

**WATER QUALITY MANAGEMENT
PERMIT**

A. PERMITTEE (Name and Address): Lake Winola Municipal Authority Wyoming County PO Box 59 Lake Winola, PA 18625-0059	CLIENT ID#: 43745	B. PROJECT/FACILITY (Name): Lake Winola Municipal Authority WWTP Upgrade
C. LOCATION (Municipality, County): Overfield Township, Wyoming County	SITE ID#: 271040	

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

- Previously Completed and now permitted: Onsite rain gage and tie-in between influent composite sampler & influent flow meter; Replacement Groundwater Monitoring System including MW-3, MW-4, MW-5, and MW-6 installation (with existing/new LDZ/Underdrain monitoring manhole and Potable Water Supply Well monitoring points). Groundwater Monitoring Wells Nos. MW-1 and MW-2 decommissioned.
- Phase 1: {Preparatory site regrading/stormwater controls; Construction of Bypass Valve Box (CS-2); Weir Box #1 (T-1); Ammonia-N treatment SAGR Units (T1-A and T1-B with LDZ monitoring manhole/discharge outfalls); Meter Chamber (MC-1), Intermediate Pump Station (PS-1), Bypass Valve Box/Valve Vault (VC-2, VC-3, and VC-4); Soda Ash/Blower Building (B-2) (including soda ash system and SAGR System blowers); Filter/UV Building (B-3) including copper treatment pressure filters and UV disinfection system; (copper treatment) Clean Backwash Tank with Effluent Meter (T-3); (copper treatment) Dirty Backwash Tank (T-4) with provisions for metal salt and polymer treatment; 10 by 12 foot concrete pad Sludge Truck Loading Pad/Station (ST-1) with drain to Lagoon L-2; replacement Stand-by ≥60 KWH Generator (B-1) with fuel tanks on concrete pad with secondary containment; and all piping, electrical work, and other construction needed to allow for continuous POTW operation during Phases 2 and 3.}
- Phase 2: Lagoon L-2 dewatering with L-1 discharge bypassed to operating SAGR Units, Copper Treatment System, and UV disinfection; sludge removal; existing liner cleaning & inspection for damage indicating potential subgrade contamination; removal/disposal of existing liner/geotextile/subbase; investigation/corrective action for any contaminated subgrade materials where existing liner was damaged or missing (including excavation and replacement as needed); inspection and engineering certification of any LDZ/Underdrain system component to be retained in use; construction of approved liner system including LDZ/Underdrains; installation of cleaned and/or replaced aeration system and floating lagoon baffle; and return to service. Replacement Liner System includes:
 - 60 mil HDPE Geomembrane with conductive layer (Solmax or approved equal) with minimum 0.5% slope to promote lagoon drainage.
 - 8-ounce Polypropylene Geotextile (minimum) underlying the geomembrane liner
 - Leachate Detection Zone (LDZ)/Underdrains:
 - Impoundment Basin Sideslopes: Geotextile adequate to direct liner leakage to Basin bottom LDZ/Underdrains.
 - Impoundment Basin Bottom: 12-inch minimum Leak Detection Zone (0.375 inches maximum particle size, minimum 0.1 cm/sec permeability, minimum 0.5% slope) with LDZ/Underdrain trenches with perforated/non-perforated Schedule 80 PVC pipe to direct drainage to approved Monitoring Manhole and discharge outfall. Underlying Geotextile between LDZ fill and subgrade material.
 - New Lagoon Impoundment LDZ/Underdrain monitoring manholes MM-2 and MM-3 (along with provisions for flow monitoring and sampling); existing combined Lagoon Impoundment LDZ/Underdrain Manhole MM-1 elevation raised to prevent inflow.
 - 6-inch minimum subbase (hard, uniform, smooth and free of debris/rock/plant/foreign materials) with maximum 0.00001 cm/sec permeability, minimum 0.5% slope, and minimum 90% standard proctor density compaction. Bentonite admixture may be used to achieve permeability.
 - The Lagoon Impoundments shall be provided with adequate provisions for annual monitoring of sludge depth (such as liner elevation/location markings or other).
 - A submersible pump and discharge force main will be provided to direct LDZ/Underdrain flow back to the head of the plant until the Department authorizes other discharge in writing.
- Phase 3: Lagoon L-1 dewatering with influent flow bypassed to L-2 and the operating SAGR Units, Copper Treatment System, and UV disinfection; and same construction sequence and minimum liner system requirements as Phase 2. Optional Relief well (with direction of contaminated discharge to lagoon) to eliminate fluid build-up.
- Ammonia Treatment System (Submerged Attached Growth Reactor a.k.a. SAGR System Units T1-A and T1-B): Two (2) OPTAER SAGR ® units (or approved equal) with step-feed piping, gravel bed, and liner system including perimeter walls: ~24,400 gallons each; ~65-feet width by ~50-feet long with ~7.5 feet of aggregate (<1.5-inch washed clean gravel with <1% fines) bed depth with protective cover 7 ounce/square yard polypropylene geotextile/60 mil HDPE conductive geomembrane liner (on wooden-framed support walls and bottom) and supporting geotextile on a hard, smooth minimum 6-inch subbase with 90% compaction and <0.00001 cm/sec permeability at minimum 0.5% slope for engineered leak detection zone/underdrain overlaid by ≥9-inch insulating cover material (peat mulch or other insulating material) with geotextile layer; step feeding provisions; aeration system (with ~67 aeration diffusers) with dedicated blowers. Insulating layer of 9-inches minimum. LDZ/Underdrain is provided with an outlet infiltration chamber (meter monitoring manhole) with PVC discharge line and SAGR unit-specific discharge point. Provisions (piping and space) for potentially required supplemental food source, alkalinity source, and process monitoring points for: Temperature (°F), pH, alkalinity, CBOD5, TSS/turbidity, DO/ORP, Ammonia-N, Nitrate-N, Nitrite-N, and TKN as needed. Liner system consists of:
 - 60 mil HDPE Geomembrane with conductive layer (Solmax or approved equal) with minimum 0.5% slope to promote unit drainage.
 - 8-ounce Polypropylene Geotextile (minimum) underlying the geomembrane liner
 - Leachate Detection Zone (LDZ)/Underdrains:
 - SAGR Unit Sidewalls: Geotextile adequate to direct liner leakage to Basin bottom LDZ/Underdrains. SAGR Unit walls to extend ≥6-inches above surrounding grade and be protected by concrete curbing.
 - SAGR Unit Bottom: 12-inch minimum Leak Detection Zone (0.375 inches maximum particle size, minimum 0.1 cm/sec permeability, minimum 0.5% slope) with LDZ/Underdrain trenches with perforated/non-perforated Schedule 80 PVC pipe to direct drainage to approved Monitoring Manhole and discharge outfall. Underlying Geotextile between LDZ fill and subgrade material.
 - New SAGR Unit monitor manholes MM-4 and MM-5 (along with provisions for flow monitoring and sampling) with discharge points for uncontaminated discharges.
 - 6-inch minimum subbase (hard, uniform, smooth and free of debris/rock/plant/foreign materials) with maximum 0.00001 cm/sec permeability, minimum 0.5% slope, and minimum 90% standard proctor density compaction. Bentonite admixture may be used to achieve permeability.
- Copper Treatment System:
 - Soda Ash System chemical treatment system including: Storage, mixing, and two diaphragm pumps
 - Intermediate Pump Station (PS-1) with three (3) pumps (Pumps P-1, P-2, and P-3): 260 GM at 115 Feet TDH, Flygt NP3153-SH3 (or approved equal)
 - Pressure Filters: Four (4) Yardney Model #MM 33600-4A pressure filters (or approved equal)
 - Clean Backwash Tank with V-Notch Effluent Weir (T-3):
 - Two (2) pumps (Pumps P-4 and P-5) with VFDs: 107 GPD at 73.5 Feet TDH, Flygt Model N80-3950 (or approved equal)

