pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0063312**
Facility Type	**Municipal**	APS ID	**856834**
Major / Minor	**Minor**	Authorization ID	**1345012**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Girardville Area Municipal Authority (GAMA) Schuylkill County**	Facility Name	**Girardville Area Municipal Authority WWTP**
Applicant Address	Fourth And B Streets	Facility Address	99 Julia Street
	Girardville, PA 17935-0005		Girardville, PA 17935
Applicant Contact	Edward Burns (Chairman)	Facility Contact	Andy Marcano (Operator, M&B Environmental Inc.)
Applicant Phone	(570) 276-1635	Facility Phone	(570) 535-0731
Client ID	74759	Site ID	256475
Ch 94 Load Status	Not Overloaded	Municipality	Butler Township
Connection Status	No Limitations	County	Schuylkill
Date Application Received	March 2, 2021	EPA Waived?	Yes
Date Application Accepted	April 7, 2021	If No, Reason	-

Purpose of Application: Renewal of NPDES Permit for discharge of treated sewage.

Summary of Review

This is 0.340 MGD Municipal NPDES Permit Renewal Application for discharge of treated sewage to Mahanoy Creek (WWF; Stream# 17556; impaired by AMD and pathogens of unknown origin). Annual Average Daily Flows were 0.114 MGD (2020), 0.187 MGD (2019), and 0.302 MGD (2018). Highest monthly average flow was 0.159 MGD in April 2020.

Background:

- Facility was constructed with **0.240 MGD hydraulic capacity** (440 lbs BOD5/day organic design capacity). NPDES permit basis flow of 0.340 MGD per original Planning approval, with subsequent reduction of proposed service area reducing the needed hydraulic capacity basis to 0.240 MGD per DEP files.
- The 6/20/2017 Authority Feasibility Study (Ammonia-N, TRC, and DO limits) submitted per previous NPDES Permit Part C.II Schedule of Compliance, but no final plan with schedule of activities found in the available files. DEP Files indicate they are using dechlorination tablets in the TRC system. Facility is not proposing any plant upgrades (only normal O&M) over the next five (5) years.

Sludge use and disposal description and location(s): Facility uses four reed drying beds with no sludge shipped offsite for disposal in 2020. 36, 201 gallons of sludge wer directed to either reed drying beds or offsite disposal in 2021 (no breakdown). They sent 36,500 gallons of sludge to the reed beds in 2020. ~52,967 gallons sent to the drying beds in 2019. M&B Environmental Inc. is a contractor that helps with WWTP operation and maintenance (i.e. including sludge drying beds). They direct dried sludge to landfill for disposal.

Part C Special Conditions: Changes bolded.

Approve	Deny	Signatures	Date
X		James D. Berger (signed) James D. Berger, P.E. / Environmental Engineer	April 27, 2022
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Environmental Engineer Manager	5-13-22

Summary of Review

- Previous Part C.I: **Deleted.** Chesapeake Bay Nutrient conditions are not needed for a Phase 4 Chesapeake Bay facility without any mass cap limits. Standard CB monitoring/reporting requirements for a Phase 4 CB facility in Part A (no CB-specific table).
- Parts C.I.A, B, & C: Existing Standard conditions (Stormwater prohibition; Necessary property rights; and Proper management of residuals)
- Part C.I.D: Existing Chlorine Minimization condition
- **Part C.I.E: New Responsible certified operator identification condition due to pattern of noncompliance blamed on O&M issues.**
- **Part C.I.F: New O&M Plan requirement condition due to pattern of noncompliance blamed on O&M issues. The O&M Plan will be due within 180 days of PED.**
- Part C.IV.G: Existing Site-specific Condition (discharge/stream changes) retained.
- **Part C.IV.H: New High Flow Management Plan requirement due to plant overflows and permit limit exceedances attributed to heavy rainfall/I&I.**
- Part C.II: Existing solids management (non-lagoon) conditions with additional language regarding onsite sludge drying beds reporting in Chapter 94 Report. The (existing) additional language: "The volume of sludge, age of sludge, utilized storage capacity, and available unused storage capacity within the individual sludge drying/Reed beds bays shall be provided in table format".

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)	0.34 (NPDES Permit Basis Flow)
Latitude	40º 47' 19.85"	Longitude	-76º 18' 24.72"
Quad Name	Ashland	Quad Code	1235 (5.18.2)
Wastewater Description:	Sewage Effluent		

Receiving Waters	Mahanoy Creek (WWF)	Stream Code	17556
NHD Com ID	54962279	RMI	-
Drainage Area	35.5	Yield (cfs/mi^2)	0.2378 (multiple AMD discharges upstream)
Q_{7-10} Flow (cfs)	8.42	Q_{7-10} Basis	USGS PA Streamstats
Elevation (ft)	~942 (from previous Fact Sheet)	Slope (ft/ft)	-
Watershed No.	6-B	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, METALS, PH, Pathogens		
Source(s) of Impairment	ACID MINE DRAINAGE, Pathogens of unknown origins		
TMDL Status	Final	Name	Mahanoy Creek (AMD)

Background/Ambient Data		Data Source: 12/15/2009 sample No. 1472850 **Monitoring Point ID:** 24559 **Name:** Null **Monitoring Point Type Code:** 4 **Monitoring Point Type:** Stream
pH (SU)	7.1	
Temperature (°F)	-	-
Hardness (mg/L)	360	Source: 2015 DEP Biologist sampling at downstream Station No. 1. See discussion below.
TSS (mg/l)	24	See above DEP sampling point information
Aluminum (ug/l)	<500	See above. Limited assimilation capacity at outfall. Zero assimilation capacity downstream (1,030 ug/l at DEP Biologist Station 1 per 2015 DEP Biologist sampling).
Manganese (ug/l)	3623.0	See above. Zero assimilation capacity.
Total Iron (ug/l)	3704.0	See above. Zero assimilation capacity.
Sulfate (mg/l)	316.2	See above
Copper (ug/l)	-	2015 DEP Biologist sampling at the downstream Station 1 was at 17.60 ug/l.

Nearest Downstream Public Water Supply Intake		Duncannon Municipal Auth Water System ID# 101982-001	
PWS Waters	Susquehanna River	Flow at Intake (cfs)	-
PWS RMI	-	Distance from Outfall (mi)	~68 miles

Changes Since Last Permit Issuance: **Stream determined to be impaired due to pathogens of unknown origin. Pathogen impairment also pertains to upstream Shenandoah Creek (confluence upstream of Girardville) with known CSOs.**

Other Comments:

Facility STP is rated only for 0.240 MGD, not the original 0.340 MGD NPDES Permit Basis flow.

Impairments:

- **AMD TMDL:** The facility is not contributing to the existing AMD impairment.
  - No WLA for facility and effectively zero assimilation capacity due to either exceedances of TMDL criteria at the Outfall or downstream (where other orphan AMD discharges would use up any available Aluminum assimilation capacity). From TMDL:

Table 3. Applicable Water Quality Criteria

Parameter	Criterion Value (mg/l)	Total Recoverable/Dissolved
Aluminum (Al)	0.75	Total Recoverable
Iron (Fe)	1.50 0.3	30-Day Average Total Recoverable Dissolved
Manganese (Mn)	1.00	Total Recoverable
pH *	6.0-9.0	N/A

*The pH values shown will be used when applicable. In the case of freestone streams with little or no buffering capacity, the TMDL endpoint for pH will be the natural background water quality. These values are typically as low as 5.4 (Pennsylvania Fish and Boat Commission).

