pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0096512**
Facility Type	**Municipal**	APS ID	**1072450**
Major / Minor	**Minor**	Authorization ID	**1412172**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mount Morris Water & Sewer Authority**	Facility Name	**Mt Morris Water & Sewage Authority**
Applicant Address	135 Plum Alley PO Box 340	Facility Address	Davistown Road
	Mount Morris, PA 15349		Mt Morris, PA 15349-0304
Applicant Contact	Charles A. Lemley, Jr.	Facility Contact	Barbara Parker
Applicant Phone	(724) 324-2186	Facility Phone	(724) 324-2186
Client ID	66887	Site ID	248138
Ch 94 Load Status	Existing Organic and Projected Hydraulic	Municipality	Perry Township
Connection Status	Dept. Imposed Connection Prohibitions	County	Greene
Date Application Received	September 29, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	
Purpose of Application	NPDES permit renewal application.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES renewal application from The Harshman CE Group, LLC on behalf of Mt. Morris Water & Sewer Authority (permittee) on September 29, 2022 for permittee's Mt. Morris WWTP (facility). The facility is in Perry Township, Greene County and the treated effluent is discharged into Dunkard Creek in state watershed 19-G. The current permit 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

Sludge use and disposal description and location(s): Dried Biosolids landfilled at ADS Chestnut Valley Landfill.

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	November 30, 2022
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	12/02/2022

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.1
Latitude	39º 44' 24.00"	Longitude	-80º 3' 48.10"
Quad Name	Osage	Quad Code	2105
Wastewater Description:	Sewage Effluent		
Receiving Waters	Dunkard Creek	Stream Code	41420
NHD Com ID	99419024	RMI	14.14
Drainage Area	199 mi^2	Yield (cfs/mi^2)	0.0286
Q_{7-10} Flow (cfs)	5.69	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	897.38	Slope (ft/ft)	
Watershed No.	19-G	Chapter 93 Class.	WWF
Existing Use	**WWF**	Existing Use Qualifier	Ch. 93
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	MERCURY, MERCURY, NON-NATIVE FISH/SHELLFISH/ZOOPLANKTON, NON-NATIVE FISH/SHELLFISH/ZOOPLANKTON, TOTAL DISSOLVED SOLIDS (TDS), TOTAL DISSOLVED SOLIDS (TDS)		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN, SUBSURFACE (HARDROCK) MINING, SUBSURFACE (HARDROCK) MINING, SUBSURFACE (HARDROCK) MINING, SUBSURFACE (HARDROCK) MINING		
TMDL Status	Final, April 4, 2007	Name	Dunkard Creek TMDL

Background/Ambient Data		Data Source
pH (SU)	7.8	WQN0714, median Jul-Sep, 1999-2019
Temperature (°C)	22	WQN0714, median Jul-Sep, 1999-2019
Hardness (mg/L)	380.9	WQN0714, median Jul-Sep, 1999-2019
Other:		

Nearest Downstream Public Water Supply Intake	Dunkard Valley Jt. Municipal Authority		
PWS Waters	Monongahela River	Flow at Intake (cfs)	
PWS RMI	83.59	Distance from Outfall (mi)	17.82

Changes Since Last Permit Issuance: None

Other Comments:
Stream flow:
USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on November 28, 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 199 mi^2, Q_{7-10} of 5.69 cfs, and Q_{30-10} of 8.2 cfs.

Yield: 5.69/199 of 0.029 cfs/mi^2
Q_{30-10}: Q_{1-10} = 8.2/5.69 or 1.44

Default Q_{1-10}:Q_{7-10} of 0.64 will be used in modeling, if needed.

PWS Intake: The nearest downstream PWS intake is Dunkard Valley Joint Municipal Authority on Monongahela River at RMI 83.59. The intake is approximately 17.82 miles downstream of Outfall 001. Due to the distance, dilution at Mon river, and effluent limitations, it is expected that the discharge from this facility won't affect the PWS intake.

Wastewater Characteristics:
A pH of 6.35 (median July- September 2022), default temperature of 25^{0}C (Default per 391-2000-007), and default Hardness value of 100 mg/l will be used for modeling, if needed.

Background data:
The nearest WQN station is WQN0714 on Dunkard Creek, SR2012 Bridge (Bobtown Hill Road) near Bobtown at approximate RMI 4.1 mile. Stream data at this station was analyzed for the low flow months for the years 1999-2019, and the resulting median pH is 7.8 S.U., temperature is 22°C, and hardness of 380.88.