- Effluent sampler location
 - Magmeter B on discharge line to Dirty Backwash Tank
- Dirty Backwash Tank (T-4) with polymer injection:
 - Decant Pumps (Pumps P-6 and P-7): 90 GPM @ 8 Feet TDH, Flygt Model N100-600 (or approved equal)
 - Pipeline to Sludge Truck Loading Pad/Station (ST-1) with 10 by 12 feet concrete pad with drain to Lagoon No. 2
- UV Disinfection System: Six (6) 100 GPM High Intensity UV Reactors, UV Pure – Hallet 1000W or approved equal. No back-up or supplemental chlorine disinfection system is approved.
- Effluent Magnetic Flow Meter tied to SCADA System: Endress+Hauser, ABB, Toshiba, Emerson (or approved equal) with Flow range of 1 FPS to 32.0 FPS, capable of reporting/recording peak instantaneous, peak hourly, and daily maximum flows.
- Emergency Electrical Generator with onsite fuel tanks in secondary containment: 60 KWH or larger sized as needed to supply adequate power to operate the UV disinfection system and other critical systems during extended power outages.
- Miscellaneous: Associated Piping, Manholes, electrical work, building, and SCADA process control system. Removal of Chlorine Contact Tank. Assorted site work.
- **WWTP Design Capacities: No re-rate is approved under this permit.**

Pump Stations: <u>Pump Station 1A*</u> Design Capacity: <u>300</u> GPM *See WQM Permit No. 6618401.	Manure Storage: <u>NA</u> Volume: _____ MG Freeboard: _____ inches	Sewage Treatment Facility: Annual Average Flow (ADF): <u>0.0875</u> MGD Design Hydraulic Capacity: <u>0.0875</u> MGD Design Organic Capacity: <u>243</u> lb/day
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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 **July 7, 2020**, its supporting documentation and addendums dated **August 20, 2020; August 21, 2020; October 14, 2020; October 30, 2020; March 12, 2022; May 12, 2022; October 10, 2022; October 21, 2022; December 6, 2022; and March 22, 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 K** 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:

July 29, 2024

BY:

Amy M. Bellanca

TITLE:

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

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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.

**WATER QUALITY MANAGEMENT
POST CONSTRUCTION CERTIFICATION**

PERMITTEE IDENTIFIER	
Permittee	Lake Winola Municipal Authority Wyoming County
Municipality	Overfield Township
County	Wyoming
WQM Permit No.	<u>6620401 (WWTP Upgrade Project)</u>
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): _____

<p>Engineer' S Seal</p>	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	