  - Effluent data indicate some AMD contribution but well below WQS. There are multiple Orphan AMD discharges upstream and downstream of the WWTP. Monitoring is being done to allow updating of Mahanoy Creek TMDL in future.
- **Pathogens:** Mahanoy Creek is impaired by pathogens of unknown origin:
  - The facility has had effluent exceedances of fecal coliforms (blamed on O&M problems), with E Coli effluent monitoring required in this permit term. The permit conditions include Part C O&M conditions to resolve any WWTP contribution.
  - Potential wildcat sewers on Mahanoy Creek and/or upstream Shenandoah Creek. There are CSOs on Shenandoah Creek.
- **Stream Total Hardness**: As there no permit limits were triggered using the more conservative DEP Biologist sampling value, the modeling used 360 mg/l Total Hardness for conservatism. Stream total hardness values might be inaccurate because Mahanoy Creek is a heavily-impaired AMD stream which might impact the validity of the Method 2340B empirical equation used to calculate total hardness. Total hardness impacts some metals' Chapter 93 Water Quality Standards.
  - From Internet sources: Stream water hardness is the total concentration of cations, specifically calcium (Ca2+), magnesium (Mg2+), iron (Fe2+), and manganese (Mn2+), in the water. Water rich in these cations is said to be "hard." Stream water hardness reflects the geology of the catchment area. Sometimes it also provides a measure of the influence of human activity in the area. For instance, acid mine drainage often results in the release of iron into a stream. The iron produces extraordinarily high hardness readings. For these reasons, hardness is a useful water quality indicator.
  - DEP Policy No. 391-2000-021 (field determination of total hardness) uses the Method 2340B (Hardness by Calculation) calculation which uses separately determined Ca and Mg values from two test methods Method CaB (EDTA Titrimetric Method per googling) and Method MgB (As Method 3500-Ca D in Standard Methods 18th Edition (1992)):
    - Hardness, mg equivalent CaCO3/L = 2.497 [Ca, mg/L] + 4.118 [Mg, mg/L]
    - The Method 2340B equation is using Ca and Mg as indicator chemicals for an empirical equation whose derivation and range limits were not clearly defined. Such empirical equations might become inaccurate under unusual conditions such as heavily AMD-impaired stream conditions. (For example, even assuming all applicant-identified Total Ca and Total Mg atoms were in the form of freely available cations, the total cation concentrations would be below that calculated by this equation using application data.) **NOTE**: The stream total hardness value might also decrease (affecting the Total Hardness-based WQS) as the AMD-impaired stream recovers over the next few decades.
  - Application Lab Sheet-Reported Value (418 mg/l): They analyzed for total elemental Ca (87 mg/l) and Mg (49.0 mg/l) via ICP method (not the DEP Policy-referenced titration method) and then calculated total

hardness without provided/identified calculation (apparently using the Method 2340B equation which was not identified).

Chesapeake Bay: This is a non-significant Phase 4 Chesapeake Bay facility without mass caps.

Point of First Use: 2015 DEP Biologist Report indicated Point of First Use remains downstream of discharge (>1.5 miles downstream). Chapter 95.5 (Treatment requirements for discharges to waters affected by abandoned mine drainage) states greater degree of treatment (than secondary treatment) will be required to the waters where water quality of the receiving water has or is expected to improve significantly. All AMD-impaired PA streams are assumed to be improving in quality, so all treatment requirements apply.

- The 9/4/2015 DEP Biologist (Sherril Leap) Aquatic Life Protection Memo has confirmed that no macroinvertebrate community at discharge location or at station point 1.5 miles downstream. The point of first use by aquatic life is downstream of the discharge point (location of stream recovery undetermined) except for fish noted as present by USGS Report.
- The USGS Scientific Investigations Report 2004-5291 “Effects of Abandoned Coal-Mine Drainage on Streamflow and Water Quality in the Mahanoy Creek Basin, Schuylkill, Columbia, and Northumberland Counties, Pennsylvania, 2001” noted that an August 2001 Sampling site S-10 (Mahanoy Creek above Girardville) had a low flow of 7.84 CFS (during the low-flow period, with the Gilberton Mine Pump not operating) which is within the PAStreamstats margin of error (8.4 CFS with 51% error) & adopted for conservatism. The Report noted “poor water quality and iron-encrusted streambed” at S-10 but indicated that fish and other aquatic life is present.

Treatment Facility Summary

Treatment Facility Name: Girardville Area Municipal Authority WWTP

WQM Permit No.	Issuance Date	Scope
5412401	2/11/2013	Change from chlorine gas to sodium hypochlorite
5496404	11/14/1996	0.24 MGD WWTP with plant constructed circa 2000 AD. Design Engineer Report indicated basis of design was 440 lbs BOD5 /day.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.34 (NPDES Permit Basis flow)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.24*	440	Not Overloaded	Aerobic Digestion and reed drying beds	Landfilled

*****As-built STP capacity, not constructed for 0.34 MGD NPDES Permit-Basis flows.

Changes Since Last Permit Issuance:

- They are using dechlorination tablets as an operational measure to reduce TRC exceedances.
- The 2019 Chapter 94 Report indicated they had added a new digital chlorine pump and dechlorination.

Other Comments:

WWTP Description:

- One (1) comminutor/bar screen, one equalization tank (Chapter 94 indicated 50,000-gallon size), three (3) aeration/clarification tanks, one (1) two chamber chlorine contact tank, and outfall. equalization tank. Sludge is aerobically digested and then sent to four Reed drying beds onsite. No offsite sludge disposal in 2019 or 2020 per Chapter 94 Reports. Inspection reports indicate usage of dechlorination tablets.
- No planned upgrade for next 5 years.

Minimum Monthly Average Reduction: They appear to have met the BOD5 and TSS reduction requirement over the year, but there have been EDMR months where the CBOD5 reduction was not achieved:

- BOD5: 171 mg/l average, 85% reduction would equate to 25.25 mg/l BOD5 effluent (~21.375 mg/l CBOD5 at standard effluent ration of 1.2BOD5/1 CBOD5).
- TSS: 172 mg/l average, 85% reduction would equate to 25.8 mg/l TSS.
- **CBOD5: January 2021 was not compliant with an 85% monthly average minimum reduction (57.7 mg/l influent and 16.5 mg/l effluent, ~71% reduction).** The reason for the very low influent concentration not identified.