Dunkard Creek TMDL:
Dunkard Creek watershed has an EPA approved TMDL affected by three primary metals from Acid Mine Drainage (AMD), Aluminum, Iron, and Manganese, and pH. No WLA was allocated for this facility. However, to demonstrate that the facility isn't a contributor to the existing impairment, it is recommended to monitor these three metals annually for this permit term. Based on the sample results, the monitoring requirements may be removed in next renewal.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Warm-Water Fishes (WWF). No High-Quality stream or Exceptional Value water is impacted by this discharge; therefore, no Antidegradation Analysis is performed for the discharge.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

Biosolids Management: Two sludge holding tanks store sludge for return to the aeration tanks and wasting to the sludge drying beds. Digested sludge is sent to ADS Chestnut Valley Landfill for ultimate disposal.

Treatment Facility Summary

Treatment Facility Name: Mt Morris STP

WQM Permit No.	Issuance Date
5689412 A-1	5/7/2014
5689412 T-1	1/2/2008

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration With Solids Removal	No Disinfection	0.1

Hydraulic Capacity (MGD)	Organic Capacity (lbs./day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.1	167	Existing Organic and Projected Hydraulic	Drying	Landfill

Changes Since Last Permit Issuance: None. 2021 Ch. 94 report indicates there is existing organic overload and projected hydraulic overload condition at the plant beginning in 2025, and the plant is under Department initiated connection prohibition status. The permittee will observe the conditions for next couple of years and will take appropriate action.

Treatment Plant Description

Mt. Morris Water and Sewer Authority owns and operates Mt. Morris WWTP that serves portion of Perry Township, Green County, PA (1,225 population). It is a minor sewage facility (MISF2) with an Average Annual Design Flow and Hydraulic Design Capacity of 0.1 MGD and Organic Design Capacity of 167 lbs./day. The treated effluent is discharged through Outfall 001 into Dunkard Creek at RMI 14.14. The average flow for last three years (2019-2021) is 0.308 MGD. The application form indicated the following treatment train:

One comminutor/manual bypass bar screen → Two flow EQ tanks → Eight aeration tanks → six clarifiers → two chlorine contact tanks → one Parshall flume → discharge through Outfall 001

Three (3) chlorine tablets are used per day for disinfection and five (5) sodium sulfite tablets for dechlorination.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	20.9	31.7	XXX	25	38	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	25.0	37.6	XXX	30	45	60	1/week	8-Hr Composite
Fecal Coliform (No/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	17.5	26.3	XXX	21.0	31.5	42.0	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	5.8	8.8	XXX	7.0	10.5	14.0	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite

Compliance History

DMR Data for Outfall 001 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD) Average Monthly	0.0289	0.0364	0.0369	0.0474	0.0336	0.039	0.0422	0.0532	0.038	0.0283	0.0203	0.030
Flow (MGD) Daily Maximum	0.087	0.0789	0.0453	0.428	0.1086	0.120	0.126	0.3308	0.232	0.096	0.0322	0.079
pH (S.U.) Minimum	6.11	6.07	6.00	6.04	6.03	6.01	6.07	6.08	6.01	6.12	6.3	6.52
pH (S.U.) Maximum	6.50	6.56	6.62	6.58	6.60	6.56	6.39	6.80	6.60	6.81	6.9	6.91
DO (mg/L) Minimum	6.48	6.54	7.01	6.65	7.15	7.45	6.28	6.58	7.75	7.34	6.52	7.55
TRC (mg/L) Average Monthly	0.50	0.41	0.42	0.31	0.38	0.34	0.18	0.10	0.18	0.31	0.31	0.21
TRC (mg/L) IMAX	0.87	1.30	1.21	1.30	1.30	1.25	1.25	0.29	1.09	1.25	1.25	1.20
CBOD5 (lbs/day) Average Monthly	1.2	1.7	0.9	< 1.4	1.6	< 1.1	< 1.7	< 1.4	0.7	2.0	0.7	0.7
CBOD5 (lbs/day) Weekly Average	2.2	3.1	1.2	3.7	3.0	1.5	< 4.8	3.3	1.3	3.0	1.2	1.2
CBOD5 (mg/L) Average Monthly	< 5	7	3	< 4	7.0	< 4.0	< 3	< 3.3	2.1	0.4	5	3
CBOD5 (mg/L) Weekly Average	8	14	5	11	10	6	5	4	2.4	1.1	8	5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	33.0	34.8	40.8	65.3	38.6	80.0	41.8	138.6	27.9	34.7	33.1	42.0
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	49.4	64.8	72.0	81.4	72.9	130.7	56.0	64.5	46.2	72.3	35.6	54.9
BOD5 (mg/L) Raw Sewage Influent Average Monthly	156.2	131.2	124.4	219.5	171.8	202.5	161.0	230.8	109.0	179.4	219.5	206.0
BOD5 (mg/L) Raw Sewage Influent Weekly Average	229.0	220.9	199.0	295.0	297.5	247.5	216.7	142.1	192.0	317.5	240.0	243.9
TSS (lbs/day) Average Monthly	< 1.1	< 1.5	1.6	0.9	3.2	< 1.9	3.7	4.2	< 1.6	< 1.0	< 1.0	< 1.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	21.5	52.4	15.7	27.1	22.1	21.3	38.8	57.6	17.1	40.7	30.4	36.4

