02/01/2023

395045	Notice of Violation	06/02/2021	92A.62	Comply/Closed	06/02/2021
380044	Notice of Violation	10/21/2019	92A.61(C)	Administrative Close Out	04/13/2021

Effluent Violation Summary:

MON_PD	OUTFALL	PARAMETER	SAMPLE	PERMIT	UNIT	STAT_BASE_CODE
Apr-24	1	Total Suspended Solids	11.5	10	mg/L	Average Monthly
Feb-24	1	Total Suspended Solids	11	10	mg/L	Average Monthly
Oct-23	1	Total Suspended Solids	15	10	mg/L	Average Monthly
Oct-23	1	Total Suspended Solids	24	20	mg/L	Instantaneous Maximum
Feb-23	1	Total Suspended Solids	18.5	10	mg/L	Average Monthly
Feb-23	1	Total Suspended Solids	32	20	mg/L	Instantaneous Maximum

Compliance Status: Facility is generally in compliance with one open violation and one open enforcement for failure to pay the Annual Operator Certification Program Fee.

Completed by: Amanda Illar **Completed date:** 8/16/24

Other Comments: None.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.025
Latitude 40º 12' 49.00" **Longitude** -80º 8' 0.00"
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)
E. Coli (No./100 ml)	Report	IMAX	-	92a.61
D.O. (mg/L)	4.0	Min	-	BPJ
NH_3-N (mg/L)	25	Average Monthly	-	BPJ
	50	IMAX		
Total N (mg/L)	Report	Average Monthly	-	92a.61
Total P (mg/L)	Report	Average Monthly	-	92a.61

Comments: The existing discharge was evaluated using WQM 7.0 for $CBOD_5$, Ammonia Nitrogen and Dissolved Oxygen. The Total Suspended Solids (TSS), pH, and Fecal Coliform parameters are not evaluated using WQM 7.0. The bases for the proposed technology-based limitations are listed in the above table.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (Attachment C and D):

Parameter	Limit (mg/l)	SBC	Model
TRC	0.01	Average Monthly	DEP TRC Calculation
$CBOD_5$ (May1-Oct 31)	25	Average Monthly	WQM7.0
$CBOD_5$ (Nov 1- Apr 30)	25	Average Monthly	WQM7.0
NH_3-N (May1-Oct 31)	1.9	Average Monthly	WQM7.0
NH_3-N (Nov 1- Apr 30)	2.9	Average Monthly	WQM7.0
Dissolved Oxygen	5.0	Minimum	WQM7.0

Comments: WQM 7.0 was used to determine the newly WQBEL seasonal limits for Ammonia Nitrogen NH_3-N, after applying DEP's regulation (Implementation Guidance of Section 93.7 Ammonia Criteria, 1997); the new AMLs of 1.9 mg/L for the warm period is more stringent than the current permit limit of 3.0 mg/L. Also, WQM model produced a new AML of 2.9 mg/L for the cold period, which is more stringent than the current permit limit of 9.0 mg/L. Reviewing renewal application effluent sampling and eDMR values for Ammonia; the facility can meet the newly imposed Ammonia seasonal limits as this plant has achieved lower than the new proposed limits; no compliance schedule is necessary, twice a month monitoring shall be required.

For the Carbonaceous Biochemical Oxygen Demand $CBOD_5$, the WQM 7.0 model generated a WQBEL AML of 25 mg/L a year around, which show less stringent limit than the current permit limit of 10 mg/L; previous limits will be carried over to avoid anti-backsliding.

Best Professional Judgment (BPJ) Limitations

A minimum Dissolved Oxygen (DO) limit of 4.0 mg/L was established based on Best Professional Judgment (BPJ) to ensure adequate operation and maintenance as Technology-Based Effluent Limitation. WQM 7.0 generated Inst. Minimum concentration of 5.0 mg/L. Checking on the eDMRs, the facility can meet the newly imposed Dissolved Oxygen limit as the plant has achieved effluent limits of DO greater than the proposed limit. No compliance schedule is necessary.

Anti-Backsliding

The previously imposed limits for pH Effluent Limitation of (6.0 Minimum, and 9.0 Maximum SIU), Fecal Coliform AML Geo Mean seasonal limits of (200 & 2000 CFU/100 ml), TSS AML, and Ins. Max of (10, and 20 mg/L), Carbonaceous Biochemical Oxygen Demand CBOD5 yearly around AML, and Ins. Max of (10, and 20 mg/L), will be all unchanged due to Anti-Backsliding as stated in 40 CFR Section 122.44(l).

Total Maximum Daily Load (TMDL) Considerations

This facility discharges to the Chartiers Creek Watersheds. This Watershed has a Final TMDL and is impaired by Metals and PCBs. Abandoned mine drainage is the source of the TMDL impairment, also, barren lands and urban areas are considered as contributing sources (see page 5 of the TMDL document). No Waste Load Allocations (WLAs) have been developed for this sewage discharge.