2021 Chapter 94 Report:

- **Items 1, 2, 3 and 9 (Hydraulic/Organic Loading)**:
  - **Hydraulic Overloading**: 2018 and 2019 hydraulic overloading occurred (very wet years). No present or projected overloading.
  - **Organic Overloading: Organic Overloading in 2016, 2018, and 2020. No existing or projected organic overloading was reported but that was due to an incorrect Organic Design Capacity (480 lbs BOD5/day) reporting assumption in the Chapter 94 Spreadsheet and graphs. The as-built STP has a 440 lbs BOD5/day organic design capacity (as set forth in the previous NPDES Permit and Fact Sheet)**.
    - 2016: They had organic overloading back in April 2016 (452 lbs BOD5/day), April 2018 (461 lbs BOD5/day), and June 2020 (463 lbs BOD5/day) using 24-hour composite sampling data.

        - 2019: monthly loadings ranged from 107 – 285 lbs BOD5/day (average of 178 lbs BOD5/day).
        - 2020: monthly loadings ranged from 118 – **463** lbs BOD5/day (average of 182 lbs BOD5/day). No explanation given for apparent annual spiking. 2020 Chapter 94 Report Attachment G indicated an average influent loading of only 110.38 mg/L BOD5. That would be considered a "weak" domestic wastewater per Metcalf & Eddy.
        - 2021: Monthly loadings ranged from 58 – 405 lbs BOD5/day. **NOTE**: For months of January, February, March and December, influent BOD5 information was not collected, only CBOD5. However, no correlation of CBOD5/BOD5 was identified to allow for accurate estimation of Influent BOD5 loadings. (The 1.2 BOD5/1 CBOD5 default ratio is for treated effluent.)
        - Projected Loading: 396 lbs BOD5/day every year for next 5 years. This is not reasonable given reported spiking incidents above organic design capacity.
    - ADF: 0.106 MGD. Hydraulic Design Capacity is 0.240 MGD (as-built STP limitation)
    - Max 3-month average: 0.125 MGD
    - Max Month: 0.1735 MGD (September)
    - Organic Loadings: 58 – 405 lb BOD5/day range. Organic Design Capacity of 440 lbs BOD5/day
    - Persons/EDU: 3.5
    - Existing EDUs: 786
        - This would equate to 2751 individuals (above present identified population of 2243). It is unclear what commercial sources (Restaurants, etc.) are accounted for in the EDU figure. No reported industrial contribution.
        - Original WQM Permitting assumed a projected 957 EDUs at 2.5 person/EDU and 100 GPCD, equivalent to 2393 persons and 0.2393 MGD dry weather flow. Module 1 assumed 892 EDUs at time of permitting.
    - Load/EDU: 0.250 lbs BOD5/day
    - Load/Capita: 0.071 lbs BOD5/day
    - Projected Growth (EDU/year): Zero
    - Previous hydraulic overloading (2018 – 2019): The 2019 Corrective Action Plan blamed the problem on I&I. ~7 tons of stones were found in the influent equalization tank, indicating potential washouts. They conducted dye testing and replaced missing manhole "dishes". Televised inspections were done in some areas to locate I&I sources. In November 2019, the Authority installed 4 flow meters along the two main interceptors and force main from the EQ Basin to quantify I&I (in conjunction with sewer main investigation work. The Authority noted it was advertising for a contractor to conduct internal home inspections for identification of sump pumps, roof leaders or area drains discharging to the sewer system. No CAP in the 2020 Chapter 94 Report, but mention of continuing investigation of sources of high I&I and stones. The Chapter 94 spreadsheet did not include monthly precipitation figures to allow for direct comparison with flow data
    - Renewal Application Information: Influent Raw Sewage Data: Average Raw Sewage Influent (24-hour composite sampling).
        - BOD5: 171 mg/l (185 lbs BOD5/day) BOD5 average (22 samples). They reported a maximum 272 mg/l (463 lbs) BOD5/day sample. Original WQM permit design was based on 240 mg/l BOD5 influent.
        - TSS: 172 mg/l (191 lbs/day) TSS (23 samples). They reported a maximum 270 mg/l (399 lbs) TSS sample.
        - Permit Renewal Application Tributary Info:
            - Girardville Borough (88% flow contribution): ~2012 persons
            - Butler Township (12% flow contribution): ~262 persons.
            - Total: 2243 persons
            - Calculated Loadings: Using the DWFM Section 43.5 default values for new domestic sewer systems, the present total population would be expected to generate:
                - 342 lbs BOD5/day (at 0.17 lb BOD5/cap/day)
                - 224,300 GPD sewage (at 100 GPD/capita, assuming no commercial/industrial sources).
- Item 4 (Sewer Extension) and Attachment C: No sewer extensions in 2019 or 2020 or 2021.
- Item 5 (Sewer Condition) and Attachment D: Attachment C indicated collection system/WWTP constructed in 2000. Estimated 40,000 LF of 6-inch and 8-inch PVC mains; 19,500 LF of 4-inch PVC laterals; 214 manholes and 62 cleanouts. (No pump stations.). Attachment D referenced for sewer system maintenance program. Attachment C noted they did property inspections and required removal of sump pumps, roof leaders, and other sources. 3 homes remained to be inspected as they prepared the Chapter 94 Report. Three sections of sanitary sewer will

be replaced in 2022, pending PENNVEST funding. They plan a 2022 WWTP rehabilitation project to replace assorted equipment (pumps, etc.).
    - 2019 Report: Dechlorination added to WWTP. Inspection program referenced for sewer system inspection for I&I flows (see 2019 CAP) and source of stones found in Equalization tank.
    - 2020 Report: Other than reporting they have M&B do contract work, and that they are continuing looking for sources of I&I/stones, no details.
- Item 6 (capacity-related overflows or surcharging): Two WWTP EQ Tank plant overflows reported They are replacing the EQ Tank pumps.
- Item 8 (IW): Item left blank. Unknown if there are any industrial discharges in the collection system.
- Item 10 (Sludge Management Inventory) and Attachment F (Sludge Disposal): Item left blank. 36,201 gallons of sludge was hauled offsite or applied to reed beds in 2021 (but no breakdown given). **Existing NPDES Permit Part C.III (Solids Management) requirements apply but were not addressed:**
    - Part C.III: The existing Part C.III.C Sewage Sludge Management Inventory requirement for using the EPA methodology to identify expected sludge production was not provided. Both the 2019 and 2020 Reports identified monthly sludge volume directed to the Reed Beds in Gallons in Attachment F. Additional information included ADF Flow, average influent BOD5, average effluent CBOD5, total annual volume of sludge wasted, and zero sludge generated (i.e. none removed from drying beds for offsite-treatment, beneficial use or disposal).
    - Required Drying Bed-specific Information: 2021 Report noted Reedbeds would be rehabilitated in 2022. The 2021 Report did not breakdown what sludge volumes were going to the Reed beds. None of the Chapter 94 Reports included the existing NPDES Permit Part C.III-required drying bed information. “The volume of sludge, age of sludge, utilized storage capacity, and available unused storage capacity within the individual sludge drying/Reed beds bays shall be provided in table format. Sludge quantities shall be expressed as dry weight in addition to gallons or other appropriate units.” Simply stating the volume of liquid sludge going to the reed drying beds is not compliance with the existing permit condition.
- Attachment C (Sanitary System Description and Sewer Extensions): Obsolete NPDES Permit requirements cited (old TRC limit, no mention of DO or Ammonia-N limits) were included (limits were effective in 2019). 2019 Report mentioned dechlorination, but not 2020 Report.