TSS (lbs/day) Raw Sewage Influent Weekly Average	30.4	170.3	26.1	36.9	45.1	35.9	56.9	29.9	23.3	66.4	64.7	52.3
TSS (lbs/day) Weekly Average	< 1.4	2.1	1.8	2.6	5.6	< 2.7	12.0	6.8	< 2.7	< 2.8	2.1	2.4
TSS (mg/L) Average Monthly	5	7	5	< 6	13	< 5	< 6	8	< 5.3	< 5.0	< 7	< 0.4
TSS (mg/L) Raw Sewage Influent Average Monthly	103.8	188.0	62.0	96.8	99.0	56.0	155.2	156.0	62.5	211.2	202.0	177.0
TSS (mg/L) Raw Sewage Influent Weekly Average	156.0	580.0	116.0	140.0	184.0	68.0	264.0	83.5	96.0	304.0	436.0	248.0
TSS (mg/L) Weekly Average	< 5	7	5	7	23.0	< 5	11	9	< 6	6.0	11	10.0
Fecal Coliform (No./100 ml) Geometric Mean	4	5	108	230	7	11	5	3	1	4	1	1
Fecal Coliform (No./100 ml) Instantaneous Maximum	65	22	1830	2600	194	184	26	22	4	189	1	2
Total Nitrogen (mg/L) Daily Maximum										7.26		
Ammonia (lbs/day) Average Monthly	< 0.08	< 0.09	0.2	0.9	1.1	1.0	0.7	< 3.4	< 0.03	< 0.04	< 0.2	< 0.08
Ammonia (lbs/day) Weekly Average	0.2	0.3	0.3	2.6	2.5	1.4	1.4	11.9	< 0.05	0.1	0.8	0.1
Ammonia (mg/L) Average Monthly	< 0.4	< 0.3	1.3	2.6	4.3	3.4	1.8	< 5.2	< 0.1	< 0.2	< 1.4	< 0.4
Ammonia (mg/L) Weekly Average	1.3	0.9	0.8	7.0	8.1	7.0	3.4	15.3	0.2	0.6	5.2	0.6
Total Phosphorus (mg/L) Daily Maximum										3.93		

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2021 To: September 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/22	Geo Mean	230	No./100 ml	200	No./100 ml

Fecal Coliform	07/31/22	IMAX	1830	No./100 ml	1000	No./100 ml
Fecal Coliform	06/30/22	IMAX	2600	No./100 ml	1000	No./100 ml

Other Comments: The non-compliance report submitted on July 2022 stated that insufficient dose of chlorine was the reason for July non-compliance. Same with June 2022 non-compliances.

Summary of Inspections:
September 30, 2021: CEI conducted. No violations noted. The treatment plant was being well maintained.
July 21, 2020: ADMIN review conducted. No violations noted.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.1
Latitude 39º 44' 30" **Longitude** -80º 3' 47.00"
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 version 1.0b is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using updated $Q_{7\text{-}10}$ and historic background water quality levels of the river. The following data were used in the attached computer model of the stream:

- Discharge pH 6.35 (median Jul-Sep, 2022, eDMR data)
- Discharge Temperature 20°C (Default)
- Discharge Hardness 100 mg/l (Default)
- Stream pH 7.8 (WQN0714, Jul-Sep, 1999-2019)
- Stream Temperature 22°C (WQN0714, Jul-Sep, 1999-2019)
- Stream Hardness 380.88 mg/l (WQN0714, Jul-Sep, 1999-2019)

The following nodes were considered in modeling:

Node 1: Outfall 001 at Outfall 001 on Dunkard Creek (41420)
Elevation: 897.38 ft (USGS National Map viewer, 11/29/2022)
Drainage Area: 199 mi^2 (StreamStat Version 3.0, 11/29/2022)
River Mile Index: 14.14 (PA DEP eMapPA)
Low Flow Yield: 0.0286 cfs/mi^2
Discharge Flow: 0.1 MGD

Node 2: At confluence with Calvin Run (41468)
Elevation: 882.12 ft (USGS National Map viewer, 11/29/2022)
Drainage Area: 205 mi^2 (StreamStat Version 3.0, 11/29/2022)
River Mile Index: 13.92 (PA DEP eMapPA)
Low Flow Yield: 0.0286 cfs/mi^2

Discharge Flow: 0.0 MGD

NH_3-N:
WQM 7.0 suggested the existing limits are still protective. Existing limits will be carried over.