In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available WLA pursuant to 40 CFR § 130.7.

The permit writer sent a TMDL sampling request on October 23, 2024, the applicant responded on December 18, 2024 with needed information.
The applicable water quality criteria for this watershed can be summarized in the following table:

Parameter	Application Value (mg/L)	Criterion Value (mg/L)	Total Recoverable/Dissolved
Aluminum (Al)	0.18	0.75	Total Recoverable
Iron (Fe)	0.183	1.5	30-day average; Total
Manganese (Mn)	0.021	1.00	Total Recoverable
pH	6.2-7.1	6.0-9.0	N/A

When the applicant's effluent sampling results are compared with the water quality criteria that's assigned for the Chartiers Creek watershed (see page 12 of the TMDL document), the effluent concentrations for the TMDL parameters do not exceed the water quality criteria. Additionally, natural attenuation of PCB from sediments is expected to achieve the PCB TMDL goals. This sanitary sewage discharge is not expected to contribute to the stream Metals or PCB impairments. No annual monitoring requirements for Total Iron, Total Manganese, and Total Aluminum will be required or carried over and imposed for this renewal permit.

TN and TP Monitoring

Per SOP (No. BCW-PMT-033, *Establishing Effluent Limitations for Individual Sewage Permits, ver 2.0*):

- Nutrient monitoring is required, at a minimum, to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design

flows > 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits.

The receiving stream (UNT of Chartiers Creek) is not impaired with nutrients (per PA eMAP and the reviewed eDMRs), therefor; advanced treatment requirements for TN, and TP will not be imposed. Also, the stringent newly proposed Ammonia limits will help in lowering Total Nitrogen.

Annual monitoring is recommended.

Disinfection

Total Residual Chlorine (TRC) AML limit of 0.01 mg/L and IMAX of 0.03 mg/L were calculated based on the DEP preset values entered in the Department Calculation Sheet (Appendix E) for chlorine stream and discharge demands. Reviewing renewal application effluent sampling and eDMR values for TRC; the facility can meet the newly imposed Ammonia seasonal limits as this plant has achieved lower than the new proposed limits; no compliance schedule is necessary, twice a month monitoring shall be required.

E. Coli

Pursuant to 25 Pa. code § 92a.61(b) annual monitoring for *E. Coli* will be imposed at Outfall (001) to determine if *E. Coli* will be a pollutant of concern, which is consistent with DEP SOP No. BCW-PMT-033 revised February 5, 2024.

Monitoring Frequency Considerations

In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required. The permittee may remain in compliance with the permit by using a No Discharge Indicator (NODI) code on the “Daily Effluent Monitoring” supplemental form to identify the absence of a discharge on a particular day.

The monitoring frequencies justified above are consistent with current policy and Table 6-3 of DEP’s Technical Guidance for the Development and Specification of Effluent Limitations.

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" (386-0400-001), 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	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.01	XXX	0.03	1/day	Grab
CBOD5	XXX	XXX	XXX	10	XXX	20	2/month	Grab
TSS	XXX	XXX	XXX	10	XXX	20	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	2.9	XXX	5.8	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	1.9	XXX	3.8	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report Daily Max	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: at Outfall 001.
Other Comments: None.

ATTACHMENT A:
Compliance Status

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

WATER MANAGEMENT SYSTEM
OPEN VIOLATIONS BY CLIENT

10/24/2024 8:19:41 AM

Client ID: 381848
Client: All

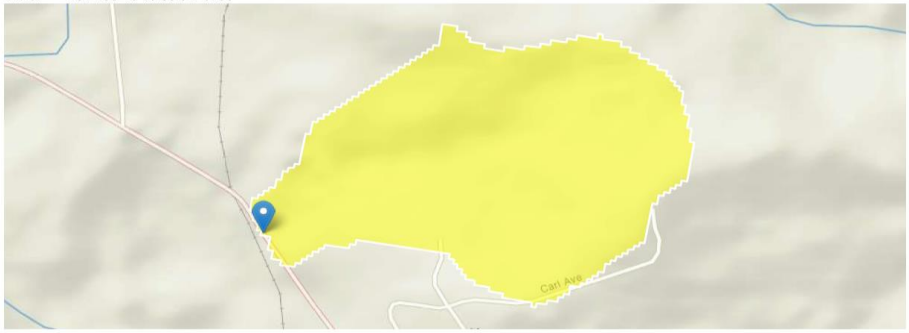
Open Violations: 0

No data was found using the criteria entered. Please revise your choices and try again.