Compliance History

DMR Data for Outfall 001 (from March 1, 2021 to February 28, 2022)

Parameter	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21
Flow (MGD) Average Monthly	**0.1694**	**0.1034**	**0.0784**	**0.1043**	**0.09577**	**0.1735**	**0.0964**	**0.0815**	**0.0745**	**0.09621**	**0.10594**	**0.1508**
Flow (MGD) Daily Maximum	**0.5817**	**0.1627**	**0.1104**	**0.2488**	**0.3129**	**1.204**	**0.226**	**0.1716**	**0.112**	**0.2305**	**0.3011**	**0.3493**
pH (S.U.) Minimum	6.24	6.28	6.23	6.02	6.06	6.32	6.45	6.45	6.63	6.48	6.44	6.4
pH (S.U.) Instantaneous Maximum	6.85	7.05	6.8	6.84	6.82	6.86	6.9	7.19	6.91	7.68	7.02	7.1
DO (mg/L) Minimum	5.53	6.16	5.17	4.71	4.91	**2.5**	4.07	4.03	**3.8**	**2.24**	5.15	5.2
TRC (mg/L) Average Monthly	< 0.1	< 0.2	0.2	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.02	< 0.1	0.2	< 0.4
TRC (mg/L) Instantaneous Maximum	0.46	2.2	1.55	1.05	0.37	0.87	**2.2**	0.28	0.09	0.76	1.53	1.4
CBOD5 (lbs/day) Average Monthly	7.8	14.2	< 3.0	< 22.6	4.3	**< 7706.6**	< 2.2	2.1	2.8	15.7	6.5	8.9
CBOD5 (lbs/day) Weekly Average	15.3	47.0	4.5	53.7	13.8	**658.0**	< 3.8	3.6	4.0	28.4	9.2	14.3
CBOD5 (mg/L) Average Monthly	8.7	16.8	4.3	< 15.1	5.9	**< 35.0**	< 3.0	3.8	5.4	12.6	8.6	5.9
CBOD5 (mg/L) Influent Average Monthly	169	187	405	184	296	148	202	203	174	53	156	315
CBOD5 (mg/L) Weekly Average	18.5	**54.0**	6.0	33.3	17.2	**72.5**	< 4.1	5.4	6.9	16.6	12.4	6.7
TSS (lbs/day) Average Monthly	42.7	42.6	3.5	123.0	19.6	**< 1467.4**	6.0	10.1	8.3	51.1	13.6	16.6
TSS (lbs/day) Weekly Average	88.1	137.4	10.0	300.1	71.6	**3801.2**	12.0	35.0	18.7	62.7	32.5	28.6
TSS (mg/L) Average Monthly	31.6	51.3	4.8	77.2	25.5	**< 179.6**	8.0	16.0	16.4	41.0	18.0	11.0
TSS (mg/L) Influent Average Monthly	164	190	517	152	680	210	292	408	314	84	198	423

TSS (mg/L) Weekly Average	59.5	158.0	13.0	182.0	89.0	**396.7**	13.5	53.0	40.0	37.0	44.0	13.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 6	< 6.0	< 2	< 9	< 7	**1363**	15	61	< 10	< 78	< 3	< 11
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	18	30	2000	23	43	**96400**	38	200	58	**56000**	8	110
Nitrate-Nitrite (mg/L) Average Monthly	10.9	4.73	15.5	19.2	15.8	12.7	20.9	13.5	9.11	8.96	5.55	12.6
Nitrate-Nitrite (lbs) Total Monthly	253	3.0	299	347	283	302	260	189	157	397	175	315
Total Nitrogen (mg/L) Average Monthly	17.46	6.73	16.68	12	16.62	13.53	22.07	17.76	15.47	19.76	8.07	14.04
Total Nitrogen (lbs) Effluent Net Total Monthly	405	130	322	365	298	322	274	249	266	876	254	351
Total Nitrogen (lbs) Total Monthly	405	4.0	322	365	298	322	274	249	266	876	254	351
Total Nitrogen (lbs) Effluent Net Total Annual						5143						
Total Nitrogen (lbs) Total Annual						5143						
Ammonia (lbs/day) Average Monthly	0.3	0.8	0.5	< 0.06	0.06	< 1	< 0.7	< 0.6	2	4	0.7	< 0.2
Ammonia (mg/L) Average Monthly	0.36	1.08	0.72	< 0.09	0.1	< 0.33	< 0.5	< 1.16	3.51	3.13	1.08	< 0.16
Ammonia (mg/L) Daily Maximum					0.18	0.79	1.4	2.9	4.23	6.58		
Ammonia (lbs) Total Monthly	10	25	16	< 2	2.0	< 38	< 22	< 19	54	123	21	< 7
Ammonia (lbs) Total Annual						< 547						
TKN (mg/L) Average Monthly	6.56	2.0	1.18	1.0	0.82	0.83	1.17	4.26	6.36	10.8	2.52	1.44
TKN (lbs) Total Monthly	152	39	23	18	15	20	15	60	109	479	79	36
Total Phosphorus (lbs/day) Average Monthly	2.0	2.0	3.0	2.0	2.0	2	2	3	2	7	2	4

Total Phosphorus (mg/L) Average Monthly	2.83	2.72	4.68	2.94	3.27	2.24	5.96	7.16	3.02	4.7	1.92	4.35
Total Phosphorus (lbs) Effluent Net Total Monthly	66	53	90	53	59	53	74	100	52	208	60	109
Total Phosphorus (lbs) Total Monthly	66	53	90	53	59	53	74	100	52	208	60	109
Total Phosphorus (lbs) Effluent Net Total Annual						1165						
Total Phosphorus (lbs) Total Annual						1165						
Total Aluminum (mg/L) Average Monthly			0.05									
Total Copper (lbs/day) Average Monthly	0.03	0.007	0.01	0.009	0.009	0.01	0.009	0.008	0.02	0.03	0.01	0.01
Total Copper (mg/L) Average Monthly	0.036	0.012	0.019	0.015	0.016	0.012	0.022	0.018	0.028	0.023	0.011	0.014
Total Copper (mg/L) Daily Maximum	0.036	0.012	0.019	0.015	0.016	0.012	0.022	0.018	0.028	0.023	0.011	0.014
Total Iron (mg/L) Average Monthly			0.12									
Total Manganese (mg/L) Average Monthly			0.06									

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.1076	0.1573	0.0901	0.0907	0.0701	0.0922	0.0818	0.1371	0.1396	0.1588	0.1207	0.1224
Flow (MGD) Daily Maximum	0.186	1.2337	0.2247	0.2932	0.1018	0.206	0.1594	0.336	0.4964	0.8361	0.3042	0.3439
pH (S.U.) Minimum	6.4	6.3	6.1	6.1	6.0	**5.9**	6.1	6.0	6.2	6.3	6.1	6.0
pH (S.U.) Instantaneous Maximum	7.3	7.2	7.3	6.9	6.9	7.1	7.4	7.2	7.2	7.4	7.5	7.1