$CBOD_5$:
The WQM 7.0 model confirms the existing limits are still protective. Existing limits will be carried over.

Dissolved Oxygen (DO):
The existing permit has a minimum DO of 4.0 mg/l which is supported by WQM output as protective 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 permittee submitted sample results for few metals as required by the permit. Those metals are Total Copper, Total Lead, Total Zinc, Total Aluminum, Total Manganese, and Total Iron. The following is the model output:

☑ ***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

There is no concern of metals from this facility. However, due to being TMDL parameters, per BCW-PMT-037 (revised March 22, 2021), TMDL parameters are to be monitored at least annually if no WQBEL is established. Therefore, existing monitoring requirements for Total Aluminum, Total Manganese, and Total Iron will remain in the permit.

TDS and its constituents:
TMS suggests no RP for TDS and its constituents. Therefore, no monitoring or limits requirement will be placed in the permit.

Additional Considerations

Fecal Coliform:
The recent coliform guidance in 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 existing limits that will be carried over.

E. Coli:
DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends quarterly E. Coli monitoring for all sewage dischargers with design flows ≥ 0.05 MGD and < 1.0 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, 45 mg/l average weekly, 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). The mass based average monthly and weekly

average limits are calculated to be 25 lbs./day and 37.6 lbs./day respectively. These are all existing limits that will be carried over.

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 the existing limits are still protective and will be carried over.

Flow and Influent BOD_5 and TSS Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent BOD_5 and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94.

Best Professional Judgement (BPJ):
Total Phosphorus:
Pa Code 25 §92.61 requires monitoring TP. 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 parameter with monitoring requirement that will be carried over.

Total Nitrogen:
Pa Code 25 §92.61 requires monitoring TN. 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 parameter with monitoring requirement that 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	20.9	31.7	XXX	25	38	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Suspended Solids	25.0	37.6	XXX	30	45	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	17.5	26.3	XXX	21.0	31.5	42	1/week	8-Hr Composite

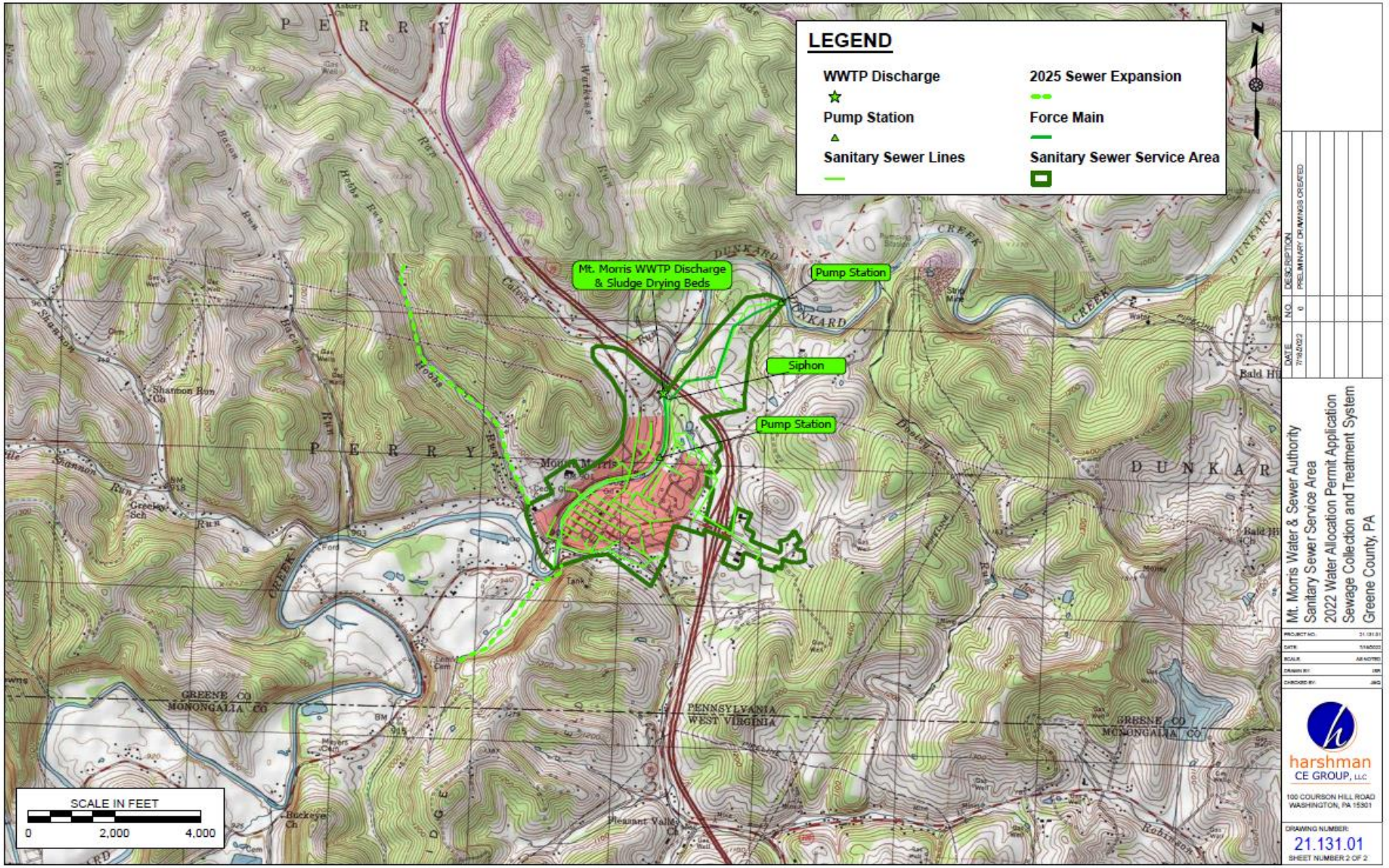
Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	5.8	8.8	XXX	7.0	10.5	14	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite

