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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

WATER QUALITY MANAGEMENT PERMIT

PERMIT NO. 5422401

AMENDMENT NO. _____

APS ID. 1057871

AUTH. ID. 1386853

A. PERMITTEE (Name and Address): CLIENT ID#: **39486** **Shenandoah Municipal Sewer Authority Schuylkill County** **15 W Washington Street Borough Hall** **Shenandoah, PA 17976-1708**	B. PROJECT/FACILITY (Name): **Shenandoah Municipal Sewer Authority WWTP** **(WWTP Upgrade Project)**
C. LOCATION (Municipality, County): **Shenandoah Borough, Schuylkill County**	SITE ID#: **240446**

D. This permit approves the construction and operation of sewage facilities consisting of:

Phase I: Construction of a replacement (2.0 MGD average; 5.83 MGD daily max capacity while achieving full secondary treatment; 8.0 MGD peak instantaneous) WWTP treatment system while operating existing WWTP treatment system. Replacement WWTP Treatment System includes:

- Pump Station No. 1 upgrade including new electromagnetic flow meter (Toshiba LF654/LF620FF or approved equal), new high/low level alarms, and SCADA connection
- One (1) new Influent Manhole with 24-inch pipeline to new headworks (receiving sludge filtrate in addition to interceptor flows)
- One (1) digital rain gauge capable of recording to 0.01" accuracy shall be installed and integrated into the SCADA System.
- Construction of new headworks building including:
  - Influent 24-hour flow proportional-composite/grab sample sampling point upstream of screen/bar bypass gates
  - One (1) new automated screen (Duperon Flexrake FPFS with wash/compaction system or approved equal) able to handle 9.0 MGD peak flow
  - One (1) bypass channel with manually cleaned bar screen (1-inch bar spacing at 45° inclination) able to handle 9.0 MGD peak flow
  - One (1) Grit King, Hydro International Vortex Grit Removal Unit and classifier or approved equal) able to handle 8.0 MGD peak flow
  - One (1) new area velocity influent flow meter (Hach FloDar or approved equal) after grit system
  - 36-inch Ductile Iron Pipe to Influent Pump Station wet well
- Existing Influent Pump Station:
  - Four (4) replacement 1,900 gpm @ 50 ft TDH dry pit submersible pumps (Pentair Model D5434S W or approved equal) with VFDs
  - Influent channel is to be removed and replaced with two (2) 30" DIP pipes that will be fed by gravity from the headworks building
- One (1) new electromagnetic flow meter (Toshiba LF654/LF620F or approved equal) after pump station wet well on force main.
- One (1) new cast-in-place concrete flow splitter box with two downward opening slide gates
- Two (2) new (2.00 MGD design flow; 8.00 MGD peak flow) pre-cast concrete Continuous-flow Sequencing Batch Reactor (CSBRs): Sanitaire ICEAS or approved equal. Chemical feed equipment shall be installed for alkalinity adjustment and phosphorus removal. Provisions are made to ensure a means of completely emptying each basin by utilizing the WAS pumps.
- One (1) new UV/blower building with:
  - One (1) new UV disinfection system (One reactor with three banks) sized for 11.7 MGD flow (CSBR decant flow)
  - Effluent 24-hour flow proportional-composite/grab sample Sampling point after UV disinfection (prior to chlorine contact/utility water tanks).
  - New blowers: 910 scfm at 2,928 rpm and 10.1 psi Gardner-Denver or approved equal:
    - Three (3) CSBR blowers
    - Three (3) Aerobic Digester blowers:
- Chemical Treatment systems for:
  - Polyaluminum Chloride (PAC) for chemical phosphorus reduction and settlement
  - Magnesium Hydroxide for pH adjustment and alkalinity
  - Sodium Carbonate for alkalinity (optional)
- Sludge management:
  - Two (2) new pre-cast concrete Aerobic Digesters (with Sanitaire/Biocycle-D or approved equal) with diffused aeration/mixing system (EnviroMix BioCycle-D or approved equal) able to operate in series or parallel.
  - Existing sludge dewatering Rotary Press with two double-disk positive displacement feed pumps (Penn Valley Pumps, Model 6DDSX76CNU-MK2 or approved equal) and flocculator (Sew Eurodrive Model Model No. FAF37-DT90S4) with polymer addition prior to dewatering.
- Existing Chlorine Contact Tank:
  - Conversion of Chlorine Contact Tank into Utility Water (non-potable) tanks with flow meters and associated pumps (pre-packaged 750 gpm at 70 psi three-pump system (Franklin Electric Model 45VR or approved equal) with one (1) area velocity flow meter located at influent of the Utility Water Supply Pumps.
  - One (1) replacement effluent Ultrasonic Flow meter (Hach or approved equal) replacing existing Outfall No. 001 meter.
- Associated site work including new site SCADA system controlling all process equipment and able to adjust operations for variable wet weather flows, replacement electrical generator, electrical work, all associated piping, grading to maintain previous drainage patterns (as coordinated with the SCCD), modified interim site stormwater/E&S controls during construction, etc. Outfall No. 001 maintenance will incorporate R-8 riprap. Replacement Stormwater Outfall Nos. 018, 019, and 020 will be constructed as needed.