DO (mg/L) Minimum	5.1	5.2	4.2	4.1	4.1	4.1	**0.8**	4.1	4.0	4.1	4.0	4.4
TRC (mg/L) Average Monthly	< 0.3	< 0.3	< 0.3	< 0.2	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2	< 0.3	0.2	0.3
TRC (mg/L) Instantaneous Maximum	**2.2**	**2.2**	**2.2**	1.1	0.6	0.5	0.3	1.0	1.6	1.5	0.8	0.8
CBOD5 (lbs/day) Average Monthly	11.5	18.2	3.1	< 4.0	< 2.5	3.5	3.9	5.4	6.3	7.0	6.6	11.1
CBOD5 (lbs/day) Weekly Average	24.7	40.5	5.3	9.4	6.5	8.7	7.0	10.3	9.3	10.5	11.2	34.6
CBOD5 (mg/L) Average Monthly	16.5	10.4	3.6	< 4.2	< 3.9	4.6	5.8	4.2	5.7	6.6	6.6	7.5
CBOD5 (mg/L) Influent Average Monthly	57.7	77	50.2	91.4	103	157	106	106	75.9	98.1	165	134
CBOD5 (mg/L) Weekly Average	38.7	15.1	4.3	6.6	10.6	9.6	10.4	4.5	7.9	8.0	11.9	18.9
TSS (lbs/day) Average Monthly	14.9	< 17.9	9.2	< 23.0	3.8	4.7	9.5	8.1	8.9	9.0	10.5	7.6
TSS (lbs/day) Weekly Average	20.2	36.0	19.6	82.0	6.1	12.7	11.7	21.5	12.3	17.2	13.3	20.1
TSS (mg/L) Average Monthly	20.0	< 13.3	10.0	< 18.1	5.8	6.0	14.2	5.0	8.0	9.0	10.5	5.5
TSS (mg/L) Influent Average Monthly	**119**	**124**	**160**	**258**	**213**	**187**	**260**	**134**	**98**	**60**	270	152
TSS (mg/L) Weekly Average	25.0	24.0	15.0	57.5	10.0	14.0	18.0	9.0	13.0	21.0	15.0	11.0
Fecal Coliform (CFU/100 ml) Geometric Mean	1350	< 41	< 5	< 3	< 2	< 51	< 4	< 34	< 2	< 4	< 5	< 2
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	**12200**	300	540	90	30	360	4000	3400	20	1450	40	10
Nitrate-Nitrite (mg/L) Average Monthly	8.88	11.8	21.2	< 1.62	15.4	24.4	20.8	19.4	4.96	3.3	13.6	26.3
Nitrate-Nitrite (lbs) Total Monthly	265	308	385	< 59	348	517	464	1388	223	116	374	6.58
Total Nitrogen (mg/L) Average Monthly	17.02	13.71	23.66	37.04	16.81	25.76	22.99	23.5	9.56	7.42	15.6	28.02

Total Nitrogen (lbs) Effluent Net Total Monthly	507	358	430	822	379	545	513	1682	430	261	430	701
Total Nitrogen (lbs) Total Monthly	507	358	430	822	379	545	513	1682	430	261	430	701
Total Nitrogen (lbs) Effluent Net Total Annual					< 7418							
Total Nitrogen (lbs) Total Annual					< 7418							
Ammonia (lbs/day) Average Monthly	2	< 2	< 0.6	< 2	< 0.3	< 0.8	4	< 4	2	3	< 0.7	< 1
Ammonia (mg/L) Average Monthly	3.25	< 1.18	< 0.58	< 1.6	< 0.5	< 0.9	5.3	< 3.5	1.8	3.12	< 0.72	< 1.33
Ammonia (mg/L) Daily Maximum				4.2	1.87	3.4	14	8.2	2.97			
Ammonia (lbs) Total Monthly	77	< 62	< 18	< 59	< 10	< 25	110	< 113	60	97	< 22	< 40
Ammonia (lbs) Total Annual					< 557							
TKN (mg/L) Average Monthly	8.14	1.91	2.46	4.64	1.41	1.36	2.19	4.1	4.6	4.12	2	1.72
TKN (lbs) Total Monthly	243	50	45	103	32	29	49	293	207	145	55	43
Total Phosphorus (lbs/day) Average Monthly	3	3	2	5	3	5	4	15	0.9	2	2	3
Total Phosphorus (mg/L) Average Monthly	4.99	3.36	3.48	7.55	3.87	6.87	5.79	6.09	0.6	1.36	2.67	3.78
Total Phosphorus (lbs) Effluent Net Total Monthly	108	88	63	167	87	145	129	436	27	48	74	95
Total Phosphorus (lbs) Total Monthly	108	88	63	167	87	145	129	436	27	48	74	95
Total Phosphorus (lbs) Effluent Net Total Annual					1454							
Total Phosphorus (lbs) Total Annual					1454							
Total Aluminum (mg/L) Average Monthly		0.05										

Total Copper (lbs/day) Average Monthly	0.04	< 0.02	0.01	0.04	0.4	0.02	0.02	0.07	0.01	0.01	0.01	0.02
Total Copper (mg/L) Average Monthly	0.045	< 0.02	0.02	0.054	0.512	0.028	0.032	0.028	0.01	0.011	0.015	0.019
Total Copper (mg/L) Daily Maximum	0.045	< 0.02	0.02	0.054	0.512	0.028	0.032	0.028	0.01	0.011	0.015	0.019
Total Iron (mg/L) Average Monthly		0.10										
Total Manganese (mg/L) Average Monthly		0.110										

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2020 To: February 28, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	08/31/20	Min	5.9	S.U.	6.0	S.U.
DO	07/31/20	Min	0.8	mg/L	4.0	mg/L
DO	05/31/21	Min	2.24	mg/L	4.0	mg/L
DO	06/30/21	Min	3.8	mg/L	4.0	mg/L
DO	09/30/21	Min	2.5	mg/L	4.0	mg/L
TRC	11/30/20	IMAX	2.2	mg/L	1.6	mg/L
TRC	12/31/20	IMAX	2.2	mg/L	1.6	mg/L
TRC	01/31/21	IMAX	2.2	mg/L	1.6	mg/L
TRC	08/31/21	IMAX	2.2	mg/L	1.6	mg/L
Fecal Coliform	06/30/20	IMAX	3400	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	07/31/20	IMAX	4000	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	01/31/21	IMAX	12200	CFU/100 ml	10000	CFU/100 ml