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:


LEGEND
WWTP Discharge
2025 Sewer Expansion
Pump Station
Force Main
Sanitary Sewer Lines
Sanitary Sewer Service Area
Mt. Morris WWTP Discharge & Sludge Drying Beds
Pump Station
Siphon
Pump Station
SCALE IN FEET
0
2,000
4,000
PERRY
DUNKARD
GREENE CO
MONONGALIA CO
PENNSYLVANIA
WEST VIRGINIA
Mt. Morris Water & Sewer Authority
Sanitary Sewer Service Area
2022 Water Allocation Permit Application
Sewage Collection and Treatment System
Greene County, PA
harshman
CE GROUP, LLC
100 COURSON HILL ROAD
WASHINGTON, PA 15301
DRAWING NUMBER:
21.131.01
SHEET NUMBER 2 OF 2

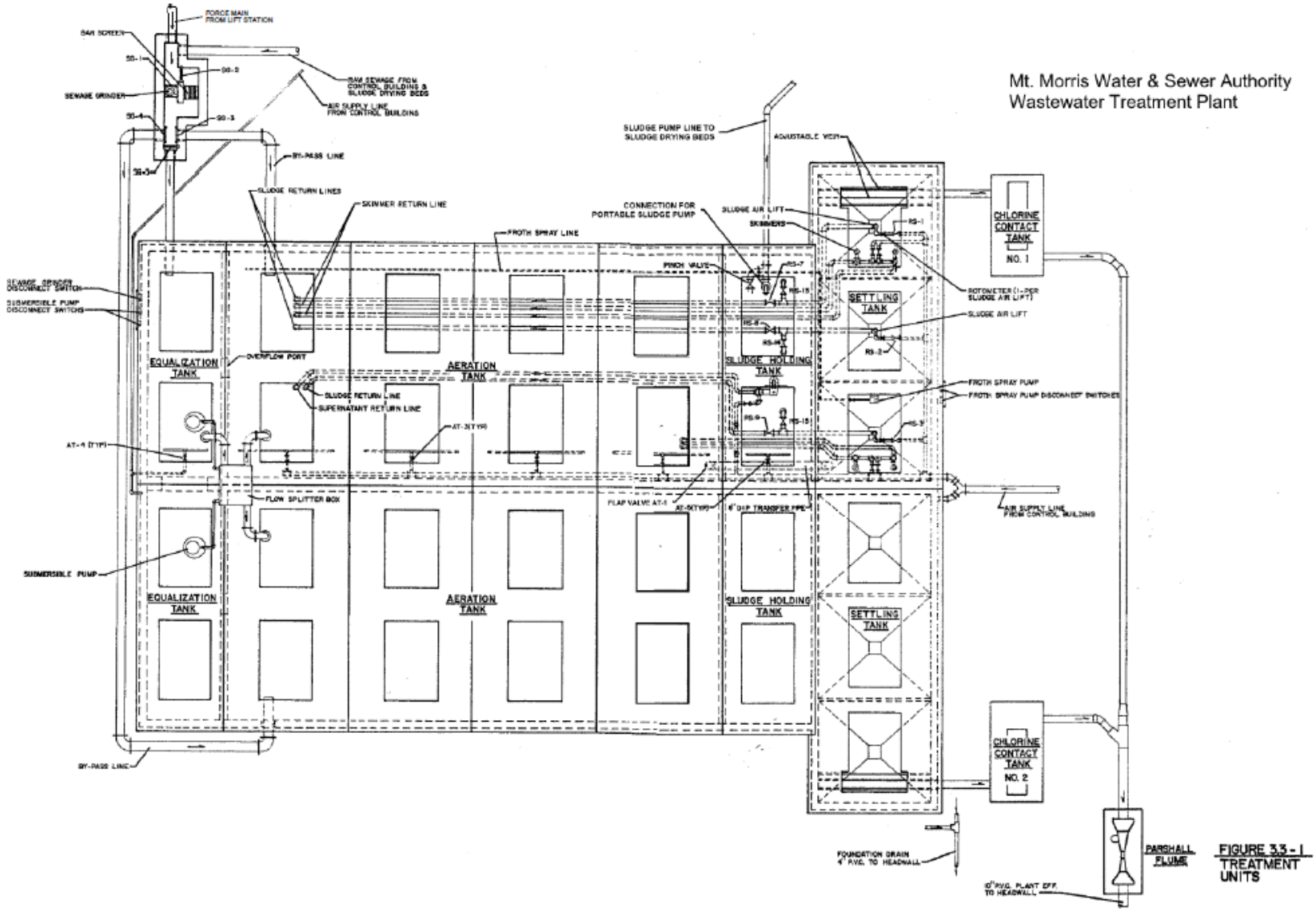
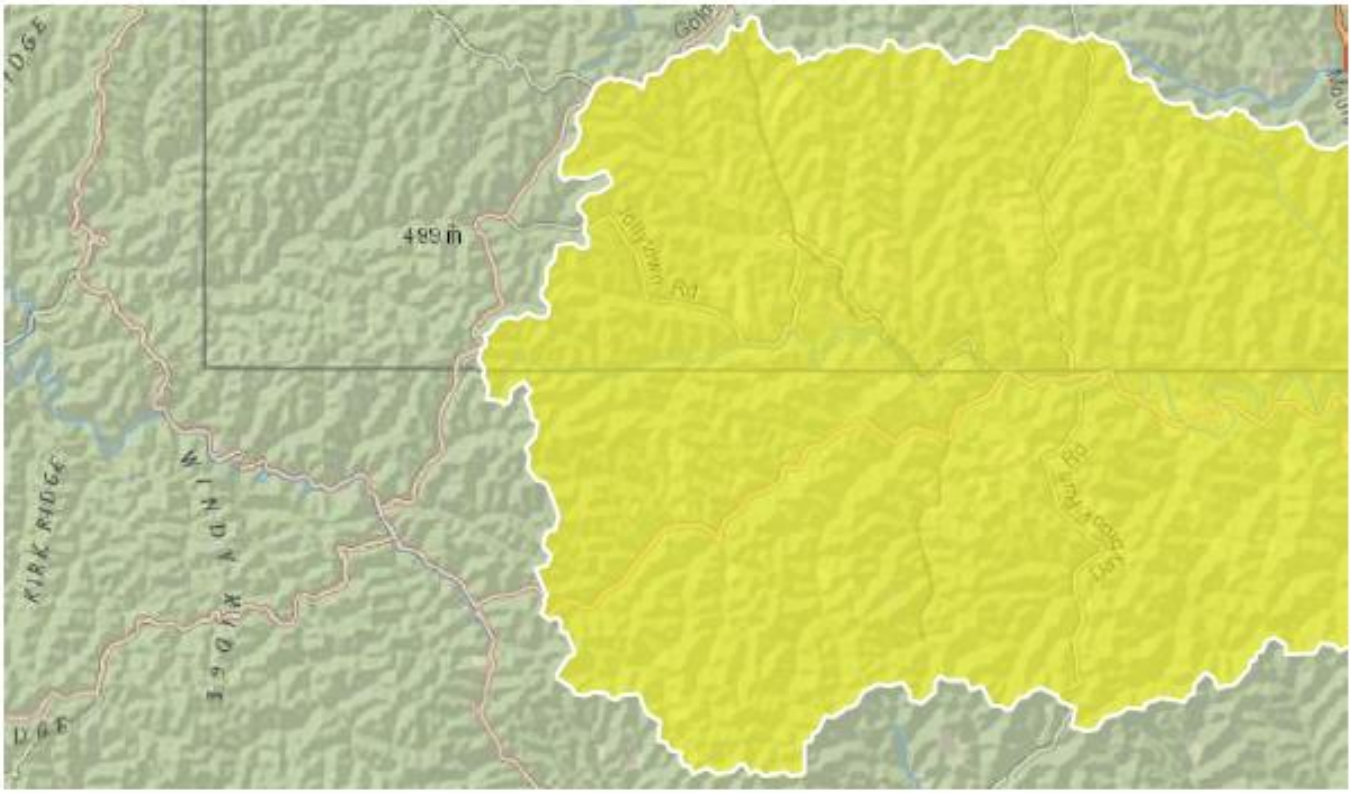