ATTACHMENT B:
USGS StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20240815175608005000
Clicked Point (Latitude, Longitude): 40.21341, -80.13338
Time: 2024-08-15 13:56:31 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.14	square miles
ELEV	Mean Basin Elevation	1108	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.14	square miles	2.26	1400
ELEV	Mean Basin Elevation	1108	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0028	ft^3/s
30 Day 2 Year Low Flow	0.00589	ft^3/s
7 Day 10 Year Low Flow	0.000695	ft^3/s
30 Day 10 Year Low Flow	0.00171	ft^3/s

Statistic	Value	Unit
90 Day 10 Year Low Flow	0.00379	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.23.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT C:
WQM7.0 Model Results (Summer)

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
20F	36977	Trib 36977 to Little Chartiers Cr	**0.270**	1108.00	0.14	0.04000	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	0.005	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
Angel MHP LLC	PA0042587	0.0250	0.0250	0.0250	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	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
20F	36977	Trib 36977 to Little Chartiers Cr	**0.100**	1068.00	0.22	0.04000	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	0.005	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
Angel MHP LLC	PA0042587	0.0000	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

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												
0.270	0.00	0.00	0.00	.0387	0.04000	.321	1.95	6.06	0.06	0.165	20.09	7.00
Q1-10 Flow												
0.270	0.00	0.00	0.00	.0387	0.04000	NA	NA	NA	0.06	0.166	20.06	7.00
Q30-10 Flow												
0.270	0.00	0.00	0.00	.0387	0.04000	NA	NA	NA	0.06	0.165	20.12	7.00

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		

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.270	0.025	20.088	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.948	0.321	6.062	0.063
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.59	1.498	1.91	0.705
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.057	27.823	Owens	5
Reach Travel Time (days)			
0.165			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.017	23.99	1.89	5.76
0.033	23.40	1.87	6.22
0.050	22.83	1.85	6.53
0.066	22.27	1.83	6.74
0.083	21.72	1.80	6.89
0.099	21.19	1.78	7.01
0.116	20.67	1.76	7.09
0.132	20.16	1.74	7.16
0.149	19.67	1.72	7.23
0.165	19.18	1.70	7.28

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

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
0.270	Angel MHP LLC	9.63	9.74	9.63	9.74	1	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
0.270	Angel MHP LLC	1.9	1.95	1.9	1.95	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)		
0.27	Angel MHP LLC	25	25	1.95	1.95	5	5	0	0

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WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

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)
0.270	Angel MHP LLC	PA0042587	0.025	CBOD5	25		
				NH3-N	1.95	3.9	
				Dissolved Oxygen			5

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ATTACHMENT D:
WQM7.0 Model Results (Winter)

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
20F	36977	Trib 36977 to Little Chartiers Cr	**0.270**	1108.00	0.14	0.04000	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	0.010	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Angel MHP LLC	PA0042587	0.0250	0.0250	0.0250	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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
20F	36977	Trib 36977 to Little Chartiers Cr	**0.100**	1068.00	0.22	0.04000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Angel MHP LLC	PA0042587	0.0000	0.0000	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

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												
0.270	0.00	0.00	0.00	.0387	0.04000	.321	1.95	6.06	0.06	0.165	14.82	7.00
Q1-10 Flow												
0.270	0.00	0.00	0.00	.0387	0.04000	NA	NA	NA	0.06	0.166	14.89	7.00
Q30-10 Flow												
0.270	0.00	0.00	0.00	.0387	0.04000	NA	NA	NA	0.06	0.165	14.76	7.00

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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		

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.270	0.025	14.823	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.948	0.321	6.062	0.063
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.59	1.498	2.85	0.470
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.133	24.557	Owens	5
Reach Travel Time (days)			
0.165			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.017	24.12	2.82	6.13
0.033	23.65	2.80	6.81
0.050	23.20	2.78	7.28
0.066	22.75	2.76	7.60
0.083	22.31	2.74	7.83
0.099	21.88	2.72	7.99
0.116	21.45	2.70	8.11
0.132	21.04	2.67	8.19
0.149	20.63	2.65	8.26
0.165	20.24	2.63	8.32

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

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
0.270	Angel MHP LLC	14.14	14.3	14.14	14.3	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
0.270	Angel MHP LLC	2.83	2.9	2.83	2.9	1	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)		
0.27	Angel MHP LLC	25	25	2.9	2.9	5	5	0	0

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WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36977	Trib 36977 to Little Chartiers Cr

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)
0.270	Angel MHP LLC	PA0042587	0.025	CBOD5	25		
				NH3-N	2.9	5.8	
				Dissolved Oxygen			5

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ATTACHMENT E:
DEP TRC Calculation Sheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.000695	= Q stream (cfs)	0.5	= CV Daily
0.025	= 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 = 0.025	1.3.2.iii	WLA cfc = 0.017
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.009	5.1d	LTA_cfc = 0.010

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.011	AFC
		INST MAX LIMIT (mg/l) = 0.037	

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)