Fecal Coliform	05/31/21	IMAX	56000	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	09/30/21	IMAX	96400	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	09/30/21	Geo Mean	1363	CFU/100 ml	200	CFU/100 ml
CBOD5	09/30/21	Avg Mo	< 7706.6	lbs/day	70.8	lbs/day
CBOD5	09/30/21	Wkly Avg	658.0	lbs/day	113.4	lbs/day
CBOD5	09/30/21	Avg Mo	< 35.0	mg/L	25.0	mg/L
CBOD5	09/30/21	Wkly Avg	72.5	mg/L	40.0	mg/L
CBOD5	01/31/22	Wkly Avg	54.0	mg/L	40.0	mg/L
TSS	05/31/21	Avg Mo	41.0	mg/L	30.0	mg/L
TSS	09/30/21	Avg Mo	< 179.6	mg/L	30.0	mg/L
TSS	11/30/21	Avg Mo	77.2	mg/L	30.0	mg/L
TSS	01/31/22	Avg Mo	51.3	mg/L	30.0	mg/L
TSS	02/28/22	Avg Mo	31.6	mg/L	30.0	mg/L
TSS	10/31/20	Wkly Avg	57.5	mg/L	45.0	mg/L
TSS	07/31/21	Wkly Avg	53.0	mg/L	45.0	mg/L
TSS	09/30/21	Wkly Avg	396.7	mg/L	45.0	mg/L
TSS	10/31/21	Wkly Avg	89.0	mg/L	45.0	mg/L
TSS	11/30/21	Wkly Avg	182.0	mg/L	45.0	mg/L
TSS	01/31/22	Wkly Avg	158.0	mg/L	45.0	mg/L
TSS	02/28/22	Wkly Avg	59.5	mg/L	45.0	mg/L
TSS	09/30/21	Wkly Avg	3801.2	lbs/day	127.6	lbs/day
TSS	11/30/21	Wkly Avg	300.1	lbs/day	127.6	lbs/day

TSS	01/31/22	Wkly Avg	137.4	lbs/day	127.6	lbs/day

Summary of Inspections:

FACILITY NAME	INSP ID	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	INSPECTOR ID	# OF VIOLATIONS
GIRARDVILLE AREA MUN AUTH	2912195	01/11/2022	Routine/Partial Inspection	Violation(s) Noted	00531359	2
GIRARDVILLE AREA MUN AUTH	2650309	10/20/2021	Compliance Evaluation	Violation(s) Noted	00531359	2
GIRARDVILLE AREA MUN AUTH	3061570	12/30/2020	Administrative/File Review	No Violations Noted	00531359	0
GIRARDVILLE AREA MUN AUTH	2873336	10/21/2020	Follow-up Inspection	No Violations Noted	00531359	0
GIRARDVILLE AREA MUN AUTH	3127392	07/29/2020	Administrative/File Review	Violation(s) Noted	00531359	1
GIRARDVILLE AREA MUN AUTH	2859633	07/17/2020	Compliance Evaluation	No Violations Noted	00531359	0
GIRARDVILLE AREA MUN AUTH	3057043	04/29/2020	Administrative/File Review	No Violations Noted	00531359	0
GIRARDVILLE AREA MUN AUTH	2894841	07/17/2019	Follow-up Inspection	No Violations Noted	00531359	0
GIRARDVILLE AREA MUN AUTH	3269909	06/20/2019	Routine/Partial Inspection	Violation(s) Noted	00531359	4
GIRARDVILLE AREA MUN AUTH	3109503	04/29/2019	Administrative/File Review	Violation(s) Noted	00531359	1
GIRARDVILLE AREA MUN AUTH	2913136	04/03/2019	Administrative/File Review	Violation(s) Noted	00531359	2
GIRARDVILLE AREA MUN AUTH	2467386	02/27/2019	Compliance Evaluation	No Violations Noted	00613405	0
GIRARDVILLE AREA MUN AUTH	2556489	09/14/2017	Routine/Partial Inspection	Violation(s) Noted	00531359	2
GIRARDVILLE AREA MUN AUTH	3305779	12/12/2016	Administrative/File Review	Violation(s) Noted	00531359	4
GIRARDVILLE AREA MUN AUTH	3025970	01/11/2016	Administrative/File Review	No Violations Noted	00531359	0

Other Comments:

- **Previous NPDES Permit's Schedule of Compliance (Ammonia-N, TRC, and DO)**: No additional Schedule is appropriate in this permit term for these constituents. No final plan found in available DEP files and no related plant upgrades known (other than operational usage of dechlorination tablets).
- **Previous NOVs**:
  - 7/17/2019 NOV issued due to effluent exceedances (Fecal Coliform, TSS, TRC, CBOD5, pH) and failures to meet monitoring requirements.
  - 1/11/2022 NOV issued due to effluent exceedances (Fecal Coliform, TSS, DO, pH, TRC, CBOD5), failure to collect samples, failure of operate and maintain all facilities. EQ Tank pumps, reed bed pumps, sludge holding tank aeration system and auto-dialer alarm system were out of service. Failure to maintain 2-feet of freeboard in EQ Tank. WWTP EQ Tank overflows. SSO at WWTP influent pump station manhole. Missing compliance plan and Capital Improvements Plan submittals.
- **Pathogen-related issues**: This is a pathogen-impaired stream:
  - There are known CSOs upstream, but wildcat sewers are also possible sources due to apparent Chapter 94 Report underloading (low per below what is expected) discussed in the Engineering Section and residences upstream without apparent connection to the STP.
  - To the extent the facility does not meet its existing fecal coliform permit limits, it is contributing to the ongoing stream impairment.
- **Apparent pattern of O&M Issues**: The application-identified causes for noncompliance included operator error (low pH, but not explanation), blockages in RAS line, chlorine pump failures, sludge build-up in chlorine contact tank, cross-contamination (TRC), air line blow-out, excess air, insufficient dechlorination. This pattern might require additional O&M actions. Inspection Reports also noted assorted O&M issues (EQ Tank-related overflow, Reed Bed-related, etc.). **NOTE**: The facility has indicated that it will be doing assorted in-kind replacement work and repairs in the 7/21/2021 Response to Technical Deficiency Letter.
- **85% Minimum Monthly Average Reduction**: Facility did not achieve an 85% minimum monthly average CBOD5 reduction in January 2021. They reported a low influent CBOD5 value that month.
- **Chapter 94 Report Noncompliance Issues (see Engineering Section for 2021 Chapter 94 Report comments):**
  - Previous hydraulic overloading (2018-2019), previous organic overloading.
  - Failure to comply with existing NPDES Permit Part C.III.C reporting requirements

Open Violations per 4/26/2022 WMS Query (Open Violations by Client Number): Fourteen (14) violations:

FACILITY	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
GIRARDVILLE AREA MUN AUTH	2912195	857209	01/11/2022	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
GIRARDVILLE AREA MUN AUTH	2912195	857210	01/11/2022	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance

GIRARDVILLE AREA MUN AUTH	2913136	857470	01/11/2022	92A.44	NPDES - Violation of effluent limits in Part A of permit
GIRARDVILLE AREA MUN AUTH	2913136	857471	01/11/2022	92A.41(A)10C	NPDES - Failure to collect representative samples
GIRARDVILLE AREA MUN AUTH	3109503	899723	10/20/2021	92A.41(A)8	NPDES - Failure to provide information or records required by the permit or otherwise needed to determine compliance
GIRARDVILLE AREA MUN AUTH	3127392	903426	10/20/2021	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
GIRARDVILLE AREA MUN AUTH	3269909	934041	10/20/2021	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
GIRARDVILLE AREA MUN AUTH	3269909	934042	10/20/2021	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
GIRARDVILLE AREA MUN AUTH	3269909	934043	12/30/2020	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
GIRARDVILLE AREA MUN AUTH	3269909	934044	10/21/2020	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
GIRARDVILLE AREA MUN AUTH	3305779	941555	07/17/2019	92A.44	NPDES - Violation of effluent limits in Part A of permit
GIRARDVILLE AREA MUN AUTH	3305779	941556	07/17/2019	92A.61(C)	NPDES - Failure to monitor pollutants as required by the NPDES permit
GIRARDVILLE AREA MUN AUTH	3305779	941558	06/20/2019	92A.47(C)	NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO)