FIGURE 3.3 - 1
TREATMENT UNITS

PA0096512 at 001

Region ID: PA
Workspace ID: PA20221129020947711000
Clicked Point (Latitude, Longitude): 39.74013, -80.06282
Time: 2022-11-28 21:10:09 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	199	square miles
ELEV	Mean Basin Elevation	1226	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (199 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	199	square miles	2.26	1400
ELEV	Mean Basin Elevation	1226	feet	1050	2580

Low-Flow Statistics Flow Report [100.0 Percent (199 square miles) Low Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

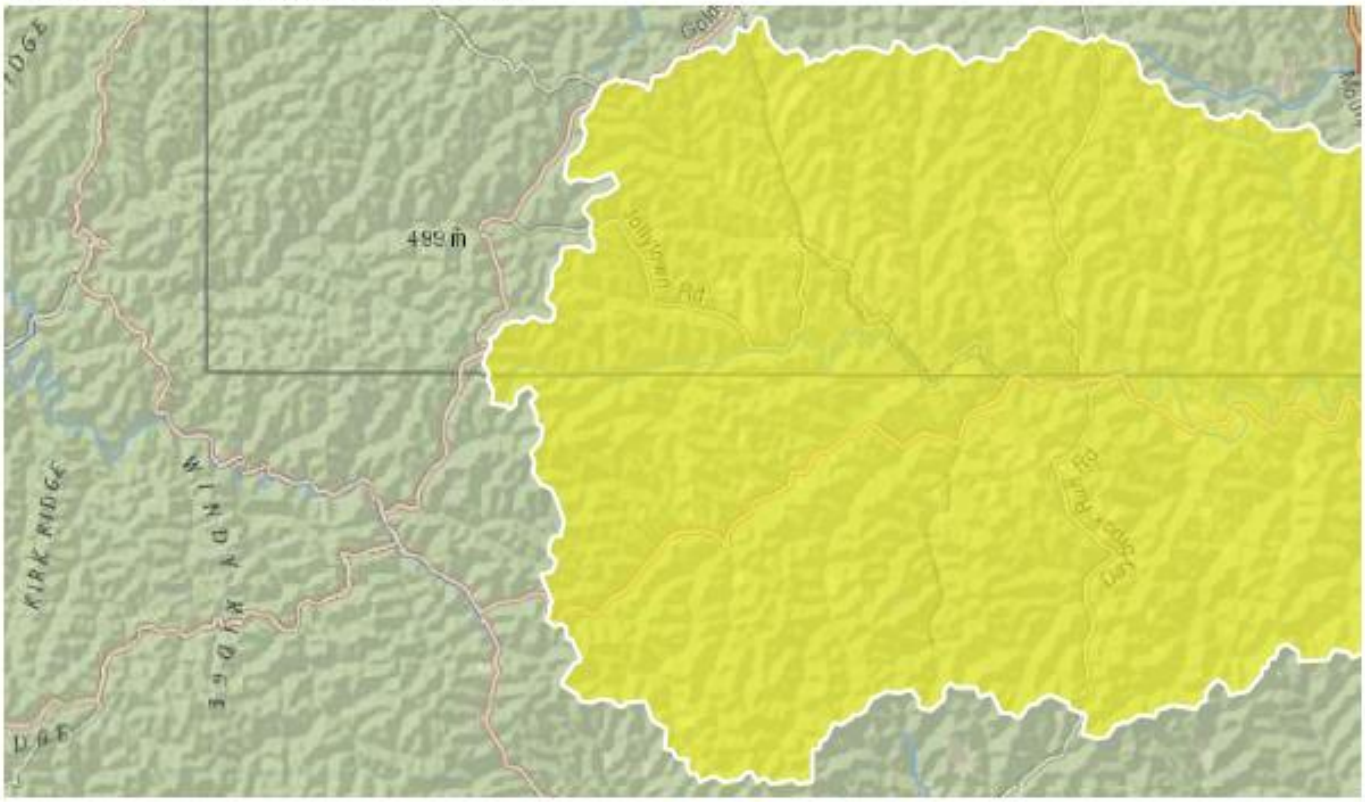
Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	11.9	ft^3/s	43	43
30 Day 2 Year Low Flow	17.9	ft^3/s	38	38
7 Day 10 Year Low Flow	5.69	ft^3/s	66	66
30 Day 10 Year Low Flow	8.2	ft^3/s	54	54
90 Day 10 Year Low Flow	13	ft^3/s	41	41