Phase II: Use of new WWTP treatment process with:

- Demolition of existing headworks, existing primary clarifier, two existing aeration tanks, two existing secondary clarifiers, existing sludge thickener, removal of chlorine gas disinfection system, and selective demolition of two existing anaerobic digesters.
- Construction of Post-Construction Stormwater Controls including Bioretention Basin, access road completion, and related.

Pump Stations: **No. 1 and TP Influent**	Manure Storage: **NA**	Sewage Treatment Facility:		
Design Capacity: **1.0** MGD (No. 1)	Volume: _____ MG	Annual Average Flow:	**2.0**	MGD
Design Capacity: **2.0** MGD (TP PS)*	Freeboard: _____ inches	Design Hydraulic Capacity:	**2.0**	MGD
*≥8.0 MGD peak instantaneous		Peak Instantaneous Flow	**8.0**	MGD
		Design Organic Capacity:	**3400**	lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **New Permits:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit application dated **March 7, 2022**, its supporting documentation and addendums dated **May 31, 2022 and March 4, 2024**, which are hereby made a part of this permit.
2. Permit Conditions Relating to Sewerage are attached and made part of this permit.
3. Special Conditions **A through G** are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq*. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED:

March 25, 2024

BY: *Amy M. Bellanca*

Amy M. Bellanca, P.E.
TITLE: Clean Water Program Manager
Northeast Regional Office

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BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Check boxes that apply)

General

☒ 1. The Department of Environmental Protection (DEP) considers the licensed Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.

☒ 2. The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.

☒ 3. The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.

☒ 4. The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.

☒ 5. When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.

☒ 6. The approval of the plans, and the authority granted in this permit, if not specifically extended, shall cease and be null and void 5 years from the issuance date of this permit unless construction or modification of the facilities covered by this permit has begun on or before the fifth anniversary of the permit date.

☒ 7. If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.

8. If, after the issuance of this permit, DEP approves a municipal sewage facilities official plan or an amendment to an official plan under Act 537 (Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended) in which sewage from the herein approved facilities will be treated and disposed of at other planned facilities, the permittee shall, upon notification from the municipality or DEP, provide for the conveyance of its sewage to the planned facilities, abandon use and decommission the herein approved facilities including the proper disposal of solids, and notify DEP accordingly. The permittee shall adhere to schedules in the approved official plan, amendments to the plan, or other agreements between the permittee and municipality. This permit shall then, upon notice from DEP, terminate and become null and void and shall be relinquished to DEP.

☒ 9. This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.

☒ 10. This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to or over any lands which belong to the Commonwealth.

☒ 11. The authority granted by this permit is subject to all effluent requirements, monitoring requirements and other conditions as set forth in the NPDES Permit and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.

Construction

☒ 12. This permit is issued under the authorization of The Clean Streams Law and 25 Pa. Code Chapter 91. The permittee shall obtain all necessary permits, approvals and/or registrations under 25 Pa. Code Chapters 102, 105 and 106 prior to commencing construction of the facilities authorized by this permit, as applicable. The permittee should contact the DEP office that issued this permit if there are any questions concerning the applicability of additional permits.

☒ 13. The facilities shall be constructed under the supervision of a Pennsylvania licensed Professional Engineer in accordance with the approved reports, plans and specifications.

☒ 14. A Pennsylvania licensed Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using the "Post Construction Certification" form (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. As-built drawings, photographs (if available) and a description of all deviations from the application and design plans must be submitted to DEP within 30 days of certification.

☒ 15. Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.

☒ 16. The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.

Operation and Maintenance

☒ 17. The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.

☒ 18. The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.

☒ 19. Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.

☒ 20. The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.

☒ 21. The sewerage facilities shall be properly operated and maintained to perform as designed.

☒ 22. The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.

☒ 23. An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, *et seq*. shall operate the sewage treatment plant.

☒ 24. The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.

☒ 25. There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

☒ 26. All connections to the approved sanitary sewers must be in accordance with the official Act 537 Plan and, if applicable, a corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.

☒ 27. Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments.

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WATER QUALITY MANAGEMENT

POST CONSTRUCTION CERTIFICATION

PERMITTEE IDENTIFIER	
Permittee	Shenandoah Municipal Sewer Authority Schuylkill County
Municipality	Shenandoah Borough
County	Schuylkill
WQM Permit No.	5422401 (WWTP Upgrade and Pump Station No. 1 Upgrade)
Facility Type	Sewage

All of the above information should be taken directly from the Water Quality Management Permit.

CERTIFICATION

This certification must be completed and returned to the permits section of the DEP's regional office issuing the WQM permit within 30 days of completion of the project and received by DEP prior to operation, and if requested, as-built drawings, photographs (if available) and a discussion of any DEP-approved deviations from the design plans during construction.

I, being a Registered Professional Engineer in Pennsylvania, do hereby certify to the best of my knowledge and belief, based upon personal observation and interviews, that the above facility approved under the Water Quality Management Permit has been constructed in accordance with the plans, specifications and modifications approved by DEP.

Construction Completion Date (MM/DD/YYYY): _____

Engineer's Seal

Professional Engineer
Name _____ (Please Print or Type)
Signature
Date
License Expiration Date
Firm or Agency
Telephone
Permittee or Authorized Representative
Name _____ (Please Print or Type)
Signature
Title
Telephone