GIRARDVILLE AREA MUN AUTH	3305779	941560	06/20/2019	92A.41(A)4	NPDES - Failure to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of a permit

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .34
Latitude 40º 47' 31.00" **Longitude** -76º 17' 53.00"
Wastewater Description: Sewage Effluent

Permit Limits and/or Monitoring (Changes bolded):

Parameter	Limit (mg/l unless otherwise specified)	SBC	Model/Basis
CBOD5	70.8 Lbs/d 113.4 Lbs/d 25.0 40.0 50.0	Monthly Average Weekly Average Monthly Average Weekly Average IMAX	Existing Technology limit (Chapter 92a.47) supported by water quality modeling. Application data: 55.8 mg/l max and <7.0 mg/l average (115 samples).
TSS	85.0 Lbs/d 127.6 Lbs/d 30.0 45.0 60.0	Monthly Average Weekly Average Monthly Average Weekly Average IMAX	Existing Technology limit (Chapter 92a.47). Application data: 74 mg/l max and <10.0 mg/l average (115 samples).
pH	6.0 – 9.0 SU	**Inst.** Min - IMAX	Existing Technology limit (Chapter 92a.47) Application data: **5.82 SU** to 7.89 SU (731 samples).
Fecal Coliform (5/1 – 9/30)	200/100 ml 1,000/100 ml	Geo Mean IMAX	Existing Technology limit (Chapter 92a.47) Application data: **4000/100** ml max and <12/100 ml average (113 samples)
Fecal Coliform (10/1 – 4/30)	2,000/100 ml 10,000 ml/100 ml	Geo Mean IMAX	See above
Total Residual Chlorine (TRC) 0.5**0** 1.6**3**	Average Monthly IMAX	Existing Water Quality Modeling (TRC Spreadsheet) based on Chapter 92a.48 BAT limit. **Significant digit added.** Antibacksliding prevents less stringent IMAX limit. Application data: **2.2 mg/l Max** and <0.5 mg/l average (708 samples)
Ammonia-Nitrogen (5/1 – 10/31)	70.8 Lbs/d Report Lbs/d 25.0 **50.0** 50.0	Monthly Average Daily Max Monthly Average **Daily Max** IMAX	Existing limit. Chapter 92.61 and Chesapeake Bay monitoring requirement. Application data: 16.2 mg/l max and <1.58 mg/l average (117 samples).
Ammonia-Nitrogen (11/1 – 4/30)	Report Lbs/d Report Lbs/d Report Report	Monthly Average Daily Max Monthly Average Daily Max	See above.
Dissolved Oxygen (DO)	4.0	**Inst.** Min	Existing WQBEL (WWF stream) Application data: **0.75 mg/l min**, 5.44 mg/l average (731 samples).

Total Phosphorus	Report Lbs Report Lbs Report Report	**Monthly Average** **Daily Max** Monthly Average **Daily Max**	Ongoing Chesapeake Bay monitoring requirement for Phase 4 facility. Application data: 7.55 mg/l max and 3.80 mg/l average (27 samples)
Total Nitrogen (Nitrate-Nitrite-N + TKN measured in same sample)	Report Lbs Report Lbs Report Report	**Monthly Average** **Daily Max** Monthly Average **Daily Max**	See above Application data: TKN: 14.10 mg/l max and <3.25 mg/l average (27 samples). Nitrate-Nitrite as N: 32.4 mg/l max and <18.0 mg/l average (26 samples)
TDS, Chlorides, Sulfates, and Bromide	-	-	No monitoring or permit limits per Reasonable Potential Analysis. Application data: TDS: 272 mg/l (1 sample). Chlorides: 59 mg/l (1 sample) Bromide: <1 mg/l (1 sample) Sulfate: 33 mg/l max (1 sample)
TMDL metals (Aluminum, Total Iron)	**Report Lbs/d** **Report Lbs/d** Report **Report**	**Annual Average** **Daily Max** Annual Average **Daily Max**	Annual monitoring to gather information for updating receiving stream TMDL. Application data: Aluminum: <0.1 mg/l max and <0.05 mg/l average (12 samples). Total Iron: 0.15 mg/l max and <0.10 mg/l average (12 samples) Manganese: 0.28 mg/l max and 0.11 mg/l average (12 samples). TOXCONC calculated the 0.2134425 mg/l LTAMEC and 0.6252744 daily COV using additional application data.
Manganese	**Report Lbs/d** **Report Lbs/d** Report **Report**	**Monthly Average** **Daily Max** Monthly Average **Daily Max**	Monthly monitoring per Reasonable Potential Analysis. Application data: 0.28 mg/l max and 0.11 mg/l average (12 samples). TOXCONC calculated the 0.2134425 mg/l LTAMEC and 0.6252744 daily COV using additional application data.
Copper	Report Lbs/d **Report Lbs/d** Report Report	Monthly Average **Daily Max** Monthly Average Daily Max	Existing monitoring requirement retained due to Reasonable Potential analysis. Application data: **0.512 mg/l max and <0.04 mg/l average (24 samples).** TOXCONC calculated 0.0958884 mg/l LTAMEC and 1.1676584 daily COV. Application reported potential spiking incident (0.512 mg/l Copper) as an outlier, but no technical rationale was given to show the sample data was in error.
Lead	-	-	No monitoring or permit limits per Reasonable Potential Analysis. Application data: 0.007 mg/l (1 sample)
Zinc	-	-	No monitoring or permit limits per Reasonable Potential Analysis. Application data: 0.156 mg/l (1 sample)

BOD5 Minimum Monthly Average Reduction	**85%**	**Minimum Monthly Average**	**Existing POTW condition and Chapter 92a.47 Requirement, now requiring reporting. They have dropped CBOD5 influent monitoring, with 1.2 BOD5/1 CBOD5 effluent ratio accepted.**
TSS Minimum Monthly Average Reduction	**85%**	**Minimum Monthly Average**	**Existing POTW condition and Chapter 92a.47 Requirement, now requiring reporting.**

Comments:

- General updating to current EMDR requirements (Instantaneous Minimums/IMAX limits for grab samples, adjusted fecal coliform units). Significant units added to TRC limits.
- Ammonia-N summer daily max limit based on existing IMAX limit to ensure reporting of exceedances (any duration exceedance of IMAX is a violation).
- Additional mass loading reporting (no additional sampling required) and daily max reporting or limits.
- Influent BOD5 and TSS monitoring relocated to administratively created Outfall/IMP 101 (Raw Sewage Influent) at headworks. Influent CBOD5 monitoring converted to BOD5 monitoring per applicant request.
- As an insignificant Chesapeake Bay Phase 4 facility, the permit will be generated using standard municipal NPDES Permit (no special CB table or total mass reporting requirements).