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/)

PA0096512 at Node 2

Region ID: PA
Workspace ID: PA20221129021441791000
Clicked Point (Latitude, Longitude): 39.74460, -80.06166
Time: 2022-11-28 21:15:03 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	205	square miles
ELEV	Mean Basin Elevation	1225	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (205 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	205	square miles	2.26	1400
ELEV	Mean Basin Elevation	1225	feet	1050	2580

Low-Flow Statistics Flow Report [100.0 Percent (205 square miles) Low Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	12.3	ft^3/s	43	43
30 Day 2 Year Low Flow	18.5	ft^3/s	38	38
7 Day 10 Year Low Flow	5.9	ft^3/s	66	66
30 Day 10 Year Low Flow	8.48	ft^3/s	54	54
90 Day 10 Year Low Flow	13.5	ft^3/s	41	41

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/)

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
19G	41420	DUNKARD CREEK	14.140	897.38	199.00	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	0.029	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.00	7.80	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
Mt. Morris WWTP	PA0096512	0.1000	0.1000	0.1000	0.000	20.00	6.35

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	7.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19G	41420	DUNKARD CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
14.140	5.69	0.00	5.69	.1547	0.01314	.787	38.88	49.37	0.19	0.070	21.95	7.56
Q1-10 Flow												
14.140	3.64	0.00	3.64	.1547	0.01314	NA	NA	NA	0.15	0.090	21.92	7.48
Q30-10 Flow												
14.140	8.20	0.00	8.20	.1547	0.01314	NA	NA	NA	0.23	0.058	21.96	7.62

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	1.44	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	4		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19G	41420	DUNKARD CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
14.140	Mt. Morris WWT	5.26	14	5.26	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
14.140	Mt. Morris WWT	1.16	7	1.16	7	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)		
14.14	Mt. Morris WWTP	25	25	7	7	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19G	41420	DUNKARD CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
14.140	0.100	21.947	7.565
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
38.879	0.787	49.375	0.191
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.61	0.364	0.19	0.813
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.131	24.963	Tsivoglou	4
Reach Travel Time (days)			
0.070			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.007	2.60	0.18	7.95
0.014	2.59	0.18	7.95
0.021	2.59	0.18	7.95
0.028	2.58	0.18	7.95
0.035	2.57	0.18	7.95
0.042	2.57	0.18	7.95
0.049	2.56	0.18	7.95
0.056	2.55	0.18	7.95
0.063	2.54	0.18	7.95
0.070	2.54	0.17	7.95

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19G	41420	DUNKARD CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
14.140	Mt. Morris WWTP	PA0096512	0.100	CBOD5	25		
				NH3-N	7	14	
				Dissolved Oxygen			4

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

5.69	= Q stream (cfs)	0.5	= CV Daily
0.1	= 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 =	11.752	1.3.2.iii	WLA cfc =	11.450
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	4.379	5.1d	LTA_cfc =	6.656

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.635	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Mt. Morris WSA WWTP** NPDES Permit No.: **PA0096512** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated sewage 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
0.1	100	6.35						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		482									
	Chloride (PWS)	mg/L		54.5									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		90.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		40									
	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		10									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L		200									
	Total Lead	µg/L	<	0.5									
	Total Manganese	µg/L		30									
	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		40									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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	<											

	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												

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Mt. Morris WSA WWTP, NPDES Permit No. PA0096512, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Dunkard Creek

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	041420	14.14	897.38	199			Yes
End of Reach 1	041420	13.92	882.12	205			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	14.14	0.029										380.88	7.8		
End of Reach 1	13.92	0.029										380.88	7.8		

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	14.14														
End of Reach 1	13.92														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Mt. Morris WSA WWTP, NPDES Permit No. PA0096512, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.779 Analysis Hardness (mg/l): 371.54 Analysis pH: 7.52

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	22,556	
Total Copper	0	0		0	46.284	48.2	1,450	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	260.329	434	13,054	Chem Translator of 0.6 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	356.305	364	10,957	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 24.694 PMF: 1 Analysis Hardness (mg/l): 373.55 Analysis pH: 7.57

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	27.617	28.8	1,102	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	57,457	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	10.201	17.0	652	Chem Translator of 0.599 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	360.862	366	14,019	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 24.694 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 Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	38,304	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 8.062 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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	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			

☑ ***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 Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS

Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	14,457	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	929	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	57,457	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	N/A	N/A	Discharge Conc < TQL
Total Manganese	38,304	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	7,023	µg/L	Discharge Conc ≤ 10% WQBEL