Reasonable Potential Analysis: No industrial and commercial dischargers per application. Reasonable Potential Analysis included discharge hardness (55.2 mg/l) and stream hardness (360 mg/l). TOXCONC was run with 24 copper samples and 12 Manganese samples to calculate Long Term Average Monthly Effluent Concentration (LTAMEC) and daily Coefficients of Variability (COV) for the Reasonable Potential Analysis.

- Manganese: Due to lack of I&I issues and no industrial sources, Manganese monitoring will be annual (along with other AMD metals) to gather information for updating Mahanoy Creek TMDL.
- Copper: Single spiking incident (0.512 mg/l) which they called an outlier (no technical rationale given for discarding). Monitoring will continue for Copper at monthly frequency in the absence of any known industrial source. They suspect the copper is coming from the water supply. Part B.I.D (General Pretreatment Requirements) applies to potential spiking incidents resulting in potential pass-through or interference events. The AMD-impaired stream has a very high Total Hardness, reducing copper toxicity in the stream. If the stream condition improves, more stringent permit limits might apply in the future.

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

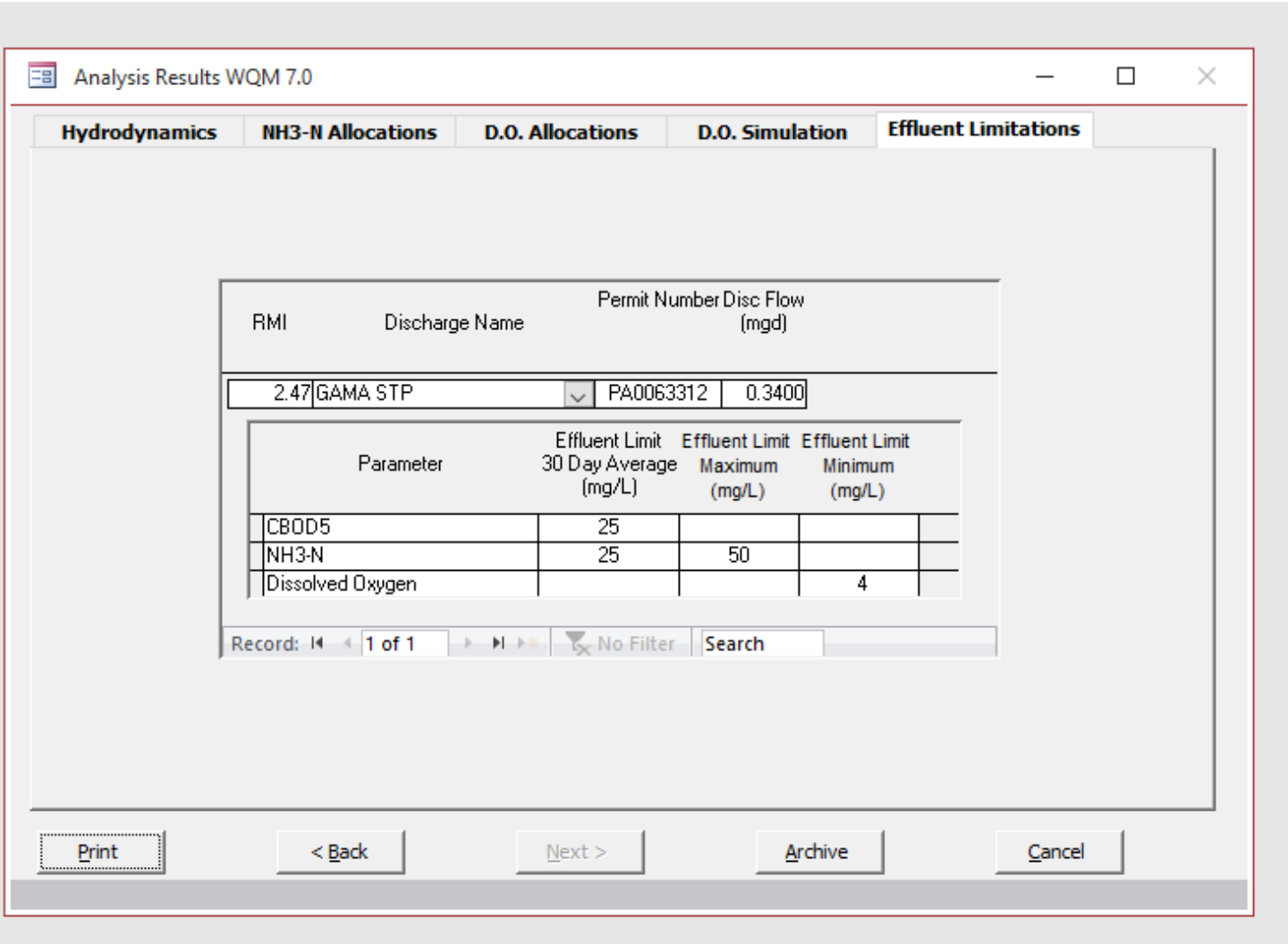
No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	µg/L	454	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	1,000	THH	Discharge Conc > 10% WQBEL (no RP)

GirardvilleTMSpdf.pdf GirardvilleWQMModel7.pdf

		Reviewer/Permit Engineer:	Berger
Facility:	Girardville Area Municipal Authority (GAMA)		
NPDES #:	PA0063312		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Copper (mg/L)	Delta-Lognormal	1.1676584	0.0958884
Manganese (mg/L)	Lognormal	0.6252744	0.2134425



TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — Girardville Area Municipal Authority WWTP

8.42	= Q stream (cfs)	0.5	= CV Daily
0.34	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.582	= 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 = 2.991	1.3.2.iii	WLA cfc = 4.990
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.115	5.1d	LTA_cfc = 2.901

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	

Development of Effluent Limitations

Outfall No.	101 (Internal Monitoring Point at headworks)	**Design Flow (MGD)**	NA
Latitude	40º 47' 31.00"	**Longitude**	-76º 17' 53.00"

Wastewater Description: Raw Sewage Influent

Monitoring Requirement:

Permit Limits and/or Monitoring):

Parameter	Limit (mg/l unless otherwise specified)	SBC	Model/Basis
BOD5 Influent	Report	Monthly average	Monitoring/reporting requirements for POTWs **(Relocated to IMP No. 101)**
TSS Influent	Report	Monthly average	See above.

Comments: Existing Raw Sewage Influent monitoring requirement relocated to this administratively-created IMP. BOD5 reporting only per applicant request.

Communications Log:

3/2/2021: Submittal of NPDES Permit Renewal Application
3/31/2021: DEP (Berger) E-mail regarding incompleteness issues.
3/31/2021: GAMA (Natalie O'Conner, ENTECH) acknowledged receipt of incompleteness e-mail.
4/7/2021: GAMA (Marci Beggs, ENTECH) response to incompleteness e-mail.
4/7/2021: DEP (Berger) E-mail asking for clarification of who is operator with financial control
4/7/2021: GAMA (Don Cuff, ENTECH) response verifying GAMA is operator with financial control.
6/7/2021: DEP Technical Deficiency Letter issued.
7/21/2021: Response to Technical Deficiency Letter received.